

The Economist

Delta's beta: how much worse to come?

Where South Africa goes next

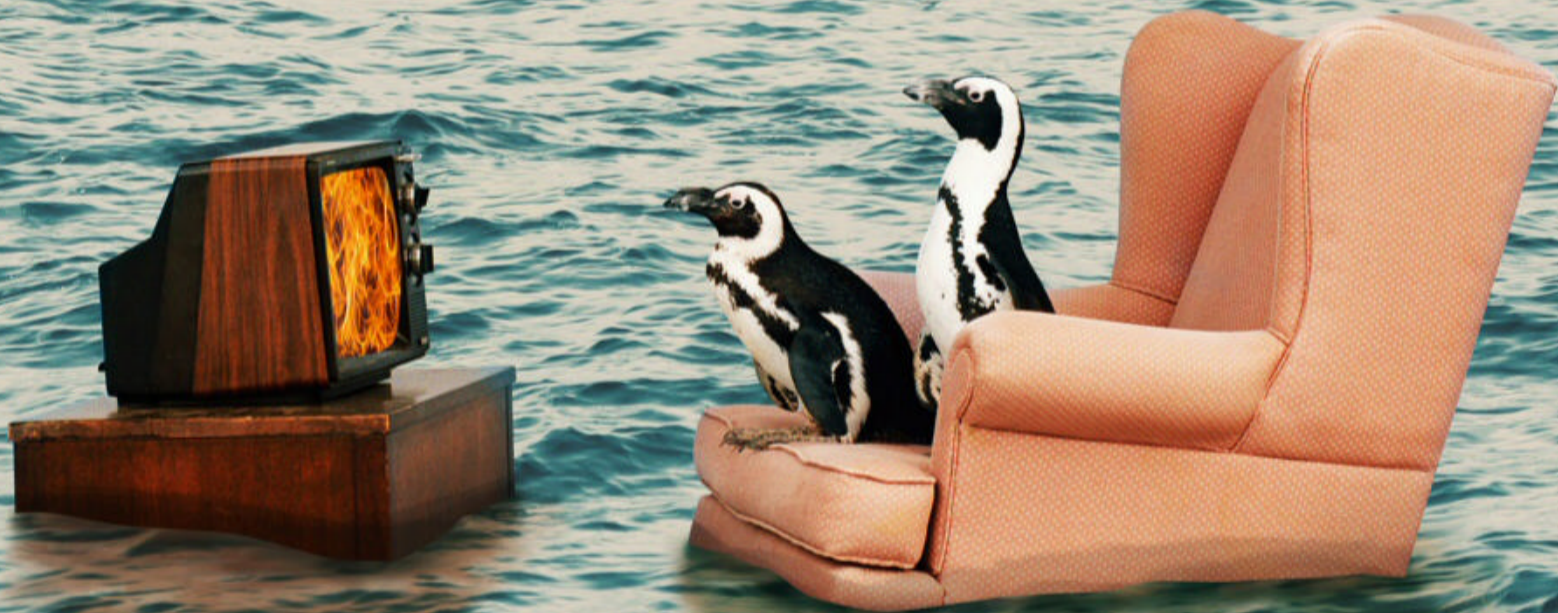
Chinese v American antitrust

The ethics of primate research

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No safe place

The 3°C future






How Electronic Arts builds immersive worlds

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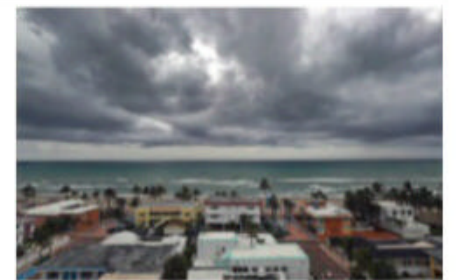


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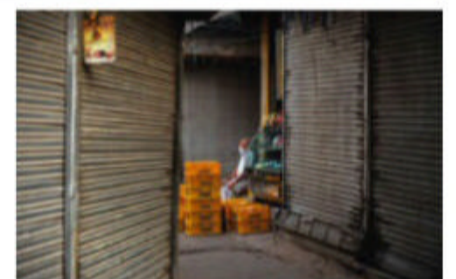
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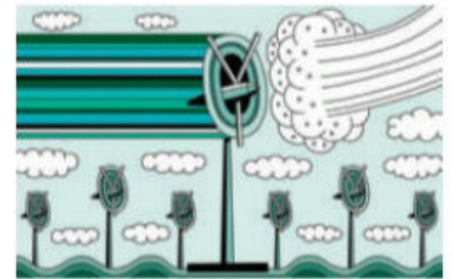
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The Economist

Volume 440 Number 9255

Published since September 1843 to take part in "a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."

Editorial offices in London and also: Amsterdam, Beijing, Berlin, Brussels, Chicago, Dakar, Dallas, Dubai, Johannesburg, Madrid, Mexico City, Moscow, Mumbai, New Delhi, New York, Paris, San Francisco, São Paulo, Seoul, Shanghai, Singapore, Tokyo, Washington DC

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The worst **flooding** to hit Europe since the second world war left at least 200 people dead, with many more still unaccounted for. The bulk of the deaths occurred in Germany, where days of exceptionally heavy rains caused rivers to burst their banks. Belgium saw at least 36 deaths. Germany's complex federal system, with responsibility divided between federal, state and local governments, seems to have been a big part of the problem. Early-warning systems failed.

Flooding caused by torrential rain forced the evacuation of more than 200,000 people in **China's** central province of Henan. In three days a year's worth of rain fell on the city of Zhengzhou, filling underground railway tunnels. Hundreds of commuters who had been trapped on trains in water over their waists were eventually rescued; 12 of them died.

America said its deputy secretary of state, Wendy Sherman, would visit China on July 25th for talks with its foreign minister, Wang Yi. She will be the highest-ranking **American official** to go to China since Joe Biden became president.

Ariel Henry was sworn in as **Haiti's** new prime minister, after Claude Joseph stepped down as interim leader. This came two weeks after the assassination of the president, Jovenel Moïse, who had handed over leadership to Mr Henry just before his death. Mr Joseph returned to his role as foreign minister.

Pedro Castillo was declared president-elect of **Peru**. The electoral authority made the announcement several weeks

after he won the vote in a tight race and after it had assessed allegations of electoral fraud made by his right-wing rival, Keiko Fujimori. She now says she will accept the result.

The **Colombian** government issued a revised proposal for tax reforms three months after its initial plan triggered deadly protests. The new submissions put a larger burden on the private sector.

The death toll from riots in **South Africa** that broke out after the imprisonment of Jacob Zuma, a former president, rose to at least 276. The deployment of soldiers has restored calm. Separately an inquiry recommended that, because of covid-19, local elections that were scheduled for October should be delayed.

An assailant armed with a knife tried to stab Assimi Goita, a coup leader and the interim president of **Mali**. Mr Goita said he was unharmed.

Rebel forces from **Ethiopia's** northern region of Tigray launched attacks into the neighbouring Afar region, widening the country's civil war. Observers believe the rebels are trying to sever Ethiopia's main road and rail connection to the port of Djibouti.

At least 30 people were killed when a bomb exploded at a market in **Baghdad**. Islamic State claimed responsibility. It was the deadliest bombing in the Iraqi capital since January.

Britain's government said it wanted to renegotiate parts of the Brexit deal that apply to **Northern Ireland**. These, in effect, place a customs border in the Irish Sea, hampering the flow of goods from the rest of the United Kingdom.

France and Britain reached a deal to step up patrols in the English Channel to block a surge of **migrants** seeking to reach Britain. The number of migrants crossing this year has already exceeded the total of 8,461 for all of 2020.

June saw another influx of migrants trying to cross the **Mexican border** into the United States. There were almost 189,000 encounters between migrants and the border patrol, up by 80% from June 2019, before the pandemic. It was a record for June, when border crossings normally start to ease off because of the desert heat.

Meanwhile, a federal judge ruled that Barack Obama had exceeded his presidential remit when he created the Deferred Action for Childhood Arrivals, or **Dreamers**, programme for children who were brought to the us illegally. The decision stops new applications to stay from being approved, but does not affect current Dreamer participants.

The head of America's Centres for Disease Control said that the **Delta variant** of covid-19 had spread rapidly, warning that infections were surging among the unvaccinated. The wave of Delta cases has caught many countries off guard, not least **Indonesia**, the new focus of concern in Asia. Hospitalisations there have overwhelmed the health system. Only 8% of Indonesians are fully vaccinated.

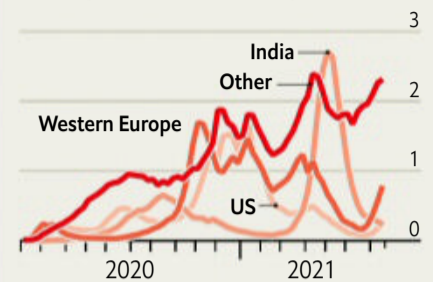
India has suffered some 4m excess deaths since the beginning of the pandemic, around ten times more than official figures show. A government study found that more than two-thirds of Indians had covid-19 antibodies, again suggesting that official figures vastly understate the scale of the pandemic.

The ending of all **covid-19 restrictions** in England (despite surging infections) left many people confused. Wearing a mask is no longer a requirement, but down to "personal responsibility", unless you are told to wear one. In France the government compelled visitors to museums to prove they are free of the disease. Both countries are considering stricter implementation of vaccine passes.

Coronavirus briefs

To 6am GMT Jul 22nd 2021

Weekly confirmed cases by area, m



Vaccination doses

	Total '000	% of over-11s with	
		1st dose	2nd
Malta	728	99	92
Iceland	466	92	87
Mongolia	3,972	87	77
Israel	11,007	86	79
Uruguay	4,568	85	72
Chile	24,764	84	72
Canada	46,016	81	59
Britain	82,593	80	62
Singapore	6,837	79	53
Bhutan	487	78	0

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

A federal judge ruled that **Indiana University** has the right to insist that its students are vaccinated, a precedent that could affect other American colleges.

Canada said it would reopen its border to citizens of the United States from August 9th, but only if they are fully vaccinated. Citizens of other countries will be allowed in a month later.

New South Wales, **Australia's** most populous state, reported its biggest rise in infections for 15 months.

The 2020 **Olympics**, delayed a year by the pandemic, were set to open in Japan on July 23rd. The run-up to the games has been beset by scandals, sexism, jokes about the Holocaust and the worsening covid-19 situation in Tokyo, the host city. They will be less fun than in previous years; spectators are mostly banned and athletes confined to quarters outside events.

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

A report by a group of investigative journalists and Amnesty International claimed that the phone numbers of human-rights activists, journalists and politicians were on a list of 50,000 potential targets of unscrupulous governments for hacking using **Pegasus** software, which is made by NSO, an Israeli spyware firm. Emmanuel Macron, Cyril Ramaphosa and Imran Khan, the leaders of France, South Africa and Pakistan, were reportedly on the list, along with the wife of Jamal Khashoggi, a journalist murdered by agents of the Saudi regime. NSO said the report was based on a misleading interpretation of the data, and that it sold its software only to law-enforcement agencies of “vetted governments” for the prevention of crime and terror acts.

The diplomatic gloves are off

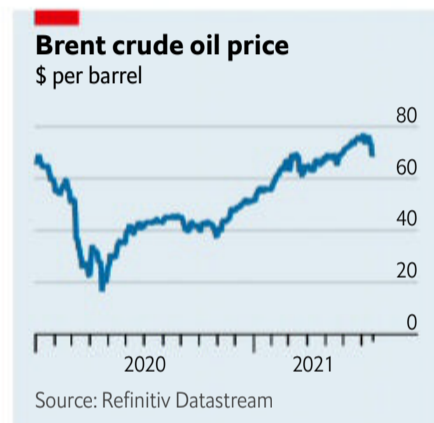
The Biden administration accused the Chinese government of being directly behind the cyber-attack on **Microsoft’s email system** in March, which compromised the communications networks of companies around the world. Using blunt language, Antony Blinken, the secretary of state, said China had “fostered an ecosystem” of cyber-criminals who work for the state as well as personal gain. But he did not announce any sanctions as retribution.

Jonathan Kanter was nominated by Joe Biden to head the Justice Department’s antitrust division. Like Lina Khan at the Federal Trade Commission, Mr Kanter is a critic of Big Tech, founding a law firm that represents smaller rivals to Amazon, Apple, Facebook and Google.

Bill Ackman scrapped a plan to buy 10% of Universal Music through his special-purpose acquisition company. At over \$4bn, it was one of the most complex SPAC deals so far. Mr Ackman will instead acquire the stake through his investment fund, Pershing Square.

America’s **pandemic recession** lasted only two months, between February and April 2020, according to the National Bureau of Economic Research. It was the shortest American recession on record, but also one of the most severe.

Ben & Jerry’s announced that it would stop selling ice cream in Israeli settlements in the occupied Palestinian territories. The settlements are illegal under international law. Israel’s prime minister, Naftali Bennett, warned the firm’s parent company, Unilever, that there would be consequences for the move.



Members of OPEC+, which includes Russia, reached an agreement to increase **oil output**. With the aim of curbing soaring prices, a factor behind recent inflationary pressures, the cartel will start

pumping out more oil next month, and gradually expand production further. The United Arab Emirates threw its support behind the pact when it secured a change to the way its output quota is calculated. News of the deal took some of the heat out of oil prices.

Robinhood filed for an IPO that could see it valued at up to \$35bn. The app-based brokerage came to prominence earlier this year when small investors used it to trade heavily in “meme” stocks.

Netflix gained 1.5m subscribers in the second quarter, far below the 10.1m who joined in the same quarter last year, when lockdowns bit. In North America, where competition for video-streaming services is intense, Netflix lost 400,000 customers. The company is looking at adding games to its platform to boost its user base.

Also looking for post-pandemic sources of growth, **Zoom** struck a deal to buy **Five9** for \$14.7bn. Five9 provides cloud-computing for customer contact centres, work that has been mostly completed from employees’ homes recently.

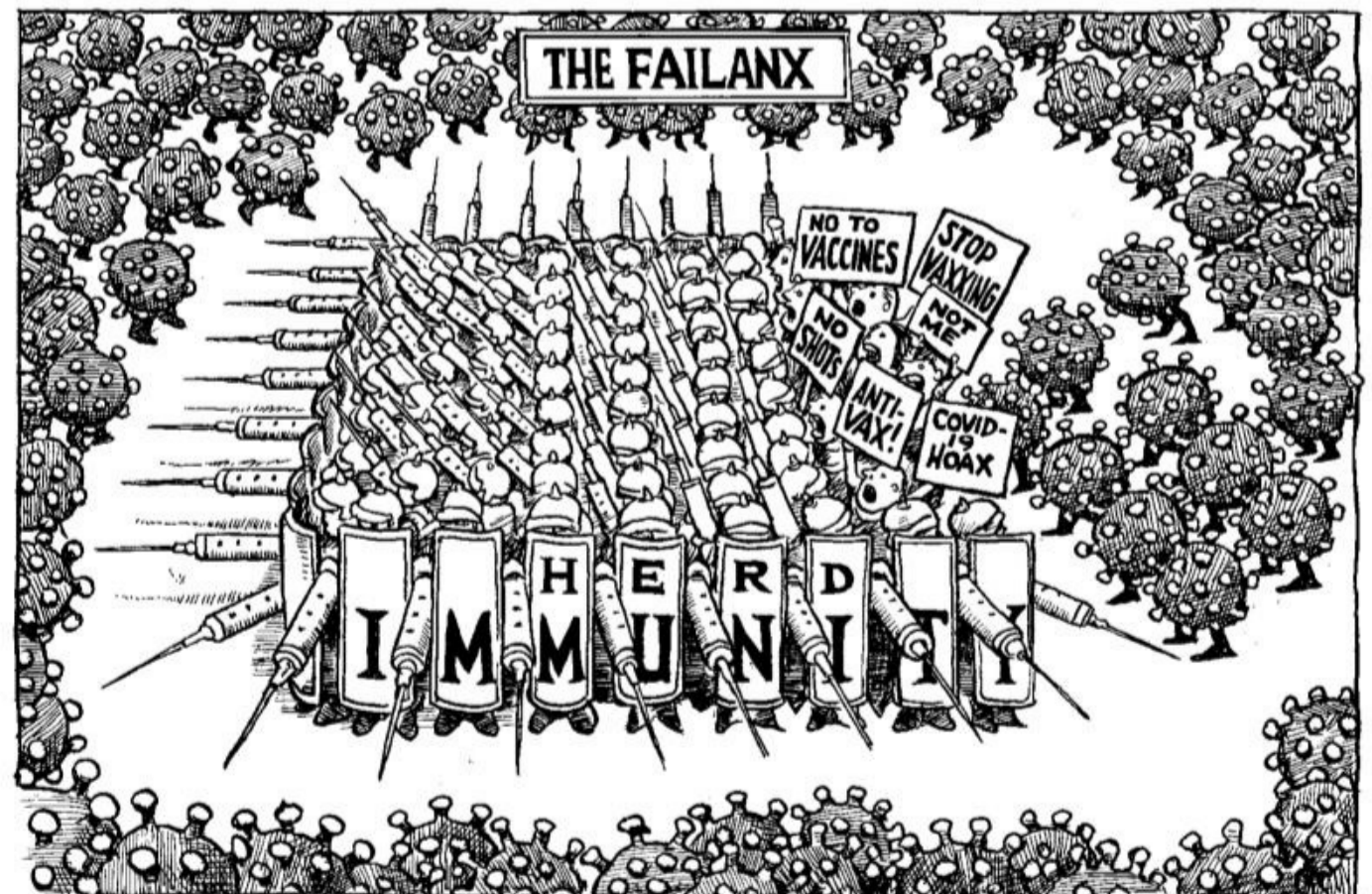
Johnson & Johnson and three drug distributors reached a

\$26bn settlement with representatives of American states and local governments that resolves thousands of lawsuits related to the **opioid crisis**. The \$26bn will be paid out over several years, if all the states involved agree to the deal.

Don’t fly with me

The World Tourism Organisation said that between January and May, international **tourist arrivals** were 85% below 2019 levels, and 65% down on 2020. Strict curbs on international passengers remain in force in many countries. Airlines are pleading with the American government to allow transatlantic travel to re-open fully.

Ticket sales for future passenger trips on a **Blue Origin** craft to the edge of space are nearing \$100m, said Jeff Bezos, after he joined the space-tourism firm’s first crewed flight. Lifted by a reusable rocket, the uncrewed capsule reached an altitude of 107km (66 miles) before descending to a soft landing in west Texas. Mr Bezos believes ventures like his will eventually help solve climate change by moving polluting industries into space. Critics contend they are nothing more than vanity pursuits for the super-rich.





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No safe place

The extremes of flood and fire are not going away, but adaptation can lessen their impact

IN 1745, AS the river Liffey, having broken its banks, clawed at the foundations of the house in which he sat, the young Edmund Burke experienced a strange, perverse thrill. The man who would go on to found modern conservatism drew inspiration from this experience in a later essay on the sublime, writing of the unmatched delight that terrible destruction could stir—provided that it is watched from a certain distance.

The most terrible thing about the spectacular scenes of destruction that have played out around the world over the past weeks is that there is no safe place from which to observe them. The ground under the German town of Erftstadt is torn apart like tissue paper by flood waters; Lytton in British Columbia is burned from the map just a day after setting a freakishly high temperature record; cars float like dead fish through the streets-turned-canals in the Chinese city of Zhengzhou. All the world feels at risk, and most of it is.

Greenhouse-gas emissions have produced a planet more than 1°C (1.8°F) warmer than it was in Burke's pre-industrial days. Its atmosphere, stoked up and out of joint, is producing heavy weather in ways both predicted and surprising. And, with emissions continuing, it will get worse.

Unfortunately, 2021 will probably be one of the 21st century's coolest years. If temperatures rise by 3°C above pre-industrial levels in the coming decades—as they might even if everyone manages to honour today's firm pledges—large parts of the tropics risk becoming too hot for outdoor work (see Briefing). Coral reefs and the livelihoods that depend on them will vanish and the Amazon rainforest will become a ghost of itself. Severe harvest failures will be commonplace. Ice sheets in Antarctica and Greenland will shrink past the point of no return, promising sea rises measured not in millimetres, as today's are, but in metres.

Six years ago, in Paris, the countries of the world committed themselves to avoiding the worst of that nightmare by eliminating net greenhouse-gas emissions quickly enough to hold the temperature rise below 2°C. Their progress towards that end remains woefully inadequate. Yet even if their efforts increased dramatically enough to meet the 2°C goal, it would not stop forests from burning today; prairies would still dry out tomorrow, rivers break their banks and mountain glaciers disappear.

Cutting emissions is thus not enough. The world also urgently needs to invest in adapting to the changing climate. The good news is that adaptation makes political sense. People can clearly see the need for it. When a country invests in flood defences it benefits its own citizens above all others—there is no free-rider problem, as there could be for emissions reduction. Nor does all the money come from the public purse; companies and private individuals can see the need for adaptation and act on it. When they do not do so, insurance companies can open their eyes to the risks they are running.

Some adaptation is fairly easily set in place. Systems for warning Germans of coming floods will surely now improve (see Europe section). But other problems require much larger public

investment, like that which has been put into water-management in the Netherlands. Rich countries can afford such things. Poor countries and poor people need help, which is why the Paris climate agreement calls for annual transfers of \$100bn from rich to poor.

The rich countries have not yet lived up to their side of this. On July 20th John Kerry, President Joe Biden's special envoy on climate change, reiterated America's pledge to triple its support to \$1.5bn for adaptation in poorer countries by 2024, part of a broader move to increase investment in adaptation and mitigation in developing countries. More such efforts are vital.

But they also have limits. Making do with less water may be possible; getting by on none is not. Some levels of temperature and humidity make outdoors activity impossible. There comes one flood too many, after which you abandon the land. When the reef is gone, it is gone.

If the Paris goal of keeping the rise below 2°C is met, the full extent of those limits will not be tested. But emission-cutting zeal may not accelerate as required. And the climate system could prove more sensitive than it has shown itself to be to date, as some scientists believe possible, producing more warming per tonne of carbon in the atmosphere.

Hence it is also prudent to study the most spectacular, and scary, form of adaptation: solar geoengineering. This seeks to make clouds or particle layers in the atmosphere a bit more mirror-like, reflecting away some sunlight. It cannot provide a straightforward equal and opposite response to greenhouse-gas warming; it will tend, for example, to reduce precipitation somewhat more than temperature, potentially changing rainfall patterns. But research over the past 15 years has



suggested that solar geoengineering might significantly reduce some of the harms from greenhouse warming.

What nobody yet knows is how such schemes could be developed so as to reflect not just the interests of their instigators, but also those of all the countries they will affect. Different countries might seek different amounts of cooling; some ways of putting solar geoengineering into effect would help some regions while harming others. Nor is there yet a compelling rejoinder to the risk that the very idea of such things tomorrow reduces the incentive to be ambitious in cutting emissions today.

When good men do nothing

To think about solar geoengineering requires facing those problems—and the risk that powers with little interest in them may try out such schemes regardless. It also means facing squarely what kind of being humankind has become. Watching the rising waters of the Liffey, Burke “considered how little man is, yet in his mind how great...Master of all things, yet scarce can command anything.” Manipulating the climate that humanity has destabilised—unwittingly, at first—spurs similar thoughts of simultaneous power and impotence. It is not nature that humans cannot command, but themselves, in all their insignificance and world-altering might. ■

The growth scare

Delta's beta

The Delta variant is the biggest of several risks to America's economy

IT WAS INEVITABLE that global economic growth would slow from the breakneck pace set as economies recovered from the pandemic. Lately, investors have begun to worry about something worse: that America's economy, which has led the rich-world rebound, could decelerate sharply. As well as supply bottlenecks and the withdrawal of economic stimulus, the country, like many others, now faces the ultra-infectious Delta variant. A painful slowdown remains unlikely. But the renewed spread of the virus is the biggest of those three dangers.

To see how the latest rich-world coronavirus waves are likely to develop, consider that on July 20th America reported a seven-day moving average of 112 new cases for every million people. That is roughly where Britain, with a higher rate of vaccination, more restrictions and deadlier past outbreaks, was in mid-June before Delta got going. Britain now has 699 cases per million, the fifth-highest rate in the world. If all else is equal, Delta spreads two or three times as quickly as the original strain of the virus.

Thankfully, vaccines prevent almost all severe cases of disease and treatments have improved, saving more lives among those who are infected. That is why England lifted almost all restrictions on July 19th (see Britain section). But vaccines still let many symptomatic infections through the net: 12-21% of them for the Pfizer jabs America has used most. Delta is so infectious that countries will struggle to vaccinate their way to the threshold of herd immunity that stops the spread of the disease, even after successful campaigns. Given that 44% of Americans of all ages have not had a single dose, cases in the United States are likely to rocket upwards. States like Mississippi and Louisiana, where about three in five people are entirely unvaccinated, risk being struck by sudden and severe outbreaks.

The economic consequences of this will depend on how policymakers and consumers react. So far Los Angeles has

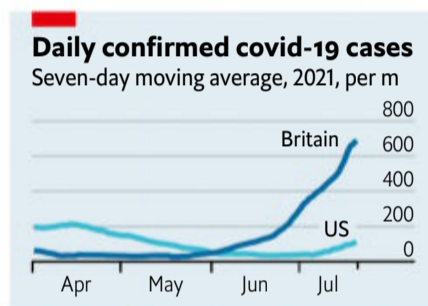
brought back its mask mandate and New Orleans says it is studying new restrictions. Even if vaccines allow policymakers to avoid the return to strict measures, consumers may be too anxious to visit bars and restaurants. In Britain measures of mobility are down only slightly since June, but the experiment is still new. Exponential growth means that things can change fast.

The risk from Delta is more troubling than the other issues facing America's recovery; that supply will struggle to match demand and stimulus is due to be removed. So long as the economy stays open, it can ride these bumps (see Finance section).

Shortages, most notably of microchips and space on container ships, have raised consumer-price inflation to 5.4%. Real wages have fallen over the past year as rising prices have eaten into workers' purchasing power, and there are signs that inflation is beginning to trouble consumers. But during the pandemic households have built up \$2.5trn of extra savings, equivalent to 12% of GDP in 2019. In June a record-high number of Americans told Gallup, a pollster, that they themselves were thriving financially. It may be hard to lay your hands on a decently priced car, but so long as Americans venture out of their homes, the service sector can power the economy.

The withdrawal of some forms of stimulus may even help. Service industries are short of workers. The end of enhanced unemployment benefits, which will become universal at the end of September, might bring some of them back into the job market. Other policy cliff-edges, such as the cancellation of moratoriums on evictions at the end of July, are a source of uncertainty (see United States section). But any pain there is more likely to be concentrated than widespread, because the housing market is booming and job vacancies are plentiful.

For the economic recovery to continue, people must be willing to mix with others. Yet, in America and across the world, that is precisely what the Delta variant puts in jeopardy. ■



Saving South Africa

End of the road for ANCnomics

Two decades of corruption and misgovernment are the real cause of the crisis

THE FLAMES of burning warehouses, shops and factories have at last been doused. In front of shattered malls, local residents wearing luminous yellow or orange vests stand watch like an army of school-crossing wardens. Crowds of volunteers—white and black, young and old, sometimes singing together—sweep up the broken glass and ashes after the week of riots instigated by allies of the tainted former president, Jacob Zuma, in a vain effort to reverse his recent jailing for defying the Constitutional Court. In the clean-up, the optimism and generosity of spirit of the rainbow nation re-emerged, a reminder of the miracle that enabled a liberal democracy to be born, against the

odds, 27 years ago, after the brutality of apartheid.

Make no mistake, though. The riots were nothing less than a violent attempt by a pro-corruption faction within the ruling African National Congress (ANC) to overthrow the democratic order. And the fires sparked by Mr Zuma's allies took flame so fiercely because of the anger generated by more than two decades of misgovernment and graft. This has been largely to blame for one of the world's highest unemployment rates, which stems from a growth-sapping mix of crony capitalism, fossilised state-owned industries and laws that discourage businesses from hiring new workers. ▶▶

▶ Start with crony capitalism, which in South Africa goes by the euphemism “black economic empowerment”. The idea behind it seemed laudable enough—to right a historical wrong. Under apartheid the country produced white titans of industry such as the Oppenheimer family (owners of DeBeers), while making it hard for black South Africans to own businesses. The ANC felt it only fair that there should be black billionaires, too. To give them a leg-up it insisted that mining companies should hand at least 26% of their shares to the “historically disadvantaged”. Mining companies (as well as banks and insurers) did so willingly, diluting existing shareholdings when they transferred stakes to the likes of Cyril Ramaphosa, now the president, along with Patrice Motsepe, his brother-in-law, and Bridgette Radebe, his sister-in-law.

If these handouts had been a one-off tax, their harm would by now have been forgotten. But once the new black shareholders had sold their holdings, the government drafted regulations to repeat the process. And so capital investment in mines fell by 45% between 2010 and 2018, with output falling by 10% and employment by 50,000—a tenth of direct employment in the industry in 2010.

The ANC has magnified this harm by insisting that the state keeps control of some 700 companies including Eskom, the electricity monopoly, and Transnet, which runs all the ports and railways. Mismanagement, corruption and a lack of investment have made them drags on growth. Some economists reckon that South Africa’s exports could have been 50% higher during the commodity boom that peaked in 2008 if its mines, railways and ports had run smoothly and had obtained the electricity they needed. Mr Ramaphosa initially sought to clean out corrupt



managers. It was a start, but will do nothing to provide the competition needed to make these firms improve.

Perhaps most pernicious have been laws that discourage firms from hiring, by making them jump through hoops when taking on staff, and even higher hoops when trying to sack them. The government has also actively destroyed many thousands of jobs. Since 2009 it has forced hundreds of small clothing firms employing tens of thousands of workers to close, because they did not pay wages as high as those agreed to in a deal between unions and big factories. The government fails to keep the lights on. Yet it blithely puts people out of work.

Little wonder that the number of unemployed (including those who have given up seeking jobs) rose from 5.4m to 9.2m in the ten years to 2019. Almost the only group of people who have prospered because of ANCnomics, apart from billionaires, are those working for the state: their pay went up by about two-thirds in real terms between 2007 and 2019.

Since the riots, NGOs and trade unions have called for a basic income grant to reduce poverty. Mr Ramaphosa says he is looking at these proposals. But the state already pays welfare to 31% of the population, making it the second-largest budget item after education. Mismanaged South Africa cannot afford so vast an expansion of support.

In power, Mr Ramaphosa has made a start by acting against the crooks in his party and government. But if he is to save his country he cannot just throw out the ANC’s bad apples. He must throw out its bad economics too—and change the system that made him and his family rich. If he fails to do that, the country must throw out his party. ■

Tax in America

Internal affairs

Fund the IRS properly. But also make taxes simpler

THE LATE Donald Rumsfeld once sent a letter to the Internal Revenue Service (IRS) to accompany his tax filing. “The tax code is so complex and the forms are so complicated”, he wrote, “that I know that I cannot have any confidence that I know what is being requested and therefore I cannot and do not know, and I suspect a great many Americans cannot know, whether or not their tax returns are accurate.” This is probably the least controversial statement that George W. Bush’s secretary of defence ever made. Yet despite the widely shared terror of the federal tax-collection agency, Democrats in the Senate are proposing to increase its budget. Is this wise?

The political logic for doing so is clear. To make the arithmetic of a big spending bill just about add up, Democratic senators reckon that some of the required revenue can be found through more energetic enforcement of the tax code. Increasing tax revenue without imposing any new tax increases sounds too good to be true. But the Congressional Budget Office is game, estimating that an extra \$20bn spent on enforcement over ten years would bring in \$61bn, and that \$40bn over the same period would yield \$103bn, without any changes to the tax code.

For anyone who has ever filled out an American tax return, the prospect of beefing up the tax-collection agency certainly

sounds alarming. For Republicans, some of whom also suspect it of being a tool exquisitely designed to harass conservatives, it is especially sinister. Yet the answer to the maddening complexity of the tax code cannot be to load more and more responsibility onto the IRS while simultaneously cutting its budget. And that is what has been happening.

Since 2010 the IRS’s budget has fallen by 20% in real terms. Meanwhile the tax code has become still more complicated. And in addition to the task of trying to work out who has, and who has not, followed this lengthening set of rules, the agency is also being asked to make decisions over questions such as which organisations deserve non-profit status (and therefore tax breaks), as well as to play a role in the administration of an expanded array of tax credits.

One result has been a decline in the enforcement of tax laws. The share of individual tax returns that the IRS examined fell by almost half in 2010-18; the share of corporate tax returns it scrutinised fell by close to 40%. For those who take a Rumsfeldian view of tax, that sounds like something to cheer. It is not. Conservatives are usually keen on seeing laws enforced consistently. When it comes to tax, though, the combination of unfathomable rules and an overstretched agency means that compliance ▶▶

► is encouraged through semi-random acts of menace. Low-income Americans who rely on tax credits are, if anything, more likely to be subjected to audits than wealthy ones.

The decline in enforcement is also an invitation to rule-bending. A probe by Manhattan's district attorney has thus far revealed that the Trump Organisation paid for the private-school fees, cars and apartments of loyal employees, which had the effect of reducing their individual tax bills. It is not clear how widespread these sorts of practices are, nor even whether they actually break tax law. But for Americans with less rococo tax arrangements, such schemes reinforce a notion that undermines the general support for capitalism: that the rich do not just have

more money but are also subject to less onerous rules.

The argument over increased funding for tax collection has become a proxy for a fight over whether taxes should be higher or lower. This is mistaken. Even those who favour lower taxes should want the system to be properly administered. Increasing funding for the IRS therefore makes sense. But Congress should also separate the task of deciding which organisation deserves what tax status from the processing and auditing of tax returns and tax credits. And, most important, the tax code itself needs a radical simplification, so that a former defence secretary and CEO of a pharmaceutical firm can file a return without having to resort to epistemological disclaimers. ■

Scientific ethics

Brainstorming

Liberal democracies should not cede ethically troubling neuroscience to China

THE HUMAN brain may be the most complex object on Earth. It contains 85bn nerve cells and trillions of interconnections. As these cells process information, people experience consciousness and thought. The brain is made even more mysterious by the fact it is scrutable only when alive. To truly understand brains means examining them while they are functioning inside the body.

Few humans in their right mind would volunteer to plug today's instruments and sensors into their living brains. Doing so often involves having someone drill into your skull, with the risk of infection or brain damage. And so neuroscientists seeking to understand human brains turn to humanity's nearest animal relatives, primates.

This is controversial. Monkeys' usefulness as a model for human neurology also raises the stakes of conducting experiments upon them: the better their brains serve as analogues for human ones, the more it follows that they probably suffer analogously, too. Animal-rights activists rightly point out that monkeys cannot consent to such treatment. It is unlikely they would acquiesce were they able to do so.

The controversy has had an uneven impact round the world. In Europe and America, under pressure from animal-rights groups, the amount of neuroscience research carried out on monkeys is flat or declining. Both places have or are considering laws requiring an end to their use. But as we explain this week, neuroscience research on monkeys is booming in China and Japan (see International section).

America and Europe should narrow this gap. Allowing China to forge ahead in brain science without mounting a comparable programme of research would be strategically foolish. A Chinese neuroscience laboratory in Shanghai has already attracted one of Germany's leading researchers and his laboratory. As he and his colleagues work out new ways to gain access to and manipulate the brain, China will be the first to enjoy the fruits of that effort. To avoid depending on China for access to such knowledge, America and Europe need to take action now.

More knowledge of the brain is not always a force for good. Given the Chinese state's official policy of military-civil fusion, there is probably little that can be done to stop the Chinese Com-

munist Party obtaining the capability to build neuro-weapons on the basis of its brain-research programmes, should they bear fruit. But liberal societies should at least keep track of what is possible, and how it works, through research programmes under their own control.

And were laboratories in China and Japan to come up with treatments for neurological diseases such as Alzheimer's as a result of their studies of monkeys' brains, it would be near impossible for Western countries to refuse to buy them to treat their citizens. Leaving others to do the dirty work of generating knowledge using means you consider to be unethical, while at the same time encouraging it by adding to demand is not taking the moral high ground. It is hypocrisy. Better for Western countries to carry out the necessary but troubling research themselves, working to the standards they deem necessary.

Taking responsibility for the suffering they cause starts with maintaining America's and Europe's high-quality primate research. Keeping up with China's expansion also makes sense. Neuroscientists should be braver in publicly defending their work. Governments must protect their ability to carry out legal research.

Some experiments on monkeys can be avoided by using computer simulations or by growing brain cells in Petri dishes. But the brain

is so poorly understood at present that probing living ones will remain essential for some time. A radical alternative to the use of monkeys in neuroscience would be to rely instead on consenting humans. After all, people already join biomedical studies and they readily don non-invasive brain-scanning hardware.

Grey areas

Getting sensors inside the skull, next to human neurons, is still difficult. However, the tools used to probe brains are becoming smaller and less invasive. One day they may resemble an injectable, connected silicon dust more than an implantable electronic device. Such instruments would make the prospect of gaining informed consent from human subjects less daunting. But to get to that point, humans will have to rely on monkeys for some time. People do not yet understand their brains well enough to study themselves safely. ■






UNITED NATIONS UNIVERSITY

RECTOR (UNDER-SECRETARY-GENERAL)
Tokyo, Japan

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No more lockdowns

I am dismayed that people who oppose lockdown measures have been consistently portrayed as crackpots motivated by conspiracy theories (“Opposites attract”, July 3rd). Each week your pages are filled with evidence of the disastrous impacts of lockdowns and the economic crises that they have created: from extreme poverty, to the strengthening of dictators, to the widening waistlines of a quarter of the population (“The attention recession”, July 3rd).

Many of us have watched our children disconnect from school, activities and friends. They gained weight like the rest of us, putting them at risk of health problems. They lost interest in sports and other budding interests. More importantly, they lost faith in the future and the worth of investing effort in things that will be perpetually cancelled.

I have gone to anti-lockdown protests and I don't think I am a crackpot. Sure, there are some vocal people from the fringes at these demonstrations, but I and many others have never been tempted by conspiracy theories. We are just normal people who are very concerned about the many negative impacts of stopping people from living a regular life.

ANDREW LEWIS
Paris

You say that the pandemic has been a catastrophe for schoolchildren. Would it not be more accurate to say that humanity's reaction to covid-19 has been a catastrophe for schoolchildren? The disease itself has largely passed them by.

SEAN MOORHOUSE
Geneva

More evidence for the defence

Your review of Anne Sebba's new book mentioned that much has been written on the execution of Julius and Ethel Rosenberg for spying for the Soviet Union (“Sinned against and sinning”, June 26th). Ms Sebba refers to E.L. Doctorow's

novel “The Book of Daniel”. Published in 1971 and hitherto somewhat forgotten, the book's narrator reflects on the execution of his parents, sentenced to death for spying for the Soviets. Their last name is Isaacson, but the reference to the Rosenberg situation is obvious.

Daniel looks for the answers a son is bound to look for when he understands that his mother has put her principles above her motherhood, thus making him an orphan. Doctorow tentatively put forward the same view found in Ms Sebba's work, that Julius was a spy, but Ethel's role was more ambiguous. This was confirmed in 1995 by the release of decrypted messages from the Venona counter-intelligence programme. For a book written in 1971, it was an uncanny foresight.

JUR SCHUURMAN
Brussels

Ethical PR

Bartleby, while limiting a view of public relations to the minor activity of press relations, describes in-house PR managers as falling into three types: the noisy interventionist, the overly discreet and the rather useful (July 3rd). As with all managers there will be some who are better than others. The aim for employing an in-house PR manager is to build interests and relationships between the organisation and the public. How you do this in a world imperilled with disinformation is important. As outlined in our 60-year-old code of conduct and definition of PR, that means through “trusted and ethical communication”. Perhaps the fourth type of in-house PR manager is the eminently trusted.

PHILIP SHEPPARD
Secretary-general
International Public Relations
Association
London

PR people are soft targets and Bartleby neatly skewered them. Yet I couldn't help but reflect on a quote often attributed to Bill Gates: “If I was

down to my last dollar, I would spend it on PR.” I don't suppose he ever was, but if that reflected his approach things didn't turn out too badly.

SIMON TIMM
London

An evolving discipline

You are to be thanked for vindicating the careers of evolutionary and institutional economists who have spent their lives seeking to explain real-world behaviour and economic outcomes (Free exchange, June 26th). Some examples of that insightful literature include the notion that fluctuations in share prices are the result of speculative instincts rather than fundamental investing; higher education is more about selling a curriculum by captains of erudition rather than intellectual development; and elections are determined by the “common man”, who votes for governments that support the interests of big business.

J. PATRICK RAINES
Professor of economics
emeritus
Belmont University
Nashville

The column's brief reference to Milton Friedman did him an injustice. For there is, in his “The Methodology of Positive Economics”, an evolutionary argument about leaves on a tree, presented in defence of the “as if” approach that you mentioned and the idea of profit maximisation. Evolutionary approaches in economics are indeed suggestive. But the general direction in which they might lead us is less than clear-cut.

JEREMY SHEARMUR
Dumfries

Marine riches

Farming seaweed is far from being a young business (“Kelp wanted”, June 26th). C.P. Kelco started in 1929 in San Diego, where 25,000 tons of giant kelp forest were harvested a year close to shore. Processing plants for this valuable industrial and food resource range

from Brazil to the Philippines, from Denmark to China. The business faces many challenges, however, as witnessed off Tasmania's coast, including warmer waters and pollution run-off that are compounding the natural threat cycles from sea urchins. The concept of sustainable farming, much less profitability, must be addressed by anyone interested in harvesting this “new” ocean bounty.

TIM FORESMAN
Former chief scientist of the
UN Environment Programme
Elkridge, Maryland

Converting language

I read Johnson's column on the travails of being a translator (June 19th). I have been an interpreter (simultaneous, consecutive and whispering) for 60 years, and I can recall one occasion when I was given my due. At a meeting where an Israeli rabbi and the mufti of Rabat addressed an audience I was asked to interpret into French and English. Although this proved difficult, it went well. The rabbi thanked me in Hebrew, adding that surely I had had no problem being a Jew myself. Then the mufti approached me, assuring me that he thoroughly appreciated my co-operation, but was not really surprised since evidently I was a Muslim. Utopia?

ANNELIES GLANDER

Vienna

To boldly go

When I was a boy my heroes included Neil Armstrong, John Glenn and Alan Shepard. My grandson has to make do with Jeff Bezos, Richard Branson and Elon Musk (“The finite frontier”, July 19th). Apparently the right stuff has been replaced with the rich stuff.

HENRY GRANGER
Spring Lake, Michigan

Letters are welcome and should be addressed to the Editor at The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N 6HT
Email: letters@economist.com
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Burning down the house

Even if greenhouse-gas emissions are slashed, there is still a chance of crashing through the Paris agreement's climate targets. What would that look like?

BY THE STANDARDS of the 21st century as a whole, 2021 will almost certainly go down as a comparatively cool year. By the standards of the rest of human history its weather looks disconcertingly like hell.

On July 20th, as Belgium, Germany, the Netherlands and Switzerland were still coming to terms with the fact that a stationary system of storms had turned entire towns into rivers and shredded the surrounding countryside, hundreds of thousands of people in the Chinese province of Henan were evacuated in the face of floods of their own; the city of Zhengzhou saw a year's worth of rain in three days.

Also on July 20th Cizre, in Turkey, saw a temperature of 49.1°C (120°F), the highest ever recorded in the country. There has been barely any respite from searingly hot conditions along the northern Pacific coast of North America since the region was hit by an unprecedented heatwave two weeks ago, and already the region is bracing for another. Other places at high latitudes have been seeing similar—if less destructive—anomalies. In the first half of the month Finland experienced its longest

heatwave for at least 60 years, with temperatures rising to the low 30°Cs in Lapland. On July 14th the country tossed and turned through its hottest night ever: two weather stations recorded temperatures no lower than 24.2°C.

On July 11th, a National Weather Service thermometer at Furnace Creek in Death Valley recorded a temperature of 54°C. If confirmed by the World Meteorological Organisation (WMO), that would tie a reading taken at the same location last year for the hottest formally recognised daytime temperature ever. On July 19th more than 40% of the Greenland ice cap had meltwater on it. The amount of sea-ice cover in the Arctic was as low as it was at the same point in 2012, which saw the lowest summer sea ice ever recorded.

This is what Earth looks like when, according to the latest data from the WMO, it is 1.1-1.3°C warmer than it was before the steam engine was invented. The Paris agreement of 2015 created a compact to limit global warming to “well below 2°C” above the pre-industrial, ideally seeing it rise no more than 1.5°C.

That more stringent target was demanded by, among others, small-island states which see the amount of sea-level rise inherent in two degrees of warming as an existential threat. A huge subsequent report by the Intergovernmental Panel on Climate Change found that the difference between the two targets, even if it was just 10cm of additional sea-level rise by 2100, would wipe away the livelihoods of millions. Compared with 1.5°C of warming, 2°C would also expose an additional 420m people to record heat. And it would devastate Arctic ice cover.

Those Paris targets were, and remain, both prudent and incredibly ambitious. Right after the conference Climate Action Tracker (CAT), an NGO, set itself the task of totting up all the emission-reduction goals and other policies, like fuel-efficiency standards for cars and trucks and renewable-energy targets, that the various nations had made. To gauge the aggregate impact of those measures, CAT calculated the atmospheric concentrations of carbon dioxide they looked likely to produce and then used the results of climate models to see what those concentrations might mean in terms of warming. Their results showed the world was on track to be 2.7°C hotter than the pre-industrial baseline by 2100.

The people who negotiated the Paris agreement were fully aware of this contradiction. They expected, or hoped, that countries would make new and more ambitious pledges as technology progressed, as confidence that they were all really on ▶▶

board built up and as international co-ordination improved. There is evidence that this is happening. Revised pledges formally submitted to the UN over the past 12 months in the run-up to the COP26 conference to be held in November have knocked CAT's estimate down a bit. If all government promises and targets are met, warming could be kept down to 2.4°C. Including targets that have been publicly announced but not yet formally entered into the Paris agreement's ledgers, such as America's net-zero-by-2050 pledge and China's promise to be carbon-neutral by 2060, brings the number down to a tantalising 2.0°C.

That sounds promising. But the figure comes with a very big caveat and with large uncertainties.

The caveat is that this estimate includes policies announced but not enacted. A world which follows the policies that are actually in place right now would end up at 2.9°C, according to CAT (the UN Environment Programme, which tracks the gap between actual emissions and those that would deliver Paris, provides a somewhat higher estimate). Almost everyone expects or hopes that policies will tighten up at least somewhat. But any reasonable assessment of the future has to look at what may happen if they do not.

As to the uncertainties, they are many and various. Translating political statements into gigatonnes of carbon dioxide is hardly an exact science. Just as no one knows whether countries will choose to stand by the policies they have mooted, nor can they be sure that those policies will deliver the reductions claimed. And although there is no doubt that greenhouse gases influence climate and are driving the rising temperatures seen around the world, difficulties in untangling various feedback loops and complex countervailing effects mean that there remains considerable uncertainty about how much further climate change a given amount of greenhouse gas brings about.

This uncertainty gives the probabilistic estimates made by CAT, and other groups,

large error bars. The calculations of peak warming if existing targets are met and promises kept give a 68% chance of a peak temperature between 1.9°C and 3.0°C (see chart 1). In the America-at-net-zero-by-2050 scenario the 68% probability range runs from 1.6°C to 2.6°C. This fits with modelling from elsewhere. According to calculations by Joeri Rogelj and his colleagues at Imperial College London, even emissions scenarios which provide a two-in-three chance of staying below 2.0°C also include a small chance of 2.5-3.0°C of warming: less than one-in-ten, but possibly more than one-in-20.

Hold tight

A 3°C world is thus both a pretty likely outcome if nothing more gets done and the worst that might still happen even if things go very well indeed. That makes it worth looking at in some detail, and the result is alarming. Those modelling climate impacts have long argued that they do not increase linearly. The further you go from the pre-industrial, the steeper the rate at which damages climb. And as what was rare becomes common the never-before-seen comes knocking (see chart 2). Judging by the results of specific studies, the differences between 2°C and 3°C are, in most respects, far starker than those between 1.5°C and 2°C.

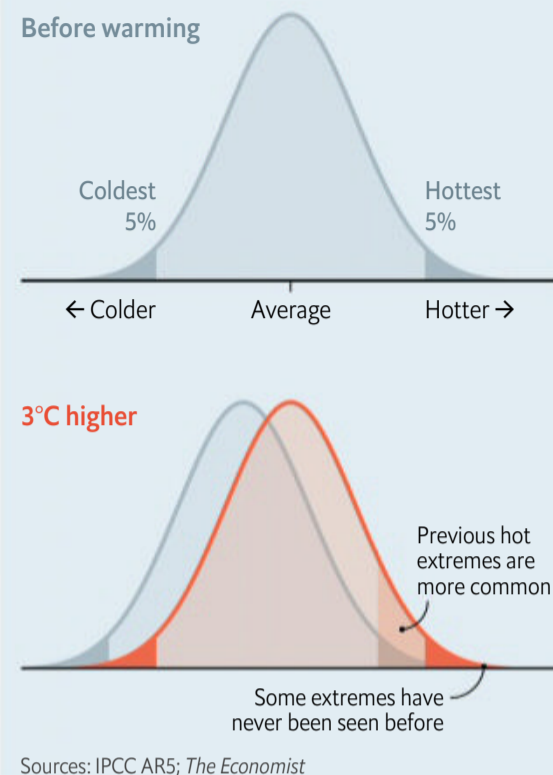
Just as today's world is not uniformly 1.2°C warmer than the pre-industrial, a 3°C world is not uniformly 1.8°C warmer than today (see chart 3 on next page). Some regions, chiefly the oceans and parts of South America, will warm less; others will get much hotter. The Arctic, including northern Canada, Siberia and Scandinavia, will receive the brunt of the warming. Some more populated regions are also in for above-average temperatures. According to one study mean temperatures in Russia, China and India would increase by 4-5°C, 3.5-4.5°C and 3-5°C, respectively.

Warmer regional temperatures will bring more frequent and more extreme heatwaves, including to higher-latitude regions in North America, Europe and Asia that have little or no experience of such things. A comparison of how 1.5°C, 2°C and 3°C of global warming would affect European extremes published in 2018 found that while "tropical" nights where temperatures remain above 20°C from dusk till dawn are currently mostly the preserve of the Mediterranean shoreline, the area affected stretched north as warming progressed until, under a 3°C regime, they became a regular occurrence in the Baltics. It is the lack of enough cooling at night which, by and large, drives deaths during heatwaves.

Striking though such a change would be, hot nights in previously cool wealthy countries can be adapted to. Green roofs,

And then a step to the right

Notional distribution of climate impacts



water sprinklers and improved air-conditioning (see Science section) can all help. People can switch to more indoor living during the summer months. Construction workers, farm labourers and other people whose jobs are physical and primarily done outdoors, though, would suffer disproportionately, as would those who could not easily afford the additional cost of installing and running air-conditioning.

This is as nothing, though, compared with what increases in heat can do in the humid tropics. Human bodies cool off through the evaporation of sweat, and under humid conditions evaporation is harder. The "wet-bulb" temperature is a measure that reflects this combined effect of heat and moisture on the difficulty of keeping cool.

Except at 100% relative humidity, the wet-bulb temperature is always lower than the temperature proper; dry air means that 54°C in Death Valley equates to a wet-bulb temperature in the low- to mid-20s. Wet-bulb temperatures in the 30s are rare. And that is good. Once the wet-bulb temperature reaches 35°C it is barely possible to cool down, especially if exercising. Above that people start to cook.

Wet-bulb temperatures approaching or exceeding 35°C have been recorded, very occasionally, near the India-Pakistan border and around the Persian Gulf and the Gulf of Mexico. But not all such instances are reported. A re-analysis of weather-station data published in 2020 showed that such extreme humid heat actually occurs more often than is recorded, mostly in very scarcely populated parts of the tropics. The study also found that its incidence had doubled since 1979.

Disconcerting spreads

Warming above pre-industrial levels in 2100, °C



Source: Climate Action Tracker

Richard Betts, a climatologist in Britain's Met Office who has led several surveys of the impacts of high-end global warming, says that beyond 2°C small but densely populated regions of the Indian subcontinent start to be at risk of lethal and near-lethal wet-bulb temperatures. Beyond 2.5°C, he says, places in "pretty much all of the tropics start to see these levels of extreme heat stress for many days, weeks or even a few months per year."

In less humid places, heat depletes water supplies. A modelling analysis of water scarcity at 1.5°C, 2°C and 3°C found that two-thirds of humanity will experience progressively drier conditions as the climate warms. At 3°C, periods of dryness currently treated as exceptional 1-in-100-year events are projected to happen every two to five years in most of Africa, Australia, southern Europe, southern and central United States, Central America, the Caribbean and parts of South America.

We're in for nasty weather

The occasional drought can be dealt with by recourse to reservoirs or groundwater. When droughts become prolonged and/or frequent such alternatives dry up. As a result, some modelling suggests that at 3°C more than a quarter of the world's population would be exposed to extreme drought conditions for at least one month a year. California's megadrought, which has affected the water supply for consumption, sanitation and irrigation as well as fuelling record-breaking fires, gives a glimpse into what this could look like for large swathes of the planet, almost all of which face far higher hurdles to adaptation than one of America's richest states (albeit one with a high number of poor people).

This does not necessarily mean that every crop is at risk of heatwaves, or that the world will face a structural food shortage. Some arable land will be blessed with a useful increase in rain, and the fields farmed by Goldilocks may be spared a concomitant increase in flood risk. Temperate climates will benefit from longer growing seasons, and some crops will also benefit from higher carbon-dioxide levels, since it is the raw material of photosynthesis. Although the Intergovernmental Panel on Climate Change (IPCC) estimates that cereal prices might be 29% higher under 3°C of warming, putting 183m people at additional risk of hunger, it also sees it as possible that they might hardly shift at all.

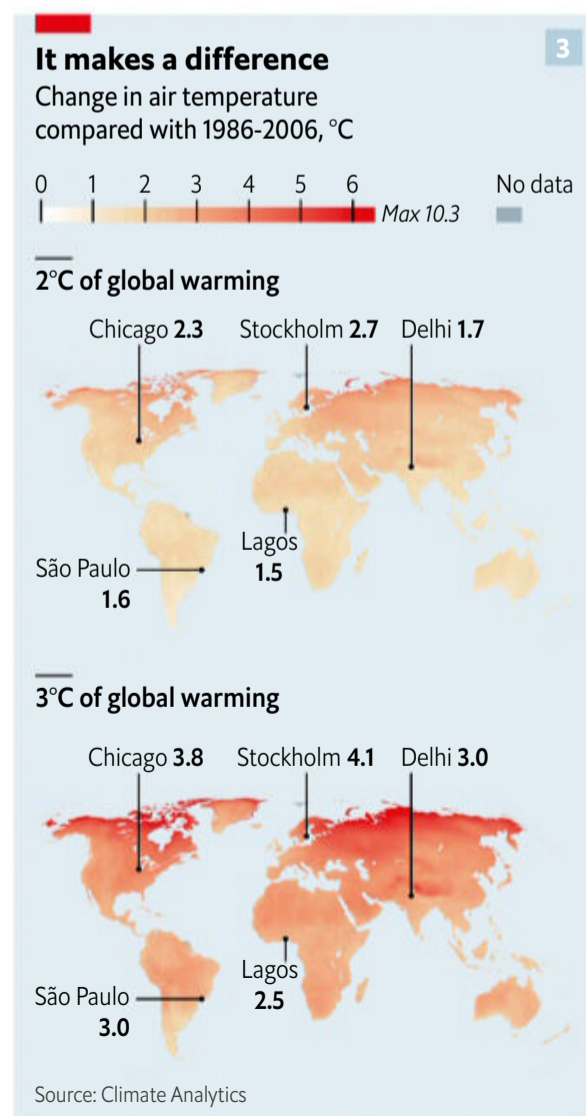
But whatever the averages, there will be a much higher risk of crises which panicky reactions make worse. In the summer of 2010 temperature records which had stood since the 1880s were broken in Russia, the world's third-largest wheat producer; temperatures stayed up around 40°C for weeks. Wheat yields fell by about one-third: Russia banned exports in order to

maintain its own supply. That led to price spikes on global food markets which have since been linked to civil unrest in a number of low-income countries.

More measured policy responses would have helped. But the opportunities for panics over food shocks will undoubtedly increase. A study co-sponsored by Britain's Foreign, Commonwealth and Development Office estimated that the likelihood of an extreme heatwave capable of wiping out the southern Chinese rice crop in a given year was 1 in 100 under 1°C of warming, but one in ten under 2-3°C of warming.

What sea level would look like at 3°C depends on how quickly things heat up. Because ice takes time to melt and warmth gets into the ocean depths only slowly, sea level takes its time responding to the surface temperature. This means the seas will be lower at the point when 3°C is reached if it is reached quickly than if temperatures rise more slowly.

What matters more than the sea level at the time when the world hits 3°C is the sea level to which a 3°C world would be committed in the long run. The West Antarctic Ice Sheet, which until a decade ago was considered pretty stable, is crumbling at the edges. There is growing evidence that at around 2°C of warming it will begin to break down completely. "If that point is passed, the evidence suggests that the rate of ice loss from West Antarctica will increase dramatically," says Nerilie Abram of the Australian National University.



The full effects of such a collapse—perhaps 1.6 metres' worth of sea-level rise—would not be seen for another century or more. But the rate of change would increase much sooner than that. "On our current climate trajectory," says Dr Abram, "we can expect a very rapid jump in how quickly Antarctica loses ice in just a few decades time." In a 3°C world similar concerns apply to Greenland, too.

Cities, and indeed low-lying countries, which might hold their own against the 30-90 centimetre sea-level rise expected by 2100 in a 2°C world, might well have to throw in the towel faced by four or five times as much. As with wet-bulb temperatures, there are limits to the extent to which adaptation can offer hope once the world gets to 3°C. And even when lives can be saved, places cannot. Coastal cities that hundreds of millions now call home would be changed utterly if they persist at all. Nor could the indigenous cultures of the Arctic or the rainforest survive in anything like their current form. Much of the Earth—as was would be forgotten, as well as lost.

There has got to be a way

The limits to adaptation apply to nature, too. Animal and plant species adapt to warming climates by shifting to cooler ones where possible. Already fish are on the move, some species edging away from tropical waters to temperate, others from the temperate to the chilly. Land animals unable to trek to higher latitudes can, if they live in hilly places, find respite at nearby higher altitudes instead. But these strategies only work up to a point: mountains have peaks, and the Earth has poles.

And it only works for species and ecosystems that are able to move faster than the climate warms. Coral reefs do not have that facility. They are predicted to disappear completely in a 3°C world (their boiled, bleached fate is worsened by the fact that higher carbon-dioxide levels make seawater too acidic for them). Some such failures to adapt make the world hotter still. The Amazon rainforest, already weakened by logging and burning, would be very unlikely to survive in such a world. In its passing it would release further gigatonnes of carbon into the atmosphere.

The Amazon will not disappear overnight. Even if emissions go largely unchecked from now on, a 3°C future looms only in the second half of the century, not the first. But the longer it takes to cut emissions, the more avoiding 3°C becomes something only achievable through the application of untested and in some cases troubling technologies designed either to suck carbon from the atmosphere in vast amounts or to throw some of the sun's warming rays back into space. Humanity would find itself wedged between a geoengineered rock and a very hot place. ■



Housing

Boombust

MIAMI AND WASHINGTON, DC

As moratoriums lift, will America face a wave of foreclosures and evictions?

MIAMI IS hot—especially if you are selling a home. House prices are 20% higher than a year ago. And unlike other big American cities, rents are up too (by 24% year-on-year), as the Magic City soaks up newly untethered teleworkers. Ecstatic estate agents describe a bonanza. Sellers are waiving inspections and appraisals entirely, buying units sight unseen, and aggressively bidding up prices. One agent tells of a client bidding \$50,000 above the appraised value of a home—and still getting rejected. Another admits sheepishly to recently buying a house of her own without an inspection. All the usual gaudy accoutrements of the city are here: the ostentatious sports cars, the well-trafficked designer stores, the planes circling Miami Beach advertising a prominent rapper playing at a nightclub.

Yet amid this exuberance, almost 8% of mortgage-holders in Miami are delinquent, among the highest share in the nation. Meanwhile, people renting housing face the end of a federal moratorium on evictions at the end of the month. A mora-

torium on mortgage foreclosures ends at the same time, raising fears of a spike in houses lost amid a house-price boom.

Surveys conducted by the Census Bureau do indeed show worrying signs. One in four renters and one in ten mortgage-holders have little to no confidence in their ability to pay for housing in the next month. Some 2.8m households, containing 7.4m Americans, are behind with the rent. The same surveys show that 1.9m households, in which 6m Americans live, are behind on their mortgages. Black and Hispanic households, those that are poor, and those with children are at greatest risk of losing housing.

No nationwide freezing of evictions

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and foreclosures has ever been attempted before. Unwinding the policy is therefore unprecedented. The degree of upheaval may ultimately depend on state and local decisions, which are tremendously varied.

Miami offers a compelling case study. Since it had no strict evictions moratorium of its own, a good number of people lost their homes, despite the moratorium declared by the Centres for Disease Control and Prevention (CDC) to slow the spread of covid-19. “The CDC actually has a lot of holes,” says Jeffrey Hearne, a legal-aid lawyer in Miami. “The biggest hole is that it does not clearly apply to a landlord who is evicting for no reason at all.” While the CDC order prohibited evictions for failure to pay rent, landlords were able to evict for other reasons, such as simple termination of an expired lease.

And they did. A study of 63 cities and counties by the Government Accountability Office found that those with local moratoriums saw evictions remain at one-tenth of their usual pace; those without quickly surged to 80% of normal volumes. Since January, there have been 920 eviction cases filed in Miami each month—all while the federal moratorium was in place. This suggests that the eventual number of pent-up evictions may be smaller than feared.

The increase may also be tamped down by other means. Congress has allocated \$46bn in rental-assistance funds, aimed at keeping tenants in place without leaving landlords to swallow the cost. Some cities, ▶▶

▶ like Miami, have been swift to disburse funds. Other cities and states have not. A Treasury Department report from May 31st found that less than 4% of funds had actually been distributed. The state of California, where applications could take as long as three hours to fill out, has spent \$73m of the \$1.4bn it was given. Ingrid Ellen of New York University explains the administrative complexity in this way: over 400 separate programmes had to be set up across the country, with platforms for verification and payment that could cope with both hard-to-reach tenants and landlords.

If renters have been evicted despite the federal moratorium, the picture for foreclosures is different. Two federal policies have prevented them. First, the CDC moratorium, which expires soon. Second, the CARES Act, which provided homeowners with 180 days' worth of forbearance on their mortgage payments. This has been extended twice since, by 180 days each time. Many mortgage providers also voluntarily suspended starting foreclosures.

2008 it ain't

These policies have been highly effective. Lenders repossessed around 7,000 properties in the first quarter of 2021, 87% fewer than in the same period in 2020, even though the share of mortgage debtors that were behind on their payments spiked to a high not seen since the global financial crisis (see chart). By contrast, evictions in some cities are just 20% shy of their pre-pandemic averages, according to researchers at the Eviction Lab. Owners, in other words, have received much more protection than renters.

Data from the Mortgage Bankers Association, a lobbying group, find that 4.3% of borrowers are more than 90 days behind, or "seriously delinquent". In normal times, they would be facing imminent foreclosure. That is about three times the level before the pandemic, says Frank Nothaft of CoreLogic, a property-analytics firm. Most of those people, he adds, are being protected by government programmes.

If foreclosures have been more effectively bottled-up than evictions, it is natural to suspect that they will surge more rapidly. The most worrying analogy is with the global financial crisis of 2008-10, during which 3.8m households lost their homes in the span of three years. But a post-moratorium foreclosure crisis, happening while house prices are soaring and the labour market is tight, would look very different.

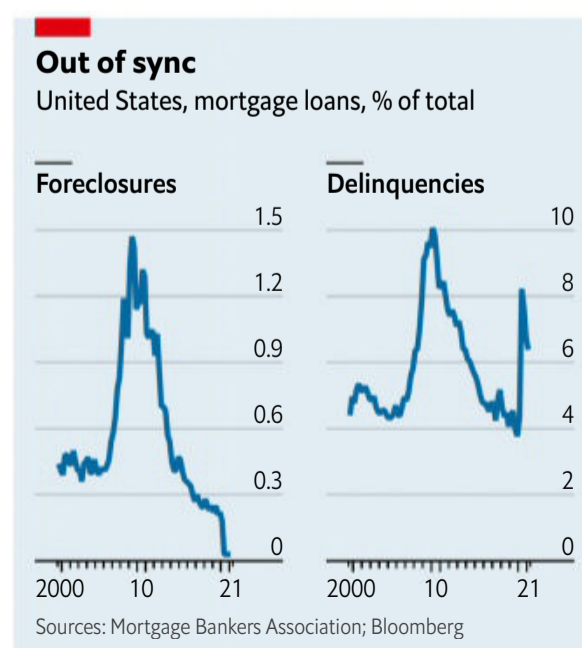
Many borrowers might try to stay put by requesting a loan modification. Yet this is not a simple path. Modification requires reams of paperwork, and cases can drag on in Jarndycean fashion. Banks can modify loans at their discretion, though regulation sometimes makes this hard. Default rates on modified mortgages have histori-

cally been high so banks must hold extra capital against them, something they are loth to do. The other incentive is pecuniary. Unlike in 2008, any properties that banks seize are likely to be sold at a profit, not a loss. "The banks were bad when they didn't want the homes," says Ricardo Corona, a Miami mortgage lawyer. "Imagine what they'll be like when they do!"

Daryl Jones, also a mortgage lawyer in Miami, expects three waves of foreclosures. First, a spike when the moratorium lifts for those who were mired in foreclosure when the pandemic began. Next, a "smooth increase" between August 2021 and February 2022 as forbearance rolls off. Last, a spike in March 2022 as last-chance forbearances expire. In 2010, the worst year on record, there were 66,000 foreclosures in Miami-Dade County. There are between 5,000 and 10,000 in a typical year. Mr Jones anticipates between 30,000 and 40,000 in the year from September 2021.

Each statistic is the aggregate of many glum stories. One is Keith Simpson's. Mr Simpson ran a construction company until the financial crisis. He requested a change to the terms of his loan in 2011 after falling behind on payments for the home in Miami that he and his wife bought in 1998. After two years of paperwork and progress, his wife was given too much opioid medication while in hospital in 2013—an accident that left her disabled. Since she was unable to work, Mr Simpson had to resubmit his application for modified terms. Instead, the bank decided to foreclose.

His first legal appeal was successful. Then it was overturned by Florida's third district court of appeals, which sided with the bank. The couple were served a notice to leave and moved into rented accommodation in 2018—20 years after purchasing their home. "We were just completely wiped out," says Mr Simpson. "I am 65 years old and I am starting all over again from scratch." He looks at the situation many homeowners face now and worries the same fate will befall them, too. ■



Chinese cyber-attacks

Ctrl-alt-denounce

NEW YORK

After failing to dissuade cyber-attacks, America looks to its friends for help

BACK IN 2014 then-President Barack Obama tried to get serious about China's state-sponsored hacking of American companies, which was already seen as a long-running problem. That year the Justice Department indicted, in absentia, five members of the People's Liberation Army for hacking commercial secrets. A year later Mr Obama and Xi Jinping, China's president, both pledged that their cyber-armies would lay off the private corporations and trade secrets of each other's country.

That is not what happened. On July 19th the Biden administration identified China's Ministry of State Security (MSS) as the perpetrator of an attack in March on Microsoft's Exchange email server, giving China's hackers access to tens of thousands of networks around the world. The administration also accused the MSS of contracting with criminal hackers who have conducted ransomware attacks seeking millions of dollars, including "a large ransom request made to an American company".

The government issued an advisory calling China's hacking a "major threat" to the security of America and its allies. Unusually, America recruited those allies to admonish China by name, something they had been loth to do. NATO joined America for the first time in condemning China for state-sponsored hacking; the European Union, Britain, Canada, Japan, Australia and New Zealand issued statements calling on China to end such activity. (In one characteristic response, the Chinese embassy in New Zealand called the accusations a "malicious smear".)

The tough words come without any sanctions like those imposed by America in April on Russia, after the administration accused a Russian intelligence agency of masterminding the SolarWinds hack that breached the networks of at least nine federal government agencies and more than 100 companies. In China's case America could have sanctioned firms affiliated with the MSS, or those that have benefited from espionage. Perhaps it will yet do so.

Senior officials hope to persuade allies to join America in taking some form of action collectively, on the argument that unilateral steps have little effect on China's behaviour. Multiple indictments since the first in 2014 appear to have done nothing to slow China's state-sponsored attacks. For all the attention devoted to the Taiwan Strait and trade tariffs, cyber-espionage ▶



► may be the most active mode of conflict between China and America—and America's allies—for years to come.

Administration officials offered few details about the recent attacks. But the federal government has made public two unrelated prosecutions that show a particular interest by China in maritime military know-how. On July 19th the Justice Department released an indictment, filed under seal in May, that charged three Chinese state-security agents and a computer hacker in absentia with conspiracy to commit economic espionage, documenting the hacking of American companies, universities and government institutions over seven years. Prosecutors allege the agents used a front company to disguise their connection to the Chinese government while stealing technology in fields ranging from Ebola research to submersibles. On July 16th a Chinese national was sentenced to three-and-a-half years in federal prison for his role in a conspiracy to illegally export “raiding craft” that can be launched from submarines and which use a special type of engine not manufactured in China.

Such prosecutions are becoming a regular occurrence. The Centre for Strategic and International Studies (CSIS), a Washington think-tank, has compiled a list of more than 150 publicly reported cases of Chinese espionage directed at America from 2000 to 2020. There were three times as many incidents in the second decade as in the first. The hackers often sought commercial or military technology.

“Cybersecurity is the arena for strategic conflict in the 21st century,” says James Lewis of CSIS. Joe Biden, he says, “takes it much more seriously than any of his predecessors”. Such defensive measures will probably represent the best course the Biden administration can take to slow the onslaught of state-sponsored hacks. Which is no guarantee it will work. ■

The IRS

Seeking revenue

WASHINGTON, DC

Should America's tax collection agency get more money to find money?

WHAT IS THE most important financial entity in the United States? The Federal Reserve sets the beat of global financial markets with its interest-rate decisions. JP Morgan, a bank, has a \$3.7trn balance sheet. Some argue the United States Mint could help circumvent the ceiling Congress sets on the national debt by minting a trillion-dollar coin.

And yet it is arguable that the crown belongs to the Internal Revenue Service (irs), whose massive \$3.5trn in receipts is more than six times the revenues of the largest private company. Its ancillary assignments alone are vast, including the supervision of private pensions, determination of which institutions deserve tax-exempt status, and provision of payments for numerous government subsidies including \$800bn in covid-19-related assistance paid to 160m people. All of these, despite their enormity, pale in comparison to its main assignment: collecting 95% of federal revenues.

For the 56% of American adults who pay taxes, the IRS serves as the primary face of the American government with a right to probe their most intimate financial affairs. It is a scrutiny that may become demonstrably sharper as the Biden administration, in search of revenue to fund large spending plans, wants more money to enhance the agency's enforcement, in the hope of flushing out hidden troves.

Support for the effort comes from a report published in July 2020 by the Congressional Budget Office (CBO) estimating the “tax gap”—the difference between the amount owed and paid—between 2011 and 2013 to have been 14% of revenues. By adding \$20bn over the next decade to enforcement (an annual increase of 40% over current levels), the CBO estimates collections would increase by \$61bn. By adding \$40bn, collections would increase by \$103bn. Additional collections, the CBO posits, would come as the indirect consequence of potential avoiders understanding their increased risk of being caught.

Increasing funds for the IRS would be a turnabout from a decade-long freeze (see chart). In the intervening years, the number of employees in the IRS's enforcement agency has dropped by 30%, audits of individual returns declined from 1.1% in 2010 to 0.6% in 2018, and audits of returns for incomes in excess of \$1m have fallen from 12% to 3%. All this reflects a problem that extends beyond money lost. “Nothing is

more destructive of respect for the government and the law of the land than passing laws which cannot be enforced”, Albert Einstein is reputed to have said.

Yet if the proposal faces opposition, it is not merely because of the threat of increased harassment by tax authorities, but also suspicion that the enhanced spending on a more intrusive agency may miss the cause of shortfalls. Taxpayers, according to the American Action Forum, a think-tank, spend on average 17 hours on preparation; more than half pay for professional help. Polling reliably finds that Americans dislike the process. Confusion looms.

Only 3% of the 85m calls to the primary assistance number for individuals baffled by their returns reached a person during the most recent tax year, says Nina Olson, a former IRS employee who now runs the Centre for Taxpayer Rights. Confidence in the IRS has been damaged by asking the agency to decide which groups should be tax-exempt, which quickly becomes political. A decade ago the IRS removed the tax-exempt status of various Tea Party groups. Lois Lerner, who headed the relevant IRS department, was held in contempt of Congress for refusing to answer questions about this. Then John Koskinen, a lawyer brought in by the Obama administration to run the agency after the scandal, was censured by Congress too.

Republicans seethed and many concluded that expanding enforcement activity was suicidal. In June IRS tax returns from some of America's richest citizens were leaked to ProPublica, a group of investigative journalists, with the intention of influencing the debate over tax policy. The result was scintillating reading and a further blow to the agency's neutrality.

Expectations are that the enforcement money will come from a spending bill passed by the Democrats along party lines. Better, perhaps, might be a broad reorganisation to peel off ancillary activities—and a simpler tax code. Neither of these things, however, is being discussed. ■



Texas's new abortion law

Lubbock or leave it

America combines some of the most libertarian abortion laws of any Western country with some of the most restrictive practices. The result is a mess

IN THE HALF-CENTURY since the Supreme Court ruled on *Roe v Wade*, lawmakers in conservative states have passed hundreds of laws designed to make it harder for women to have abortions. None has been as punitive as the one recently passed in Texas. From September, unless it is blocked, the law will authorise private citizens to sue anyone who “aids or abets” the abortion of a fetus with a heartbeat, that is, from some six weeks’ gestation. For every case that is successful, it authorises “damages”—in effect a bounty—of \$10,000.

The law could ensnare innumerable people, from employees of insurance companies to pregnancy counsellors and friends and relatives. A lawsuit that seeks to block the law, filed in a federal district court in Austin on July 13th by clinic operators and groups that help poor women pay for terminations, also includes pastors who worry that counselling a pregnant woman who then goes on to have an abortion could put them in legal jeopardy.

Early-abortion bans are straightforwardly unlawful. *Roe* and subsequent Supreme Court rulings say abortion on demand (that is, for any reason) should be accessible until a baby is viable (from around 24 weeks). Over the past couple of years, as around a dozen states have introduced “heartbeat” bills, courts have blocked them, sometimes within days.

But Texas’s new law has been designed to sidestep this process. Usually, opponents of laws that restrict abortion access sue state officials who would enforce them. Because Texas’s heartbeat law would be enforced by private civil action alone, there is no obvious party to sue. Instead, its challengers are suing a broad range of defendants who could be involved in enforcement, including trial judges, county clerks and health officials.

It is not clear how this legal strategy will work. Julie Murray, a lawyer with Planned Parenthood, the biggest provider of abortions in America, says it is hard to imagine federal judges allowing an unconstitutional law to take effect. Some clinic operators say they worry that, for a court to block it, they will have to wait until the law comes into force and someone sues.

In the meantime, they say, the law is causing great distress. Amy Hagstrom Miller, the founder and chief executive of Whole Women’s Health, which runs four abortion clinics in Texas, says staff are hav-

ing to reassure patients that abortion is still legal in the state. The workers themselves are terrified, she adds, that from September they could be sued for doing their jobs. People who work in clinics do not find it difficult to imagine protesters who yell at women as they arrive for abortions turning into furious litigators.

Most Texans, like most Americans, do not want to ban abortions early in pregnancy. Few, presumably, would want to see this right shot down via private lawsuit. That a law encouraging such a thing should have been passed reflects in part the rightward lurch taken by Texas’s legislature. It also suggests that as the state becomes younger and more liberal there remain pockets of strong support for extreme anti-abortion measures. In May voters in Lubbock, a city in a solidly Republican county, approved a “sanctuary city for the unborn” ordinance giving individuals the ability to sue to enforce an abortion ban. In June, after Planned Parenthood, which has a clinic in Lubbock, sued, a federal judge dismissed the case. Planned Parenthood has since stopped performing abortions in the city. It continues to litigate the case.

Texas’s new law is also part of a mounting push to impose stringent abortion restrictions across America. Emboldened by the Supreme Court’s conservative supermajority, which seems more likely to uphold restrictive abortion regulations, pro-

life lawmakers have passed a record number so far this year. The Guttmacher Institute, an abortion-rights group that tracks state-level regulations, says 90 abortion restrictions have come into force in the first six months of 2021, compared with the previous record of 89 in the whole of 2011.

The result of all this is a broken system. America has one of the most permissive national abortion laws in the world: of 59 countries that allow abortion on demand, it is one of only seven that allow it after 20 weeks of pregnancy. Yet six states have only one clinic left and in a handful more women must travel hundreds of miles to find a clinic. This seems to intensify polarisation on the issue. Pro-life activists, who believe abortion is murder, focus on the regulations that the courts did not uphold. “People are frustrated...they’re trying to show the courts they’ve had enough,” says Joe Pojman, founder of Texas Alliance for Life. Abortion-rights activists and progressive lawmakers, meanwhile, are pushing hard in the opposite direction. At least seven states now have no laws governing when or for what reason a woman may have an abortion.

Meanwhile, campaigners on both sides are watching the Supreme Court. In May it said it would review a law in Mississippi that would ban most abortions after 15 weeks of pregnancy and examine whether “all pre-viability prohibitions on elective abortions are unconstitutional”. This suggests the court could substantially weaken *Roe*. If it does, it could be up to states to make their own laws: days after the justices’ announcement, Texas passed a law that would ban all abortions if that happened. It is one of more than ten states to have such a “trigger law”. Whatever the court decides, the gulf between conservative and progressive states seems certain to widen. ■



Meet the litigants

Lexington | The rise of Ron DeSantis

Florida's governor offers a more efficient style of Trumpism. That does not seem reassuring



RONALD REAGAN's tub-thumper for Barry Goldwater in 1964, Barack Obama's silky-smooth Democratic Convention speech of 2004: the political annals are replete with moments when a significant new talent announced itself. Could it be that in February Ron DeSantis of Florida produced another? The scene was a press conference in Tallahassee. The subject under discussion was the Republican governor's view that conservatives are discriminated against by social and mainstream media companies. Don't say it isn't so, he told the assembled reporters: "You can whiz on my leg, but don't tell me it's raining."

Mr DeSantis's phrase, now available on a range of conservative merchandise, expressed the dominant Republican view of big tech and the media: both knowing and dismissive. And he was able to utter it with rare authority. Mr DeSantis, who is second only to Donald Trump in popularity among Republicans, owes his rise not only to his record of sticking it to the liberal media but also, more impressively, to his knack of being vindicated almost whenever he has done so.

Having entered the Republican gubernatorial primary as a little-known House member, he launched a campaign so sycophantically pro-Trump that he became a figure of fun for the national media. He proceeded to win the former president's endorsement and the primary. That put him in a fight against Andrew Gillum which the polls gave him little chance of winning, especially after he was accused of making a racist dig at his black opponent. He denied the charge and won that one, too. Whereupon, instead of becoming the divisive, ineffective governor he was predicted to be (including by some of his former congressional colleagues), he swung amenably to the centre. He raised teachers' salaries, launched an effort to protect the Everglades, took a relaxed view of medical marijuana—and watched his ratings climb. When covid-19 struck last year, Mr DeSantis was one of the most popular governors in the country, an impressive feat in one of America's most polarised states.

His management of the pandemic has since cost him much of his non-Republican support. Defying the public-health experts in his own administration, he refused to introduce a state-wide mask mandate and, after an initial month-long lockdown, pushed

for Florida's businesses and schools to get back to normal even as the virus raged through the state. Retreating into a kitchen cabinet dominated by his chief-of-staff and his wife, Casey DeSantis, a popular former television journalist who oozes the charisma that the bullocking governor lacks, he was said to have shunned the experts entirely. He was widely criticised (including in this column). Yet it must be acknowledged that, again bucking his critics, he got most of the big calls right.

He did a better job of protecting care-homes than several of his media-beloved Democratic counterparts, including Andrew Cuomo of New York. He was dead right on schools. The mask mandates imposed by Florida's local authorities largely compensated for his own reticence on the issue. No doubt Florida's outdoors lifestyle helped, too. Yet the net result is a death toll that puts the state in the middle of the national pack and, after the haranguing Mr DeSantis received, this has been interpreted on the right as his greatest, media-crushing vindication yet. "It's cocaine to the base," says a grudging Republican admirer of the governor. In the event that Mr Trump does not run for re-election in 2024, 40% of Republicans say they would pick Mr DeSantis instead.

This has got conservative donors excited. Many loathe Mr Trump but fear that their preferred alternatives—including Mike Pence, Nikki Haley or just about anyone—could not retain the former president's diehard followers. Mr DeSantis, whose presidential ambition is no secret, is the first alternative to hint that he could. His name is being cheered raucously at right-wing populist gatherings even as Mr Pence's is jeered and the politically discomfited Ms Haley goes unmentioned. If—as that and much else suggests—conservatives are still committed to Trump-style populism, Republican elites are beginning to hope that Mr DeSantis might be the man to smooth its rougher edges.

That at least seems plausible. His string of unheralded successes suggests he is an astute politician. He is plainly intelligent. Most of the right's faux populists (a group that also includes Tom Cotton, Ted Cruz, Josh Hawley and the debutant J.D. Vance) are alumni of Harvard or Yale; Mr DeSantis has degrees from both. Admiring former acolytes of the governor (a small band—he has a reputation for being beastly to his staff) say he made his decisions on the pandemic after immersing himself in public-health policy, as well as politics. He would surely be better than Mr Trump.

A less optimistic Republican Ronald

That is setting the bar pretty low, however. And the beguiling idea of Mr DeSantis as a shy pragmatist and secret wonk could also soon seem out-of-date. An anti-government wrecker in the House, turned Trump populist, turned moderate governor, whose re-election campaign is now hawking "Don't Fauci my Florida" mugs, the governor appears to have no firm convictions of any kind. This makes it hard to imagine him channelling the wild enthusiasms of Mr Trump's supporters in a productive way.

Indeed, the closer he gets to national power, the more he is pandering to them. He has in recent months engineered a series of dire state laws, including bans on mask mandates, vaccine passports, critical race theory, the right of social media companies to suspend politicians and certain kinds of political protest. It remains to be seen how many of these measures will survive legal scrutiny. But even if none does, they constitute the record he wants to run on. The governor is an able politician and so far a winning one. But his rise does not augur an improved version of Trump populism so much as its triumph. ■



Trying to get ahead

The squeezed middle

MEXICO CITY

Political neglect and the pandemic have hit the Mexican middle class

FIFTEEN YEARS ago Maria, a school secretary, and her husband Samuel, a technician at an electronics firm, had just bought a car when they found out she was pregnant. They couldn't afford the payments with a baby on the way, so they returned it. Today the couple and their three children live in a three-bedroom house in Tesisán in western Mexico, and have just bought a second set of wheels. They eat out once a fortnight and have a subscription to Netflix, a video-streaming site. "My children used to ask me if we are poor and I would say 'No, we have food, a roof over our heads, clothes, and we are moving ahead,'" says Maria. "For me and my husband this is the best moment we've had yet."

In recent decades Mexico, like many emerging markets, has witnessed the growth of its middle class. Incomes have risen—Maria and Samuel bring in around 20,000 pesos (\$1,000) a month, an increase of more than 50% in real terms since they first got together 16 years ago. More people like them have bought cars, fancy TVs, smartphones and nice clothes. But recently the middle class, long neglected by poli-

ticians, has had two setbacks, thanks to covid-19 and the policies of President Andrés Manuel López Obrador.

Class is nebulous. It can be defined by income, profession or aspirations. The markers of status vary. Middle-class Mexicans do not look like their Spanish peers. They are poorer and more likely to work in the informal sector, rather than be a doctor, teacher or other professional. The World Bank defines middle class as earning \$13-70 per day in 2011 dollars, adjusted for purchasing-power parity. The OECD, a club of mostly rich countries, defines it as earning 75% to 200% of the median income of the country where you live. In Mexico almost half the population of 126m meets that definition of middle class. (Some 36% fall below that and 19% are officially rich.)

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— Bello is away

In Mexico the growth of a large swathe of people who are neither rich nor poor owes much to NAFTA, a free-trade agreement with the United States and Canada. It brought jobs and cheaper goods to the country when it was implemented in 1994. (A renegotiated, more restrictive version came into force last year.) The fact that Mexican consumers have more clout than in the 1990s can be seen in the proliferation of cafés and restaurants in urban areas. In 2019 Mexico City, the capital, had the world's highest number of songs streamed on Spotify, an audio-streaming service. Mexico is one of the five biggest markets globally for Uber, a ride-hailing firm. In April IKEA, a Swedish furniture giant, opened its first store in the country.

Going places

The middle class is a vital part of any economy. In Mexico, many of its members own the small- and medium-sized businesses that provide most of the jobs in the country. "They may start with a *puesta* [stall] on the street and then invest in starting a fixed restaurant that goes on to employ other people, too," says Javier Lazarín of FES Aragón, a university.

Aspiring types tend to press governments to provide better services such as health care and education, because they rely on them more than the rich, who can buy what they need. Better education can often lead to better public debate, too. Middle-class citizens are also thought to be good for democratic stability, since they are ▶▶

► keen to protect what they have. Nonetheless, membership of the middle class in Mexico is far more precarious than in richer places. An economic shock—a family illness or a recession—can send people tumbling back into poverty. Today several forces are battering Mexico’s middle masses.

The most immediate threat is covid-19. The World Bank reckons that, by its measures, last year a net 4.7m Latin Americans fell out of the middle class. In 2020 Mexico had its worst recession since the Great Depression, with the economy shrinking by 8.5%. (It normally grows by around 2-3%.) Mr López Obrador’s fiscal hawkishness, sensible in good times, appears to have been a liability. His government provided very little financial support, deepening the pandemic’s impact. By contrast, handouts in Brazil were so generous that the World Bank says they reduced by 12m the number of people falling out of the middle class.

Miriam Corona works as an accountant at an office-furniture shop in Mexico City. Her salary of 16,000 pesos a month was cut in half when the pandemic started, she laments from her living room in Pantitlán, an eastern neighbourhood of modest houses, restaurants and shops. Ms Corona and her son, a university student, have got by only because they live with her brother and mother. “We limited what we spent,” she says. Neither she nor her company received extra handouts last year.

Even before covid-19, government policies were hurting people like Ms Corona. “In a country with so much poverty, the middle class is often not appreciated,” says Armando Regil, who runs an NGO. The rich are undertaxed in Mexico and the poor have little spare cash, so middle-class Mexicans pay more than their fair share. They pay for public services and, since these are patchy, for private substitutes too.

Mexico ranked 56th of 78 countries in the most recent PISA ranking, a test of 15-year-olds’ skills in science, maths and reading. According to a survey in 2017, less than half of Mexicans were happy with the state of public health care. Services, and access to them, have improved in the past decade but not by much. One-sixth of Mexicans lack effective access to health care.

When asked about their spending priorities, middle-class Mexicans are most likely to mention private schooling and private health care. If she had more cash, Maria would send her children to a private school—and buy them swimming lessons.

Despite his populist rhetoric, Mr López Obrador has not done much to improve matters. Since coming to power in 2018 the president has focused on the poor, doling out funds for social programmes to support them. Meanwhile, his lackadaisical approach to foreign investment, which fell in 2019, has hurt the slightly better-off, says Luis Rubio, an analyst and co-author

of a book on Mexico’s middle class. One of Mr López Obrador’s first acts in office, for example, was to cancel a big new international airport, spooking investors.

Now the president is verbally chastising the middle class. Mr López Obrador blames them for his party’s losses in Mexico City in the elections in June. He has called middle-class Mexicans “individualist” and accused them of wanting “to be like those above and climb as high as possible with no scruples”.

The president conceded that people should want to “improve” themselves, but clarified that they should “not become selfish and aspire to be snobs”. Such messages are off-putting to many middle-class folk. “He talks about the richness of culture and family but not about finances—and

those matter, too,” says Luis Castellanos, an academic.

Viri Rios, an analyst, reckons that taking into account the limited access to public services, a Mexican needs at least 16,000 pesos per person per month to live comfortably—what Ms Corona earned before the pandemic. A report from 2019 by McKinsey, a consultancy, talks of two “missing middles” in Mexico: robust mid-sized companies and a middle class with more spending power.

“If you don’t fight to move ahead, you don’t move ahead,” says Carla, a freelance consultant (and Mr Castellanos’s spouse). If public services improved, middle-class Mexicans could spend their money on other things—and more people could climb the ladder, too. ■

Brazil’s brain drain

Out the door

SÃO PAULO

A growing number of Brazilian scientists are choosing to move abroad

BARBARA GOMES has almost completed her doctorate in biomedicine at the Federal University of Rio de Janeiro (UFRJ), one of the best in Brazil. Jobs are scarce and the best she has been able to find is a substitute teaching position at the university that pays around 4,000 reais (\$760) a month. For her experiments on a protein associated with mad-cow disease, however, she needs reagents that that university cannot always afford and that cost more than her salary. As a result she, like many of her cohort, wants to leave Brazil. Her plan to move to France was scuppered by the pandemic, but when she finishes her doc-

torate, she will go: “If I want to work in science, I must leave the country.”

Brazilian emigration to OECD countries has been rising for years, but took off especially in 2017, growing by 24% from the previous year. Nearly 30% of all Brazilians living in OECD countries have a university education. In the past two years, applications by Brazilian skilled workers for permanent visas in the United States, the main destination for those leaving Brazil, rose by 30% to the highest level in at least ten years.

The exodus is mainly the result of economic instability left over from the recession of 2014-16. But it has been worsened by the populist president, Jair Bolsonaro, who sees academics as enemies. His guru, Olavo de Carvalho, has said that Brazil’s universities are hives of drugs, orgies and communist propaganda. The federal science-funding agency’s budget has dropped by nearly half since 2000, while the government is pouring money into sending members of the armed forces, often supporters of Mr Bolsonaro, to study abroad.

The UFRJ has enough money to keep its doors open only until September; after that it may have to close labs and restrict some classes to online. At least six professors who criticised the president’s actions during the pandemic, which has so far killed more than 540,000 Brazilians, were investigated by the government.

“Being in a country that has daily attacks on science is very discouraging,” says Ana Carneiro, a professor who studies the



We’re not the fortunate ones

▶ Brazilian diaspora at UNICAMP, a university in the state of São Paulo. But it is not new. During the dictatorship of 1964-85, for which Mr Bolsonaro is nostalgic, academics were among the thousands exiled. The military government had a slogan: “Brazil: love it or leave it.”

After starting to trim the bloated public-pension system in 2019, Mr Bolsonaro has abandoned attempts at the economic reforms required for a return to growth. The country was still struggling from the recession when the pandemic hit. With only 17% of Brazilians fully vaccinated, economic normality still seems distant. Despite a generous public financial-aid programme last year, poverty tripled. GDP in the first quarter exceeded expectations, but Brazil must still tackle unemployment at 14.7%, a record high. Half of all young people say they would leave if they could.

It is not long ago that Brazil offered young researchers fairer prospects. Between 2003 and 2016 successive governments led by the Workers’ Party, under Luiz Inácio Lula da Silva and Dilma Rousseff, set up 18 new universities (some from satellite campuses of existing institutions). In 2015 Brazil outpaced countries like Russia and Mexico in its spending on science, technology and innovation.

Yet even when Brazil was investing in education, there were snags. The *Ciência Sem Fronteiras* (“Science without Borders”) programme inaugurated in 2011 by Ms Rousseff, then president, sent almost 100,000 Brazilians to study in more than 30 countries over six years. But when they returned, there was no policy for what to do with them, says Ms Carneiro. When the programme was still running, a quarter of scholarship recipients said they intended to pursue a career outside Brazil.

By exporting scientists and their innovations, Brazil is losing the chance to build technological heft at home. More than a quarter of GDP still comes from agriculture. Cuts in scholarships that began under Ms Rousseff’s successor, Michel Temer, have deepened under Mr Bolsonaro. After Ms Rousseff’s disastrous stewardship of the economy led to recession, the newer government-funded universities saw their budgets slashed. The Federal University of Cariri in the state of Ceará, in the poor north-west, was founded in 2013, but has lost more than 80% of its government research grants in the past four years.

The foreign ministry recently set up a programme called Innovation Diplomacy to try to link Brazilians abroad with the mother country, in order to boost trade and investment back home. But its goals are ill-defined. And many of those planning to leave are likely to stay away until the situation in Brazil improves. “I wish I didn’t have to go,” says Ms Gomes. “But there’s nothing here for me.” ■

Canada’s drug laws

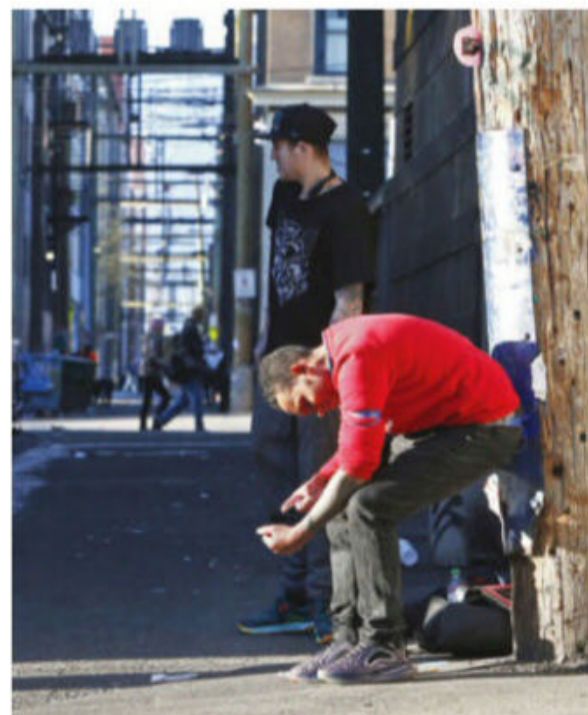
High stakes

Vancouver proposes a big change to its policy on drugs

AS A STUNT, it took some beating. A Vancouver city councillor joined activists outside a police station on July 14th to distribute free heroin, meth and cocaine. These “safe” samples of illicit drugs, the councillor tweeted, could save users from a poisoned street supply that has caused an overdose crisis on Canada’s west coast.

If the measure seems desperate, it suits the moment. The health officer of British Columbia (BC), where Vancouver is located, declared an emergency over deaths from drug overdoses five years ago. Dealers were lacing street drugs with lethal levels of fentanyl, a cheap and potent opioid. BC’s rate of illicit-drug deaths has more than doubled since then, with around 2,000 people dying from overdoses in the year to May—more than those killed by covid-19. “It’s really stretched all our traditional policy responses,” says Kennedy Stewart, Vancouver’s mayor. The pandemic appears to have worsened the crisis, since deaths are more likely if users inject alone.

So in May, Vancouver submitted a proposal to exempt it from Canada’s drug laws. It would decriminalise possession up to defined personal limits: two grams of heroin; three of cocaine; ten rocks of crack, for example. Drug prohibition deters addicts from seeking treatment, the request says, and criminal records make it hard to get a job. The proposal would also allow possession of drugs prescribed legally but sold on the black market, and of “party drugs” like LSD, MDMA and psilocybin mushrooms. It’s



Unsafe supply

an all-or-nothing approach: decriminalising only the most harmful substances risks making users of other drugs turn to these more dangerous ones.

There are precedents for decriminalisation. Portugal is an example. This year Oregon became the first American state to stop making arrests for possession of small quantities of all drugs. But most such places still issue fines, confiscate drugs or impose mandatory treatment, whereas the Vancouver model proposes no penalty.

For decades, Vancouver has led Canada towards a drug policy that emphasises harm reduction. The country’s first supervised injection site for drug users opened there in 2003. Dozens of similar sites now operate across the country, even while they remain banned in America. The Canadian government has funded programmes—known as “safe supply”—that give users access to alternative opioids such as hydromorphone. Some clinics in the Vancouver area prescribe untainted, medical-grade heroin to the severely addicted.

The city’s submission includes letters of support from organisations of indigenous people in British Columbia. They died from overdoses last year at five times the rate of the rest of the population. But some advocacy groups think the proposal does not go far enough. Garth Mullins of the Vancouver Area Network of Drug Users (VANDU) says the proposed possession limits are too low and that the city has deferred too much to its police department.

The mayor says it was politically important to get the police onside. He is hoping for a government decision within weeks. “This is the prime minister who legalised cannabis,” he says of Justin Trudeau. “I think there’s a willingness to experiment with approaches that will save lives.”

But not everyone is convinced that decriminalisation alone will save lives. “In practice, it’s not going to be particularly effective in the short term,” says Scott Bernstein of the Canadian Drug Policy Coalition. Suppliers will continue to poison the west coast’s heroin with fentanyl, and only a small portion of users will have access to safe-supply programmes.

And safe-supply schemes, too, have shortcomings if not managed properly. Like many addiction-medicine specialists, Lori Regenstreif, a physician at McMaster University in Ontario, says she is worried that the government is encouraging the “overprovision of prescription-opioid consumption, without proper supervision” under the safe-supply scheme.

She knows of many people who take the easily obtained hand-outs of hydromorphone tablets, sell them on the street because they are not strong enough, and buy fentanyl on the black market. This, she says, means the government may be worsening the problem, not solving it. ■



India's economy

The sick man of Asia

MUMBAI

The dire effects of the second wave will linger. And the pandemic is not over yet

THE SYMPTOMS are a peculiar mix. They include sluggishness, a general malaise, depression and an inability to focus. It is a bit like long covid. Except that the victim of this particular form of delayed recovery from the virus is not a person. It is India's economy.

Some 4m Indians had died of covid-19 by the end of June, according to *The Economist's* latest estimate of the real toll, endorsed in a new study published this week by Abhishek Anand and colleagues at the Centre for Global Development, a think-tank in Washington, DC. That is ten times as many as official figures show. It suggests the virus has been much deadlier in India than in hard-hit rich countries such as Britain and America, whose mortality rates looked roughly similar to India's until its devastating second wave. So it is no surprise that the country is struggling to get back on track.

India also stands out because its economy has been hammered so hard. As richer countries begin to bounce back, India is stuck with persistent unemployment, high inflation, limp demand, and falling savings and investment. Many of those trou-

bles pre-date covid-19 but were worsened by it. With the vaccination campaign crawling along like an ambulance in Mumbai traffic, the economy's—and the country's—path to better health will be longer and more painful than for others.

Consider Neeraj Vora, an appliance salesman in Mumbai, India's financial capital. During last year's nationwide lockdown his salary was cut from 26,000 rupees (\$348) a month to 14,000 rupees. This spring his father fell ill with the virus. As the cost of treatment mounted, both he and a sister broke into their fixed-deposit savings. When that proved too little he turned to clients whose trust he had earned. Their goodwill helped him cover a medical bill for 280,000 rupees.

Mr Vora's family is now fine. But his fa-

ther's medication still eats 3,000-4,000 rupees a month, on top of the 5,000 rupees he pays in rent and the debts he now owes. "I don't even understand when the money gets credited and when it disappears," says Mr Vora, who now never leaves home without mask, gloves and sanitiser. "My family can't afford for this ever to happen again."

In the fiscal year that ended on March 31st India's GDP shrank by 7.3%, more than any other big Asian economy. That was just before the virus's massive second wave. Its economic impact may not have been as severe as the long lockdown suddenly imposed in mid-2020, which left millions of migrant workers stranded and jobless. But for many, particularly in India's salaried middle class, the psychological shock of the second round of the pandemic has been worse. While tens of millions have found themselves, like Mr Vora, abruptly tipped down the income ladder, even those more comfortably off have had to dip into savings and put off investments. Bank loans against gold jewellery, India's most traditional way of saving, jumped by 82% in the past fiscal year.

A poll of white-collar workers by Grant Thornton, a consulting firm, found that 40% of employees had suffered a pay cut last year. Another survey, of 3,000 mostly informal workers in Delhi, the capital, found that male breadwinners had on average suffered a 39% fall in income in the past year. Of the more than 38,000 respondents to another survey—carried out online, meaning all were rich enough to enjoy internet access—more than three-quarters ▶▶

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▶ said they expected their incomes to fall in the current year.

Anecdotal evidence corroborates the grimness. Charities report growing demand for food handouts. Private schools, most of which are cheap and basic rather than fancy, and which educate some 120m children, report falling enrolment despite measures such as cuts in teachers' salaries and lower fees. The All India Mobile Retailers Association, a trade group, says over 40,000 mobile-phone shops have shut down since 2019. Sales of motorbikes—India is the world's biggest two-wheeler market—are stuck at the level of 2014.

Most economists predict fairly robust growth this year, enough to make up for last year's debacle. But for the medium term the talk is not of how fast "normal" growth will resume, but of how many years have been lost, and whether "normal" will be in the range of the 7-8% that India achieved in the 2000s, or more like the 3-5% of earlier decades. A recent study by the National Council of Applied Economic Research (NCAER), a think-tank in Delhi, suggests that without a fast-growth strategy India may never make up for the lost growth and may never reap the demographic dividend of a relatively large workforce with relatively few dependants.

India's government is aware of the pressure. In late June it announced a further \$85bn in stimulus measures, or about 3% of GDP, following a nominal \$300bn pledged last year. It has extended by another five months the supply of free food grains that has kept many families afloat, shored up banks and helped small businesses, especially in hard-hit sectors such as tourism.

In real terms, though, government spending is not expanding but shrinking. In the quarter to June, state investment in new projects fell by 42% compared with the first three months of the year. According to the NCAER, total expenditure this year will amount to just 16.3% of GDP, a significant fall from the previous year's 17.8%.

These numbers reflect the fact that In-

dia remains a poor country. The government keeps a wary eye on its credit rating, interest rates and inflation, which has crept above the central bank's theoretical upper limit of 6%. But if India's post-covid troubles are due to anything, it is to a legacy of poor choices by its leaders, from a chronic failure to invest in human capital to shying away from a fuller transition to a truly competitive economy.

Even now the pandemic could resurge. A survey of 36,000 people in 70 districts across 21 Indian states released by the Indian Council of Medical Research this week found that over two-thirds of Indians had covid-19 antibodies, including 62% of the unvaccinated. Like the excess death toll, that is vastly more than would be expected

based on the official case count of just over 31m after the second wave (see chart). But it still leaves nearly half a billion people without any antibodies at all. Only 6.5% of the population has been fully vaccinated. Many of those with antibodies acquired through infection with earlier variants of the virus stand to still suffer mild disease and go on to infect all those unprotected people with the Delta variant or with new mutations that are yet to emerge.

Vivek Kaul, a canny economic commentator, says of his country's economic decision-making: "You construct a house poorly and a storm hits. Now you are drenched due to a leaking roof. Is the storm the only one to blame?" Unfortunately, more storms may yet be on their way. ■

Corruption in Kazakhstan

Get jabbed? Get stuffed!

ALMATY

Inventive fraudsters are cashing in on anti-vax sentiment

PEOPLE TEND to join dating apps to find love. But social-media users in Kazakhstan swipe right for less romantic services. On an array of platforms hustlers now do a roaring trade in fake vaccination documents.

"Vaccination passport without the vaccination" is how one account offers to register you in Kazakhstan's e-government system. This then gives you an electronic vaccination passport, so far mainly for use only within the country, at a cost of up to \$70, around 12% of the average monthly wage.

Why pay when vaccinations and vaccine passports are free of charge? One reason is that many Kazakhstanis are anti-vaxxers but need a certificate to go to work. Everyone in direct contact with the public—from waiters and shop assistants to shoe repairers and dry cleaners—must produce vaccination passports, unless they have medical exemptions or have recently had the virus.

Kazakhstan's health-care system is one of the country's most corrupt sectors. A black market in fake exemption certificates and in forged covid-19 tests showing a negative result is thriving. The penalty for forgery is up to four years in prison, but the chances of being caught are slim. The police as well as medical staff can often be bribed. Since President Kassym-Jomart Tokayev ordered action over this "direct threat to public health and security", some medical people have been arrested. But the forgers are blasé about damaging the country's health. "If someone doesn't want to get vaccinated and has the chance to forge a passport, that's their right," says one counterfeiter.

Currently only 16% of Kazakhstanis have officially been double-jabbed. The government says it is trying to get over half the population jabbed by September using Russian and Chinese vaccines and a homegrown version. Health officials are getting more inventive. On July 17th they took some particularly vocal anti-vaxxers on a tour of covid-19 wards in Almaty, the commercial capital, where hospitals are filling up.

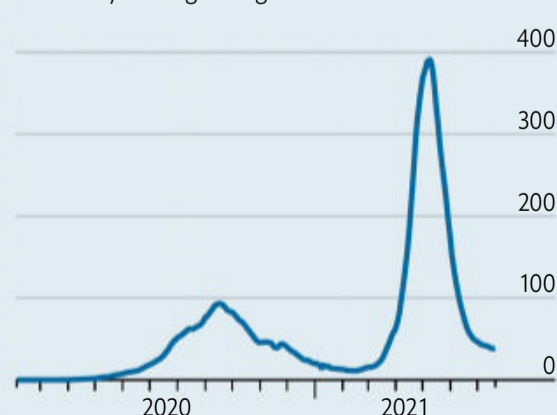
Yet anti-vax feeling persists. A Gallup poll late last year showed only 25% of Kazakhstanis were willing to be jabbed. In a more recent poll 59% viewed the vaccine as the only way out of the crisis, but a third still did not intend to get it. Many subscribe to conspiracy theories that vaccination is part of a malevolent plot to embed chips in humans to monitor them. Others simply distrust whatever the government tells them.

Better communication rather than coercion is key to changing attitudes, says Botagoz Kaukenova, a doctor who runs an organisation that counters disinformation about the virus. A recent poll found that only 19% of Kazakhstanis reckoned that government messaging about the virus was reliable.

Besides endangering public health, the rampant forgery has plunged some Kazakhstanis into Kafkaesque nightmares. One young man complained to local media that he had been given an unwelcome gift—a fake vaccination passport that his parents had bought with a bribe without his knowledge. Now he cannot get vaccinated, even though he wants to, because the system shows him as already jabbed.

Subcontinental spike

India, daily new confirmed cases of covid-19, '000
Seven-day moving average



Source: Johns Hopkins University CSSE

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Myanmar's opposition

Government of national disunity

YANGON

The country's underground civilian rulers are struggling for recognition

FOR AROUND an hour on the afternoon of June 4th, as on so many previous occasions this year, the internet was out across Myanmar. For opponents of the country's ruling military junta, the reason was clear: the generals were trying to stop people from watching a press conference by the National Unity Government (NUG), an underground alliance of civilian politicians who claim to be the legitimate representatives of the Burmese people.

The generals are right to worry about the appeal of an alternative set of rulers. Myanmar has been riven by unrest ever since the Tatmadaw, as the army is known, retook power from the civilian government in a coup on February 1st. Bloody repression failed to deter all protesters; many have taken up arms. But the NUG remains far from its aim to topple the junta and gain international recognition as the rightful government.

The underground body was formed in April by lawmakers mostly from Aung San Suu Kyi's National League for Democracy (NLD), the ruling party ousted by the generals; Ms Suu Kyi is back in detention. It is more inclusive than her administration, which was composed largely of elderly bureaucrats from the Bamar ethnic majority and which defended the army's persecution of the Muslim Rohingyas. The NUG, though led by NLD members, is ethnically and politically diverse. It promises to repeal a discriminatory law that bars Rohingyas from becoming citizens. Half the cabinet are from minority groups, including the vice-president and the prime minister.

The NUG is fighting an uphill battle. Its diversity, though essential in a country that has suffered ethnic strife for decades, has drawbacks too. Many of the ethnic groups it seeks to unite have spent decades fighting not only the army but occasionally each other. Not all members trust the NLD's newfound keenness on ethnic inclusivity.

That spells trouble. Diplomats and business leaders reckon that the army is likely to keep its grip on power for years to come, even at the cost of ever more brutal crushing of dissent and collapsing functions of state. Whereas some powerful ethnic militias have offered support to the NUG, others have kept well away. The chances of combining all militias into a unified opposition army are slim.

The NUG's attempts to bring the business lobby on side have not been plainly



No time to celebrate

successful, either. Business leaders pay attention to the NUG's statements, says a well-connected analyst in Yangon. But following its demands to halt tax and dividend payments is trickier because it entails violating the law and putting staff at risk. Some big Asian investors remain hesitant to sever ties with the Tatmadaw.

Nor has there been an outpouring of international support for the underground government. Laetitia van den Assum, a retired Dutch diplomat who used to advise Ms Suu Kyi, says the NUG's international contacts amount to "de facto recognition". Some Burmese diplomats have switched allegiance to represent it abroad. Its status will be debated at the UN General Assembly in September. But no foreign government or international body has yet recognised the NUG. China, Myanmar's largest trading partner and one of its biggest foreign investors, has thrown its weight behind the junta. Western governments are wary of recognising the NUG for fear of being drawn into a proxy war.

All this means that the underground government will struggle to stay relevant as the army tightens its grip. The devastating wave of covid-19 spreading through Myanmar presents an opportunity of sorts. The generals, busy locking up dissenting health-care workers, have botched the response. Hospitals are filling up. Oxygen is running out. People are dying in the streets. If the NUG manages to channel medical support to the right places, it may yet bolster its support.

For the moment, the NUG has no plans to go completely into exile, says Dr Sasa, its minister for international co-operation and spokesman. Rather, it will operate virtually, with cabinet members inside and outside the country. "Our offices are online. We are an e-government," he says. He can only hope that his voice will not be lost in the ether. ■

Covid-19 in Australia

Lock me down at your peril

The Delta variant is testing the limits of national self-isolation

TO SYDNEYSIDERS, most of whom have lived freely throughout the pandemic, it feels as if the virus has just got going. They are in the midst of their worst outbreak since the spring of 2020. It began last month when an infected man wandered through a mall in Sydney's beach-fringed eastern suburbs. After four weeks of lockdown, the city of 5m is now recording just over 100 new infections a day. By Australia's previously low rates, that is no joke.

Even with curbs on travel, the virus has leaked into rural towns and across state borders. Victoria has been plunged into its fifth lockdown to confront an outbreak of more than 140 active cases. South Australia issued stay-at-home orders on July 20th, after a man who caught the virus in Sydney infected several others. Over half of Australia's 25m people are now locked down.

Many Australians point the finger at Gladys Berejiklian, the Liberal (meaning conservative) premier of New South Wales. They blame her for not immediately shutting down Sydney when the first case was detected there. Her government has relied on contact-tracing to quash past outbreaks. But its teams were unable to keep up with the more transmissible Delta variant. Ms Berejiklian is accused of acting too little, too late.

The Lucky Country, which basked in praise for keeping covid-19 out by promptly shutting its borders, is in a rut because its failure to get people vaccinated quickly makes it vulnerable to more transmissible strains. Only about 15% of its adult population is fully jabbed, one of the lowest rates in the OECD, a club mostly of rich nations.

Supplies are short because Mr Morrison's government did not sign enough deals to start with. The one vaccine that Australia has plenty of—AstraZeneca's—is recommended by the government only for over-60s. Many of them would rather not have it because it has been associated with rare cases of blood clotting. With almost no coronavirus in the country, they reason, why take the risk?

Stressing that it has merely followed its immunisation experts' advice, the government has fanned scepticism by repeatedly changing its recommendations on who can safely receive AstraZeneca's jab. The result is that a quarter of the 25% of over-70s who have yet to be vaccinated have deferred or refused vaccinations because they want a different jab. ▶▶

▶ Watching the world's viral travails from afar, Australians have had cause to feel smug. They overwhelmingly support the closure of their border to foreigners. But as other countries open up, their patience is beginning to fray. Support for Mr Morrison's coalition government has slumped. Polling for the *Australian*, a conservative newspaper, puts Labor, out of power since 2013, ahead of the ruling coalition. Voters may now put more faith in state leaders, whose powers have grown.

As people clamour for tougher controls, Ms Berejiklian has thrown a ring around

Sydney's worst-affected suburbs, banning travel in and out for all but emergency workers. Hotels and ski slopes have been abandoned. For the first time, builders have been told to down tools. For every week that building sites are closed, the state's economy could lose as much as A\$1.4bn (\$1bn), according to industry groups. If the lockdowns drag on, the national economy may shrink in the third quarter for the first time in more than a year, says Sarah Hunter, an economist.

Hope comes in the form of 1m doses of Pfizer's vaccine, which have just landed.

More are coming. With luck, says Stephen Duckett, a health economist at the Grattan Institute, a think-tank, Australia could vaccinate 80% of its adult population by the new year. He thinks that is roughly the proportion it would need to reach before it contemplates rejoining the world.

Until then, it is moving away from normality. Its border closures make it tough even for citizens to fly home from abroad. Mr Morrison has just halved the limit on the number allowed in weekly to 3,000. Australians both at home and away are increasingly grumpy. ■

Banyan The changing face of Japan



Mixed-race athletes at the Olympics reflect broader changes in society

AS THE SON of a Japanese mother and Beninese father, Hachimura Rui stood out from his classmates in Toyama, a small town some six hours' drive from Tokyo. Other children taunted him, he once recalled to *The Undeclared*, a sports website: "You're black, go away." But his talent on the basketball court helped him gain respect. Now a star in America's NBA, Mr Hachimura will carry the flag for Team Japan when the Olympics open on July 23rd.

Mr Hachimura's selection as a flag-bearer reflects how attitudes about race and identity are in flux in a country where the idea of racial homogeneity has long held sway. He belongs to a cohort of prominent mixed-race athletes who are forcing Japan to reckon with its diversity—from the Haitian-Japanese tennis champion Osaka Naomi to the Ghanaian-Japanese sprinter Sani Brown Abdul Hakim and the Iranian-Japanese baseball star, Darvish Yu. "They are becoming the role models that they themselves didn't have," says Miyazaki Tetsuro, a Belgian-Japanese photographer who documents other *hafu* (half), as mixed-race people in Japan are often called.

The notion that Japan is a racially homogeneous nation has always been a myth. The Japanese originated from many parts of Asia; Japan is home to Ainu, Okinawans (both hailing from islands that were once distinct from Japan) and Koreans, among others. Japan's empire was a multi-ethnic society (albeit one where ethnic Japanese topped the hierarchy). But the myth of homogeneity found eager acolytes, both among Japanese seeking a post-imperial identity and among outsiders seeking explanations for Japan's economic miracle. An entire genre of literature emerged around it: *Nihonjinron*, theories about the

Japanese. Such ideas "excised the multicultural past and elided the existence of minority populations," argues Michael Weiner, the editor of "Japan's Minorities: The Illusion of Homogeneity". Conservatives cling to them to this day.

The story of one pure people leaves little room for *hafu*. To be considered truly Japanese tends to mean having two Japanese parents, speaking Japanese fluently, and "acting Japanese". "Most of us have this constant feeling of not being Japanese enough," says Mr Miyazaki. *Hafu* are often perceived as foreigners, despite holding Japanese passports. Ms Osaka's grandfather disowned her mother when she first revealed she was seeing a foreign man.

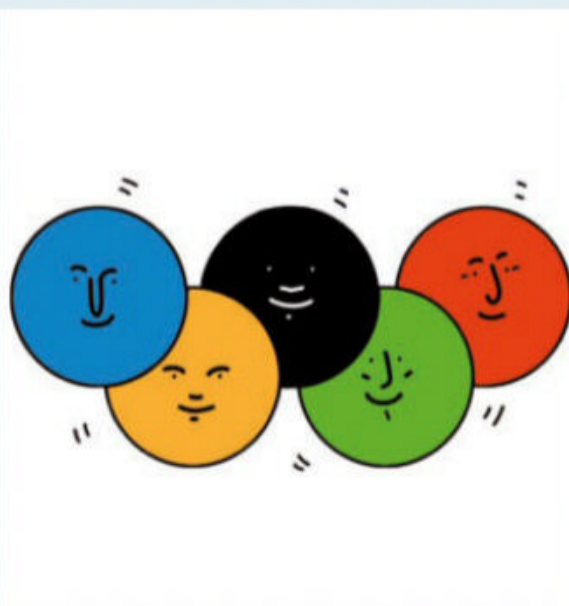
To this day, racism remains a big problem. That is why the celebration of champion athletes can smack of hypocrisy. Mr Hachimura has said he receives hateful messages on social media "almost every day". Nissin, a noodle-maker, lightened Ms Osaka's skin and hair in a commercial. (After a backlash, the company took down the ad.) Some on the right still question whether the two are truly Japanese. The

situation is even tougher for those without powerful forehands or smooth jump shots. Mixed-race children face brutal bullying; some schools still have rules requiring students to dye or straighten their hair if it does not conform to the straight, black Japanese norm. Discrimination on the basis of race in hiring and housing is widespread. Japanese law lacks the teeth to prevent it, laments Shimoji Lawrence Yoshitaka, a sociologist who studies *hafu*. Minorities have few representatives in Japanese politics.

Yet Japan's more diverse reality is harder to ignore, not least because of stars like Mr Hachimura. It helps that the new generation of athletes is not shy about airing its experiences. "Hearing such voices talking openly about discrimination makes people realise they aren't alone," says Mr Shimoji.

There are also more foreigners in Japan than at any time in its post-war history. A stealth immigration campaign to make up for Japan's shrinking population has seen the numbers of foreigners living there grow from some 2m a decade ago to nearly 3m today. That amounts to just 2% of the overall population, but the share is much higher among city-dwellers and the young: at least 10% of 20-somethings in Tokyo are foreign-born. (Japan does not collect statistics on the ethnic background of its citizens, only their nationality.)

The stigma around marrying foreigners is fading: in 1993, 30% of Japanese approved of international marriages, while 34% disapproved; by 2013, the last year for which data are available, 56% approved and 20% did not. One in every 50 babies is now born to a mixed couple, up from one in every 135 in the late 1980s. As Mr Hachimura and his peers show, their potential is enormous.





Academic freedom in Hong Kong

Unhallowed halls

HONG KONG

A climate of fear has enveloped the territory's campuses

HONG KONG'S universities are on summer holiday. Among the few students who remain on campuses, the mood is gloomy. On July 16th police raided the offices of the student union at the University of Hong Kong (see picture). The city's police chief said some of the union's leaders may have breached the national-security law that China imposed on the territory in 2020 following months of student-led unrest in the previous year. After Britain ceded control of Hong Kong nearly a quarter of a century ago, its universities remained free-spirited bastions of liberalism. Now they are gripped by fear.

The pretext for the raid was a resolution issued by the union expressing gratitude for the "sacrifice" of a man who had stabbed a police officer before killing himself. The government said the statement was "no different from supporting and encouraging terrorism". The union apologised and its leaders resigned. But the authorities did not let the matter rest: police seized files from the union building and banned some of the former leaders from leaving the territory.

Student groups in Hong Kong were at the forefront of the upheaval in 2019. They are in the Communist Party's sights. During the protests, mainland officials visited Hong Kong to conduct extensive interviews with academics and other residents. They asked questions about how student unions were funded, how their leaders were elected and their connections with the unrest. The mainland's state-controlled media accused union officers of supporting independence for Hong Kong (a crime that later became punishable by life in prison under the security law) and spreading anti-party sentiment.

To avoid arrest, many students now stay clear of campus politics. During the just-completed academic year, most universities in Hong Kong did not hold student-un-

ion elections because of a dearth of candidates. Campus authorities are also treating the unions warily. In February the Chinese University of Hong Kong severed ties with its union because of concerns that the manifestos of some candidates for posts in the student body may have breached the vaguely worded national-security bill.

Academic freedom had started to suffer well before the law was enacted just over a year ago. In 2010 Hong Kong's universities were rated A, meaning they were among the world's freest, on the Academic Freedom Index, a ranking developed by several universities and think-tanks in Europe. By 2018 they had fallen to the middle band, C. They are now in the D category, only slightly better than mainland China's, which have the lowest grade, E. In the past five years the decline in Hong Kong has been sharper than in most other countries.

One reason for this is self-censorship. Some lecturers now avoid sensitive topics, worrying that their colleagues or students will report on what is said in the classroom. Scholars who teach and write about subjects such as Hong Kong, China, civil disobedience and democracy are particularly cautious. "It's impossible to guess where the red line is anyway, because there is no clear one," says an academic who teaches modern Chinese history. She says the security law has created a problem for those who specialise in such areas: how to encourage objective study of sensitive issues while protecting students and other faculty members from becoming victims ▶▶

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33 A deluge in Zhengzhou

— Chaguan is away

▶ of the security law.

University administrators are also responsible for Hong Kong's plummeting ratings. Many reports tell of outspoken academics being denied tenure, refused promotion or unable to get their contracts renewed. "They never say it is political," says Ip Iam-Chong, who taught at Lingnan University for 18 years before its management rejected his application for tenure in 2020, despite support from his department, and refused to renew his contract, which expires in August. Mr Ip believes his difficulties are related to his forthright political views (he founded a pro-democracy news platform, InMediaHK).

Johannes Chan, a prominent supporter of pro-democracy causes, recently ceased full-time work at the University of Hong Kong, where he had served as a law professor. A two-year extension of his contract beyond retirement age (60) had expired. In the past, a five-year extension would have been routine; his application for one was turned down in 2018.

Many academics were disheartened last year when five university presidents signed a letter expressing support for academic freedom but saying they could "understand" the need for a national-security law (its draconian contents were not yet public). "It is upsetting to be part of an institution proactively participating in stifling dissent," laments one academic, referring to the repressive climate at her university. She says she and many colleagues are looking for jobs in other countries.

Some believe that the chill on campuses is a sign that the Communist Party—which does not operate openly in Hong Kong—has infiltrated academia. Party members have long been secretly gathering information about activities on campuses, says John Burns of the University of Hong Kong. Last year the university's governing board sacked Benny Tai, a tenured law lecturer who had encouraged student protests in 2014. Mr Tai, who is now in jail, said before his imprisonment that the decision was not made by the board, "but by an authority beyond the university".

There is another threat to academic freedom that is not directly related to the security law. Mr Burns says the central government in Beijing, as well as the authorities in Hong Kong, have put "huge pressure" on universities to open campuses on the mainland. Such ventures often involve compromises: the subsidiary campuses must observe China's political taboos. In recent years at least two universities in Hong Kong have opened mainland campuses. Another five, including the University of Hong Kong, say they will follow suit. The territory's universities risk becoming increasingly similar to their mainland counterparts, where liberal thinkers know they must keep their mouths shut. ■

Surfing

Mother ocean

HOUHAI BAY

Female surfers ride the wave to Hainan

BELLA LIU'S family was aghast when she returned to her home inland after a year on Hainan, an island province in the south. She had several scars and a deep tan. "My mother thought I had become a drug dealer working across the border with Vietnam," says Ms Liu. In fact, the former dietician had taken up full-time surfing. But that was almost as shocking. "I nurtured you for 20 years, and you just want to float out to sea?" she recalls her mother saying.

Ms Liu is now a surf instructor in Houhai Bay, on the island's southern coast. Small tattoos, including one of a seashell, adorn her muscular arms (body art is another taboo in the eyes of hometown folk). Yet surfing has changed her "inside and out", she says. She is not alone in seeking out its benefits. Most of her clients are women, many of whom are prepared to go against the tide—by plunging into it.

Hainan's palm-lined beaches and balmy winters have long been a draw for domestic tourists. But even a decade ago it had few surfing enthusiasts. When an American expatriate organised a surfing contest there in 2008, just two of the 30-odd participants were Chinese. Today Riyue Bay, north of Houhai, is home to the national surfing team's academy, set up

after the International Olympic Committee accepted surfing as an Olympic sport in 2016. (The team did not qualify for the games in Tokyo, which begin on July 23rd and where surfing will make its Olympic debut.) The local government is now eager to turn Hainan into a global surf destination. Its waves are said to be the most dependable ones in China for good surfing.

There was a time when cars loaded with boards would be pulled over by police, and surfers lectured about the dangers of their pastime. Now official approval is prompting more people to try the sport. So is the pandemic. It has forced many Chinese who would normally have holidayed overseas to stay put. Between January and May, Hainan received 11% more visitors than in the same period in 2019. Surfing also gained a lift last year when "Summer Surf Shop", a variety show filmed in Riyue Bay, began airing on iQiyi, a Netflix-like site.

On a recent weekday in Houhai Bay, dozens of bikini-clad novices, their faces streaked with colourful sunscreen, wobbled on boards in knee-deep water. Many come for just one session, hiring coaches who double as photographers for social-media-worthy snaps. But dedicated surfers are swelling in number, too. All "love nature and the spirit of freedom," says Ms Liu, the ex-dietician. Darci Liu (no relation), China's first professional female surfer, runs retreats for women who want to enjoy the sport. "Surfing showed me a bigger world," she says, one in which "I don't need to have pale skin, or kids by a certain age." In March she launched Hainan's first surfing tournament for women. Expect ever more of them to catch the wave. ■



Floods in Henan

In three days, beginning on July 18th, an entire year's-worth of rain fell on the central city of Zhengzhou in Henan province. One hour alone saw about 20cm of it. Streets were turned into raging torrents that swept up cars and gushed into the underground railway system, filling trains. Videos posted online showed passengers more than chest deep in water. Hundreds of them were eventually rescued, but 12 were among more than 30 who were killed by the floods.



Amid the rubble

The shaming of South Africa

DURBAN

After a week of unprecedented unrest the country is on the brink

TO TRAVEL AROUND Durban last week was to witness scenes of wholesale devastation. Shopping centres were ransacked, with nothing left but decapitated mannequins lying amid broken glass. Torched factories smouldered, the smell of burnt materials wafting on the breeze from the Indian Ocean. Not that one could escape into the water. A noxious spill, thought to be from a scorched chemical warehouse, had closed the beach.

Elsewhere a humanitarian crisis was spreading. Queues for food snaked for ever. The main motorway into the city was closed after dozens of lorries were set alight. The country's largest factory making anti-retroviral drugs was up in smoke. Vital supplies of bread, pills and nappies had to be flown in from Johannesburg. The city that hosts one of Africa's busiest ports looked like the site of a natural disaster.

As in the case of America's Hurricane Katrina, the carnage revealed much about

the country in which it occurred—except that in South Africa the disaster was entirely man-made. In particular, the worst violence since the end of apartheid puts a spotlight on the party of Nelson Mandela, the African National Congress (ANC). Its failure to build a properly functioning state and to deliver economic growth created the potential for chaos. Its own factional battles set the timing. The effects of the destruction will be felt for years in Africa's most industrialised country.

The proximate cause of the unrest is clear. On July 7th Jacob Zuma began a 15-month prison sentence for defying an order by the Constitutional Court to appear at an inquiry into vast corruption during his

presidency of 2009-18. Messages calling for an uprising soon spread on social media. Thousands of people in townships in the provinces of Gauteng, which contains Johannesburg, and KwaZulu-Natal (KZN), the birthplace of Mr Zuma and home to the cities of Durban and Pietermaritzburg, descended on factories, warehouses and malls. They were cheered on by those close to Mr Zuma, such as his daughter, Duduzile Zuma-Sambudla. Her twin brother, Duduzane Zuma, who has political ambitions, said people should steal "carefully" and "responsibly". He later noted that the loss of at least 276 lives was "not an ideal situation for them and for any of us".

And allies of Mr Zuma did more than cheer. On July 16th President Cyril Ramaphosa spoke of an "insurrection" and "nothing less than a deliberate, co-ordinated and well-planned attack on our democracy". Three days later the government said it had arrested six of the "instigators". On July 20th Mr Ramaphosa mentioned the use of "criminal networks" to organise looting. Though this may not have been a coup attempt, it was certainly an effort to render the country ungovernable and Mr Ramaphosa unpopular, so as to force the release of Mr Zuma and let his friends reassert control of the ANC.

Edendale, a township outside Pietermaritzburg, was among the first to ex-

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plode. “Society is divided,” explains Michael Malinga, who farms chickens having recently lost his job with a local NGO. “These are the people who are envious of the good life that is being lived over there,” he said, pointing towards affluent suburbs. Although Mr Zuma’s incarceration was the “trigger”, he says, “looting didn’t take much to trigger.”

Peering at South Africa’s statistics verges on voyeurism. The unemployment rate, 33% in the first quarter of 2021, is the highest on record, perhaps the highest in the world. And it excludes those who have given up looking. Nearly half of black South Africans cannot find work or have stopped trying. Roughly 13m South Africans (22%) were hungry even before covid-19’s third wave, according to a survey.

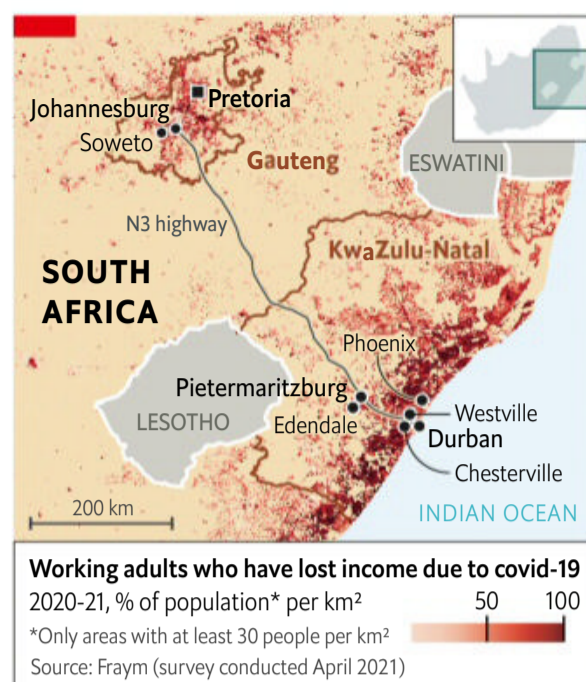
Lockdowns have pushed people deeper into poverty. Poor workers, nearly all of whom are not white, are almost four times as likely to have lost jobs since covid-19 than higher-paid ones. The end of welfare grants introduced at the start of the virus has led to more hunger. A booze ban announced on June 27th has created “alcohol-thirsty people”, says Mr Malinga.

Desperation explains some of the horror. At a supermarket near Edendale five people died in a stampede; in a similar scene in Soweto ten perished. Other images shared on social media hint at the inequality behind the dash for goods, such as the woman who reportedly ended up with a couch worth 68,000 rand (\$4,600) that was far too big to fit in her shack. “This is as close to a rebellion against inequality as SA has ever come,” argues Jonny Steinberg, a South African writer.

As more people joined in the looting, others began to feel left out. “We’ve become a joke, us people who don’t loot. People say ‘you’re stupid’”, says Kwasi Molefe, from the Chesterville township near Durban. Some people did not want to steal but feared there might be no food left in the shops, explains a grandmother.

Whatever the precise mix of conspiracy and poverty behind the violence, it was facilitated by failures of security. Police watched as people piled contraband onto pickup trucks. In downtown Pietermaritzburg one ransacked supermarket is around the corner from the main police station. Neither the criminal-intelligence branch of the police nor the domestic spy agency saw the violence coming or forewarned others in government. It took almost a week for the deployment of up to 25,000 troops to be authorised, a move that ultimately helped quell the chaos.

As so often, ordinary South Africans filled the gap left by the state. At night in the suburbs of Durban and Pietermaritzburg, and in smaller KZN towns, pallets, branches and barbed wire were shoved into street entrances as barricades. Resi-



dents, some armed, took turns to stand guard overnight.

In most cases these vigils were peaceful. “I’ve never felt safer,” says Wimpie De Lange at the barricade between Chester-ville and Westville, a suburb on the other side of the motorway. “This is South Africa. We come together after chaos.” At a roadblock in Pietermaritzburg a group of whites and South Africans of Indian descent joked with black students entering nearby university halls of residence. In case of trouble the whites had golf clubs and the Indians cricket bats.

But tensions have risen, at times fatally. In Phoenix, an Indian township north of Durban, at least 20 deaths have been reported. In a nearby black township residents say that family members were racially profiled and shot by Indians. Police and human-rights groups are investigating.

Even in peaceful areas some are uneasy about the roadblocks. Mbali Ntuli, a member of the opposition Democratic Alliance (DA), who lives in a Durban suburb, says, “I don’t feel super comfortable as a black person with people asking me whether I live here.” She notes that it reminds her mother of apartheid, when black South Africans needed passes to enter white areas. Yet, adds Ms Ntuli, she understands the need for communities to protect themselves. “People are realising how exposed and unprotected we are.” For many, she says, “this is the final straw.”

Shades of the bad old days

It is a long cry from April 1994. Back then the world watched as South Africans queued from dawn to vote in the country’s first fully democratic election. Today the queues are for food, petrol and medicine. How did it come to this?

For most of the 20th century South Africa was a white-supremacist state. The creation of modern South Africa in 1910 established peace between Afrikaners (those of mainly Dutch descent) and British settlers

at the expense of black people. The brutality of apartheid, introduced in 1948, built on colonial foundations. Under the National Party whites benefited from state largesse while non-whites were violently displaced and exploited. By the late 1980s white rule was morally and literally bankrupt. Pressure from the anti-apartheid struggle, capital flight and the end of the cold war brought about its demise.

The negotiated transition is seen by many on the left as a stitch-up. Blacks may have got the vote, goes the argument, but economic power remained with whites. “We missed the boat in 1994. We have no one to blame but ourselves,” says Important Mkhize, a leftist ANC figure, referring to his party’s apparent failings.

Such views, like mutterings about how life was better under apartheid, are overly cynical. Under Mandela (president from 1994 to 1999) and his successor, Thabo Mbeki (1999–2008), life improved for nearly all South Africans. Proper houses were built roughly ten times faster than shacks. Townships got running water and electricity. A basic welfare state was established. “Social grant” recipients rose from 2.5m to 12.4m under Mr Mbeki. His government’s sensible macroeconomic policies and a commodities boom raised growth to an average of 5% a year for four straight years for the first time since the 1960s. Unemployment went from horrific to merely awful.

Yet trouble was brewing. A corrupt arms deal in 1999, for which Mr Zuma still faces charges, set the standard for future graft. Black Economic Empowerment, a policy that incentivises firms to give equity to black investors or business to black-owned suppliers, has created a new generation of Randlords with more political acumen than entrepreneurial talent. “Cadre deployment”, whereby ANC party members get jobs on the basis of factional fealty rather than merit, has degraded the state. These appointees steer contracts towards chosen “tenderpreneurs”, who in turn donate to the party. By 2007 Kgalema Motlanthe, a party grandee, said: “This rot is across the board...Almost every project is conceived because it offers opportunities for certain people to make money.”

The blackouts that still plague the country began under Mr Mbeki, who neglected Eskom, the state power utility. His abject handling of the AIDS plague cost at least 330,000 lives, according to a Harvard study. It also contributed to his loss in a factional battle to Mr Zuma, who took over as the ANC’s president in 2007. That moment was crucial in fragmenting the party. What one ANC official called the party’s “rational centre” could no longer hold. Anarchy was loosed upon the country.

At its heart was Mr Zuma. Under him much of the progress was squandered. Corruption soared. The lure of jobs in the party

led to scores of assassinations, most of them in KZN, where Mr Zuma's fellow Zulus predominate. Agencies meant to stop crime ran smear campaigns on political enemies. Government came to resemble an organised-crime gang.

The economy was not helped by the global financial crisis and the end of the commodities boom. But "state capture" made things worse by deterring investment. Though growth slowed, the government kept on spending, more than doubling the share of debt to GDP during Mr Zuma's reign. Much of this was directed to looted state-owned enterprises and wage rises for existing public-sector workers. To try to keep finances in check, the Treasury increased regressive taxes and ministries slowed the hiring of teachers, nurses and police. The result, writes Michael Sachs, a former Treasury official, is that "the real value of public services—particularly to the poor—has fallen."

A year after bruising local-election results in 2016, the party rejected Mr Zuma and his preferred successor (an ex-wife). They turned instead to Mr Ramaphosa, who promised more jobs and less graft. His approach has been to lead from behind, appointing people to key jobs and leaving them alone. But he has not gone far enough. The "security cluster", especially police and spies, is ineffectual. His cabinet remains replete with incompetents. Mr Ramaphosa's defenders argue that he has to tread carefully because he needs to win internal ANC elections to stay in power. Yet South Africans are frustrated that he puts party before country.

The result of ANC misrule has been the entrenchment of two South Africas. In one, a multi-racial, but still disproportionately white, minority lives in a privatised bubble: private security, private schools, private health care and, increasingly, private (solar or generator) electricity and (borehole) water, too. In the other live most black and mixed-race ("coloured") South Africans, with shoddy services, joblessness and hungry stomachs.

Before the unrest, NGOs working in townships warned of simmering tensions taken to boiling point by covid-19. The South African Human Rights Commission recently called Alexandra, a Johannesburg township, a "ticking time bomb". The Pietermaritzburg Economic Justice and Dignity Group said on June 30th, with devastating prescience, that "high food prices and no jobs could lead to social disorder and social instability."

After the failure to heed those warnings, South Africa's future is uncertain. The violence has damaged an already fragile economy. Gauteng and KZN account for half of the country's GDP. Roughly 200 shopping centres and 3,000 shops were ransacked. Several small towns in KZN lost

nearly all of their shops. In townships the economic self-harm has flabbergasted some residents. "We destroyed the amenities we had fought so hard for," says Richard Yangaphi of Alexandra.

In KZN alone 150,000 jobs may be at risk. One supermarket employee, Mike Nkwana, has not worked since rioting destroyed his workplace, so has been unable to feed his children. He brings up the added impact of "the black tax": on average one South African wage supports the livelihoods of 4.3 people, a burden disproportionately shouldered by black employees. "I don't only look after my family," he says.

Guns n' hoses

Firms will ponder the risk of further unrest when making investment decisions. Toyota, which has a plant in Durban, told the municipality that it was "feeling very uncertain about the future of our business in KwaZulu-Natal". Traders who rely on the port may look to alternatives such as Dar es Salaam in Tanzania. Emigration enquiries have reportedly soared.

Those who stay may take extra precautions. Denzil Smith, a B&B owner in Pietermaritzburg with a fondness for Victorian knick-knacks, is not your natural vigilante. "But after this I'm definitely getting a gun," he says. South Africa's "enclave society", as Frans Cronje, a political analyst, calls it, may take deeper root.

There will be political effects, too. If Mr Ramaphosa does not push Zuma-era figures out of the party, they may jump. "The violence, looting and arson of the past week will change the ANC for ever," argues William Gumede, a former anti-apartheid activist and commentator. "It has hastened the [Zuma] faction's own departure from the ANC." If Mr Zuma's supporters flee the party, that would probably mean losses for the ANC in KZN at local elections scheduled for October (though they may be delayed

by covid-19). Whether it would cause losses elsewhere is less clear. "People don't feel they have a lot of options," notes Ms Ntuli.

Even so, the unrest may speed the ANC's secular decline. Polling suggests that fewer than half of 15- to 50-year-olds support the party. Its voters are increasingly old and rural in a young and urban country. The ANC looks ever more like Zimbabwe's Zanu-PF and other "liberation" parties in southern Africa, which depend on rural voters (and rigging) to win elections. Mr Ramaphosa may be the last ANC leader with a national majority. That could mean a coalition of moderate elements from the ANC and DA. But it could also pave the way for the entry of left-wing populism exploiting the country's poverty, or a right-wing version playing on fears of crime and xenophobia.

Is there reason for optimism? South Africa has defied the odds before. It did not descend into violence, as some feared, after 1994. Desmond Tutu's commission brought some truth and a little reconciliation. Just 18% of South Africans feel there has been no progress at reconciliation since the end of apartheid, according to a survey in 2019. "A vast majority of South Africans are proud to be South African," it concluded. An imaginative politician could galvanise the country's pragmatism and patriotism.

Such spirit was on show in townships after the chaos subsided. In Alexandra two young residents joined hundreds in a clean-up. Talia Mogano, 17, says of the looters: "Life isn't fair, yes, but what they did wasn't right either. They should have had a protest but what they did was a crime." Her friend, Thabang Kanetsi, is buoyed by the many who have risen at dawn to collect brooms and bin bags. "Everything is going to go back to normal," he says. "I have faith in this community and this country." But South Africa's problem is that going back to normal may not be enough. ■



The two South Africas



Syria's economy

Narco-state on the Med

A popular pill is a vital export but is harming the young at home

IN THE DUNES north of Riyadh, the Saudi capital, the sun sets and the party begins. Girls discard their *abayas*, the black shrouds that envelop them in public, and begin jiving to techno music with boys. A few swig from bottles, but most prefer Captagon pills, nowadays the Gulf's favourite drug, at \$25 a pop. They call it Abu Hilalain (Father of Two Half-moons), after the two letter "c"s (for Captagon) embossed on the pills. Part of the amphetamine family, it can have a similar effect to Viagra—and conquers sleep. "With one pill", says a raver, "we can dance all weekend."

Though Saudi rulers have opposed the regime in Syria for a decade, the pill-popping by young people is funding it. For Syria's president, Bashar al-Assad, the drug has become a boon—at least in the short run. His country has become the world's prime pusher of Captagon. As the formal economy collapses under the burden of war, sanctions and the predatory rule of the Assads, the drug has become Syria's main export and source of hard currency. The Centre for Operational Analysis and Research (COAR), a Cyprus-based consultancy, reckons that last year authorities elsewhere seized Syrian drugs with a street value of no less than \$3.4bn. Compare that with Syria's largest legal export, olive oil, which is worth some \$122m a year. The drug is financing the central government, says Ian Larson, who wrote a recent report on the subject for COAR.

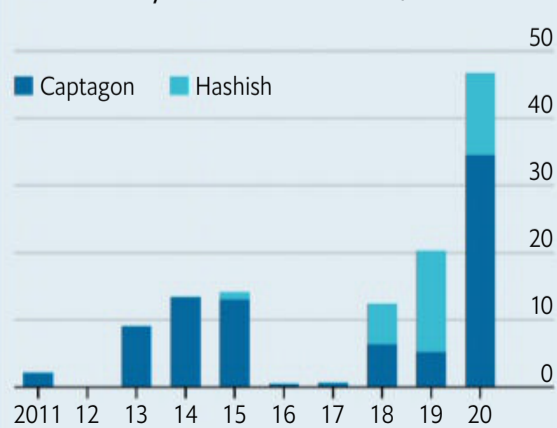
Syria has long been involved in drugs. In the 1990s, when it ruled Lebanon, the

Bekaa valley was the region's main source of hashish. But mass production of drugs within Syria began only after the civil war erupted in 2011. Officers fed their men "Captain Courage", as they called Captagon. Shia fighters from Afghanistan and Lebanon, who came to support the Syrian regime, brought their skills in making and trafficking drugs. Hizbullah, Lebanon's biggest Shia militia, which has given crucial support to the Assad regime, acquired large tracts across the border in Syria's Qalamoun mountains. They expanded hashish cultivation and developed a new cottage industry, making Captagon pills.

Syria began exporting them in about 2013, as its formal economy shrivelled owing to war, economic sanctions and corruption within the regime. Chemical

Stimulating exports

Seizures of Syrian narcotics abroad*, tonnes



Source: Centre for Operational Analysis and Research

*Publicly reported seizures

plants in the cities of Aleppo and Homs have been converted into pill factories. In the Gulf the mark-up for pills can be 50 times their cost in Syria. Creative smugglers hide them in shipments of paper rolls, parquet flooring and even pomegranates (pictured). Saudi princes use private jets to bring the stuff in.

Seizures by police in foreign waters testify to the size of the trade. Italian police last year uncovered 84m pills worth over €1bn on a single ship. It was then said to be the world's biggest interception of amphetamine-related drugs. In May the Malaysian authorities, acting on a Saudi tip-off, seized 95m pills. The Libyan port of Benghazi, linked by a regular shipping route to Syria, is said to be a key entrepot.

The Assads insist they are not involved. "Propaganda", says Shadi al-Ahmad, an economist in Damascus, the capital, who is loyal to the regime. But because Mr Assad finds it hard to pay his troops, he farms out much of his country to warlords who oversee the smuggling. The army's fourth division, which is commanded by Maher al-Assad, the president's younger brother, is said to take a big cut. Other relations run operations at the Mediterranean ports of Latakia and Tartous. A Lebanese drug-runner close to Hizbullah and wanted by Interpol boasts on Facebook of his ties to the Assads and senior Hizbullah clerics. "It's out of control," says an insider in Damascus.

The regime may see Captagon as a lever in regional power struggles. It "uses drugs as a weapon against the Gulf," says Malik al-Abdeh, a Syria-watcher close to the opposition. "The message is: normalise relations or we'll destroy your youth."

In any event, the regime's loyalists are not the only ones involved. The Kurds who control Iraq's north-eastern border with Turkey draw on the experience of the Kurdistan Workers' Party, which operates routes through the mountains to Europe. Sunni Syrian rebels under Turkish protection in northern Syria are at it too. And the route south through Jordan to Saudi Arabia is getting busier. "All the militias get their earnings from smuggling drugs," says a tribal leader in southern Syria. He says southern militias have helped thousands of refugees cross the border into Jordan, their knapsacks full of pills.

For the Syrians left behind, drugs may destroy what remains of society after a decade of civil war. "Young men who haven't been killed, exiled or jailed are addicts," says a social worker in Sweida, a city held by the Assads in the south. A recent survey of Syrians in the north found that in January this year 33% said they knew a drug-user. That is up from 7% in 2019. So prevalent is the habit that during this year's Ramadan, in April and May, the prime-time serial on state television was "On a Hot Plate", portraying a family of drug-dealers. ■

Water

Dry and disorderly

The countries of the Middle East and north Africa are parched. Governments are making things worse

IN THE NEIGHBOURHOOD of Algiers where the presidential palace and foreign embassies are located, some think the water pressure has increased of late. But don't tell those living in the suburbs of Algeria's capital, where the taps have been dry for days, as temperatures and tempers rise. Protesters have blocked main roads and railways. "If the water stops flowing, so will everything else," says a local journalist, conveying the protesters' mindset.

Algeria is not alone. In the past few months protests over water shortages have erupted in Iran, Iraq, Sudan and Yemen. Two protesters were shot dead in Iran on July 16th. And a lack of water is contributing to unrest elsewhere in the Middle East and north Africa.

Drought has been a feature of the region since biblical times. But now climate change is causing longer dry seasons, as well as hotter heatwaves and record-setting temperature spikes. Rainfall is expected to decline, precipitously in some places, leaving farmers to dig more wells, draining aquifers and causing potentially irreversible environmental damage. For most of the region the trend is towards a drier, hotter, more miserable future.

Some governments are dealing with the problem. Israel and the Gulf states rely on desalination plants, which can run on solar power and produce a cubic metre of freshwater (enough for 3,000 small water bottles) for as little as 50 cents. But many governments are making things worse. Protesters blame mismanagement and corruption for much of the misery. "The water sector is disintegrating," says Hassan al-Janabi, a former water minister in Iraq. "There will be an explosion."

Agriculture accounts for the overwhelming share of freshwater taken from ground or surface water sources globally (about 70%), says the World Bank. The proportion is even higher in the Middle East and north Africa (about 80%). Crops depend entirely on irrigation in the arid region and officials say that supporting agriculture stems rural migration and reduces the need to use hard currency for food imports. So Egypt, for example, allows its farmers to take water from the Nile for nothing but the cost of pumping it.

Such subsidies have long encouraged farmers in the region to waste water on a massive scale. Still, leaders like to use cheap water as a way to buy support or fur-



Cracks in the surface

ther their own interests. The regime in Jordan, one of the world's driest countries, uses it to mollify farmers from powerful tribes in the Jordan valley. In Iran the Islamic Revolutionary Guard Corps rerouted a river to cool its steel mills in Isfahan. A former president, Akbar Hashemi Rafsanjani, is even said to have built a dam to water his pistachio crop.

The protests in Iran have occurred in Khuzestan, home to most of the country's Arabs. Much of Iran's fresh water used to flow through the province. Old-timers remember when ships bound for America sailed up the Karun river. But dozens of dams have dried up Khuzestan's rivers and marshes. Angry residents accuse the clerical regime of diverting water to Persian cit-

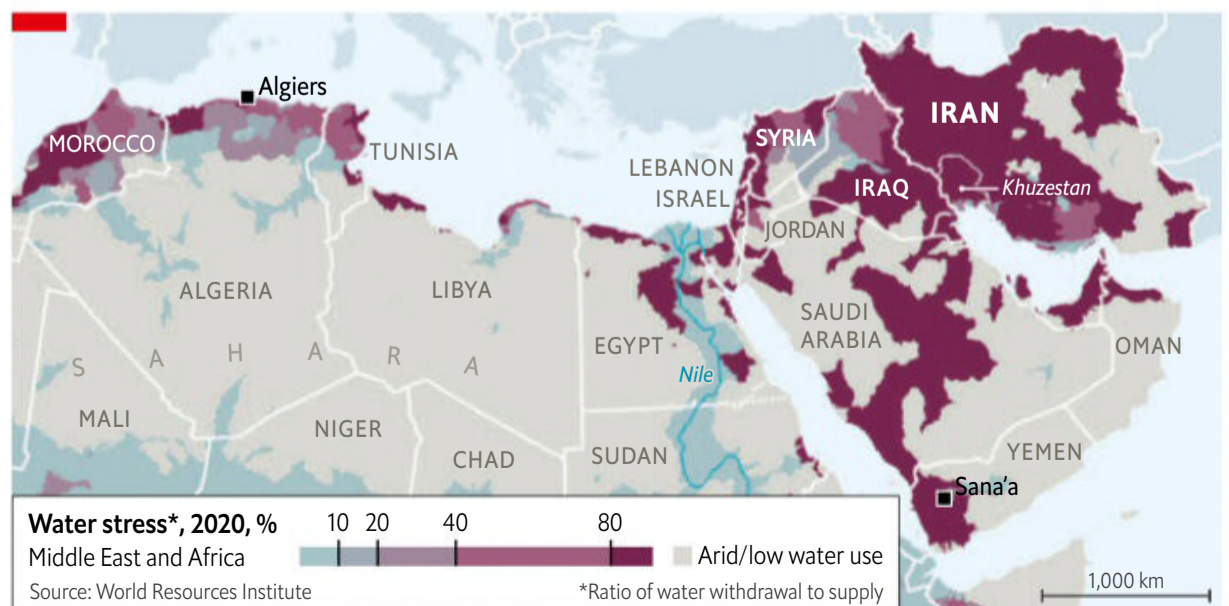
ies and seeking to drive Arabs off the land in order to drill for more oil. "No to forced migration," chant protesters.

Those in Algeria often blame corruption for their water woes. The government has spent more than \$50bn on water projects over the past two decades, but much of it has evaporated. One former minister of water resources has been sentenced to jail for pilfering funds and in recent weeks two more have been arrested. Ten of the 11 desalination plants built by a state subsidiary are in disrepair. The story is much the same in Iraq, where the construction of a large desalination plant has been delayed for years as the country's ruling factions bicker over who gets the contract.

War has made it hard for some countries to maintain water infrastructure. And water is sometimes used as a weapon. The jihadists of Islamic State tried to dam the Euphrates in order to starve their opponents in Iraq. Turkish-backed rebels in northern Syria have stopped operating a water plant that supplies the bread basket of their rivals, the Kurds. A report by the University of Sana'a estimated that 70% of the rural skirmishes in Yemen, before the civil war, began as disputes over water.

Water could even become the main cause of future conflicts. Egypt and Sudan are feuding with Ethiopia over its filling of a giant dam on the Nile. "All options are open," says Egypt's president, Abdel-Fattah al-Sisi, menacingly. Turkey and Iran are also building dams that will deplete the water flowing to Arab countries. Israel's blockade of Gaza ensures that the territory does not have the means to produce enough potable water.

Other observers, though, are more sanguine. It's cheaper to desalinate water than to fight over it, says Eran Feitelson of Israel's Hebrew University. Still, unrest related to water could have global consequences. Yemenis, for example, are already abandoning parched villages. Without better sharing, management and investment, millions of the region's residents risk becoming climate refugees. ■





Germany

After the floods

BERLIN

Germany is grappling with the human and political fallout of the devastation

THE FLOODS and destruction are unimaginable. We cannot even assess the scale of the damage yet," says Carolin Weitzel, the mayor of Erftstadt, a town in North-Rhine Westphalia (NRW), southwest of Cologne. Blessem, a part of her city, was evacuated after a landslide spreading from a nearby quarry created a huge crater that reached the edge of the town. Part of its historic castle collapsed. Streets were smashed and covered with water and mud. Cars were carried away by the torrents and turned upside down. The contents of family homes became piles of muddy rubbish. Even the crosses at the local cemetery were submerged under water.

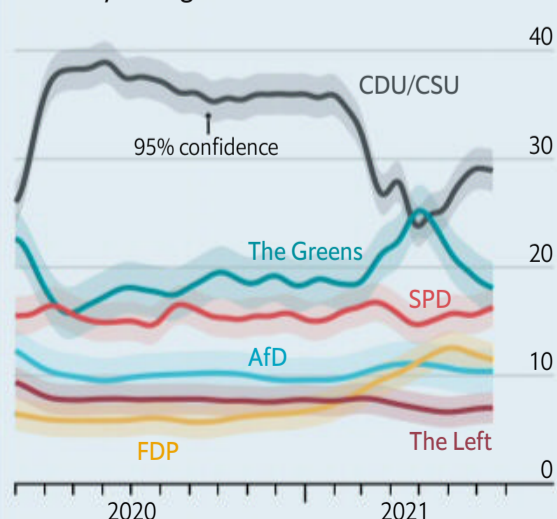
Erftstadt was one of the settlements hit most dramatically by the devastating floods in Europe that have cost more than 200 lives in Germany, Belgium and the Netherlands, with the toll still rising. In NRW at least 48 people have died. And in the district of Ahrweiler in Rhineland-Palatinate alone at least 122 have died. Across the country, 160 more people are still missing and now feared dead. So far Erftstadt is not mourning any deaths, but not all its in-

habitants have been accounted for.

As the worst floods in Germany's post-war history subside, the finger-pointing has started. The disaster has also moved climate change to the heart of debate in the run-up to the general election due on September 26th. Other than the hard-right Al-

Ready for a shake-up?

Germany, voting intention in federal election, %



Sources: Wahlrecht.de; The Economist

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ternative for Germany, all political parties agree that man-made global warming is to blame. Naturally, the Greens have long focused on promoting measures to tackle climate change. But in their reaction to the catastrophe they were careful not to seem to profit from tragedy.

Opposition politicians are now calling for the resignation of Horst Seehofer, the federal interior minister, because of what they say was the government's failure to give people enough warning. Hannah Cloke, a hydrologist at the University of Reading who co-founded the European Flood Awareness System (EFAS) developed by the European Commission in the wake of severe floods in 2002, says that the forecasting was adequate but the response to the warnings of local authorities was highly inconsistent. Under Germany's decentralised system, city and county councils in the 16 states are in charge of natural-disaster prevention. So it was up to them to act upon EFAS warnings, which Germany's meteorological service indeed passed on several days before the disaster struck.

In part owing to a reluctance to order evacuations and the assumption that messages through digital tools would work, officials, media and the public in many affected areas communicated too little, too late. Networks were then knocked out, which meant that the warnings that were given did not reach many of the people who needed them. "In 2002 many people died needlessly, and I fear the same happened again," says Ms Cloke.

▶ As the death toll continues to mount, emotions are raw—and can easily turn. When Frank-Walter Steinmeier, the president, and Armin Laschet, the state premier of NRW and head of the Christian Democratic Union (CDU), visited Erfstadt on July 17th, Mr Laschet was filmed joking and sniggering while the president delivered a solemn speech. Faced with a public outcry, the front-runner to succeed Angela Merkel as chancellor in September was forced to apologise and grovel.

The Green party's candidate, Annalena Baerbock, who has struggled after a strong start to her campaign, was more careful. She cut short her holiday to visit affected areas, but declined to be accompanied by journalists. Olaf Scholz, the finance minister and candidate of the Social Democratic Party (SPD), visited other areas in Rhineland-Palatinate on the same day as Mr Laschet. He promised an aid package of more than €300m (\$350m); in fact €400m has now been pledged.

The right reaction to human suffering on such a scale can make a big difference to political fortunes. In 2002 Gerhard Schröder's narrow re-election as chancellor was probably a result of his deft handling of a flood disaster. In August of that year floods from the Elbe and its tributaries had ravaged Saxony's heartland and other parts of the east. Mr Schröder seized the moment to charm beleaguered easterners. He offered cash, reassurance and a spirit of solidarity. Edmund Stoiber, his CDU/CSU rival, remained aloof—and was defeated.

None of this year's candidates for the chancellorship has Mr Schröder's political nous. This may not matter, as the elections are still two months away. Manfred Güllner, the head of Forsa, a pollster, thinks the floods will have a negligible impact. It is still not clear whether most people will blame climate change for the catastrophe, he says. And even if they do, they are not sure the Greens will be able to do much about it. As the CDU has been in government for 50 out of the past 70 years, it has at least proved it can usually govern the country competently. Apart from seven years as junior members of a centre-left coalition, the Greens have no experience of national government.

"The Baerbock bubble has burst," says Matthias Jung of Forschungsgruppe Wahlen, a pollster. Arguably, Ms Baerbock was over-hyped when she got the party's nod in April to run for chancellor and was bound to suffer a correction. But it was compounded by mistakes of her own making, such as her clumsy handling of accusations of plagiarism. Mr Jung's latest forecast, published just before the floods, puts the CDU at 30%, the Greens at 20% and the SPD at 15%. Mrs Merkel was again Germany's most popular politician; Ms Baerbock's popularity hit a record low for her.

The election campaign remained suspended this week, as Germany attempts to come to terms with an event whose human toll should not have been so high. Public awareness is a huge problem, argues Friederike Otto, a climatologist at Oxford University. "Few in Germany realise that weather can kill," she says. A catastrophe can be an effective catalyst. The hope is that authorities will learn more this time than they did 19 years ago. ■

French labour shortages

A la carte

PARIS

Even in France, waiters and chefs have lost their taste for the job

STRUGGLING TO FIND extra staff, the manager of a bar in the Paris region recently asked her sister to drive for an hour to help out on a busy evening, during a televised football match. At a Normandy sea-front restaurant, a waitress says they are under-staffed because former colleagues will no longer put up with unsociable evening and weekend work. Diners in Paris report the sudden appearance of shorter menus, as restaurants adapt their kitchens to staff shortages, as well as the presence of improbably young (and ungrumpy) fresh recruits now waiting at tables *en terrasse*.

Two months after France reopened outdoor dining, restaurants and bars face a staffing crunch. The share of hospitality firms reporting recruitment problems doubled in June from the previous month, according to a Bank of France survey. When restaurants and hotels were closed for



Do you want the veal or the veal?

months during lockdown, many former staff acquired a taste for normal family life, says Julia Rousseau, head of Éthique RH, a recruitment consultancy. She now sees candidates seeking alternative careers, as estate agents or in banks. "The pandemic has reordered their priorities," she says.

Hospitality is not the only sector with this trouble. In June 44% of all firms reported recruitment problems, with the figure rising to 50% for construction work. "The bottleneck for French growth in mid-2021", wrote François Villeroy de Galhau, governor of the Bank of France, earlier this month, is "the reappearance, already, of hiring difficulties." France's case is particularly striking because its unemployment rate, at 7.5%, is higher than the OECD average (though lower than that of the euro area). Firms face labour shortages even as 2.4m people are officially looking for work.

Even before the pandemic, this gap was a worry. The government had been trying to close it with extra apprenticeships and training schemes. Now these have been expanded, with a more active approach to getting young people in particular into work. A scheme known as "One youth, one solution" guarantees every under-26-year-old training, an apprenticeship or a job, for which firms may get a public subsidy. The poorest get nearly €500 (\$590) extra in benefits a month if they enrol in an active job-hunt scheme. "The government has invested a lot in upskilling," says Ludovic Subran, chief economist at Allianz, an insurer. "But there's an underlying mismatch between supply and demand that will remain for some time."

In parallel, there is an attempt to redesign the unemployment-benefit rules to encourage people to work. President Emmanuel Macron's reform involves, among other things, curbing the generous payouts to high-earners while also increasing from four to six months the length of service required to qualify for full benefits. This latter measure is designed to discourage firms from creating short-term contracts, which they do knowing that people can fall back on benefits in between. But after unions took the reform to France's highest administrative court, the government was told in June to suspend it until the economy improves. Mr Macron vows it will apply from October, if growth picks up.

Staff shortages in the hospitality business may be linked to its generous furlough schemes. This will be tested at the end of August, when such workers will get only 72% of salaries rather than 84%. That may help firms entice staff back. So might better pay. For the moment, as restaurants prepare to check vaccination passes at entry, uncertainty is discouraging them from promising higher wages. Diners may need to get used to longer waits, and fewer alternatives to the *plat du jour*. ■

Poland

The return of the Donald

WARSAW

Not that one

POLITICAL COMEBACKS are always a gamble. “Can the soufflé rise twice?” was the withering putdown once delivered by Australia’s then treasurer, Paul Keating, to a re-emergent rival. (It turned out that it couldn’t.) For Donald Tusk, a former prime minister of Poland who returned to domestic politics this month after an international career that took him to the presidency of the EU’s Council, the obstacles are formidable. Since coming to power in 2015, the right-wing populist Law and Justice party has put its stamp on Poland’s institutions and found itself at loggerheads with the European Commission, which accuses it of undermining the rule of law. Liberals hope that Mr Tusk’s return as leader of the centrist Civic Platform, the largest opposition party, will help defeat the populists. It will not be easy.

Moderate and pro-European, Mr Tusk has long presented himself as the antithesis of Law and Justice and of Jaroslaw Kaczynski, its veteran leader. In the late 2000s Mr Tusk appealed to Poles by offering what he called a policy of “warm water in the tap”, focusing on gradually raising living standards (with the help of EU funds, of which Poland has been the largest net beneficiary), rather than on grand projects. Civic Platform, which he co-founded in 2001, did well: it ran Poland for eight years from 2007 onwards, with Mr Tusk as prime minister for seven of them. Yet since he left for Brussels in 2014 to head the European Council, the party has floundered. The following year, Law and Justice swept to power by appealing to poorer Poles, often from outside the cities, who felt left behind by the social and economic changes since 1989. It has been there ever since.

Now Mr Tusk, at 64, hopes to save his old party. On July 3rd he became Civic Platform’s leader again after Borys Budka, its chairman, stepped aside. “The evil that Law and Justice is performing is evident, shameless and permanent,” Mr Tusk said in a speech at a party congress that day. “Regaining faith in...the possibility of winning” is the key, he added.

Mr Tusk’s fans hope he will give his party a much-needed boost. Recently, Civic Platform has faced a new challenger for centrist votes: the Poland 2050 movement led by Szymon Holownia, a former TV-show host who came third in last year’s presidential election. Its proposals include the separation of church and state, a nod to



Ready for series 2

Poles frustrated by the church’s continuing involvement in politics. Polls earlier this year put the new party in second place behind Law and Justice, challenging Civic Platform’s status as the main opposition.

Mr Tusk’s experience in Brussels, most

recently as head of the European People’s Party, the EU’s largest grouping of centre-right parties, could also help patch up Warsaw’s relations with the EU, which have been fraught. In the latest stage of the dispute over the government’s judicial reforms, the European Court of Justice ruled on July 15th that Poland’s system for disciplining judges goes against EU law.

Since Mr Tusk’s return, there have been signs that Civic Platform may again be closing the gap with Law and Justice, thanks perhaps to a “Tusk effect”. In one poll last week, Law and Justice was on 30%, with Civic Platform at 23%, three points more than a month earlier and a solid eight points ahead of Poland 2050.

Not all voters are convinced: only 23% of Poles believe that Mr Tusk can become prime minister again, according to a survey conducted at the end of June, with almost 50% reckoning that he can’t. His return also spells tension with Rafal Trzaskowski, Warsaw’s liberal Civic Platform mayor, who narrowly lost last year’s presidential race to Andrzej Duda, who was backed by Law and Justice. The next general election is not due until 2023. Can the Tusk effect last that long? ■

Crime in Sweden

Guns galore

GOTHENBURG

Gun crime is on the rise

IN LATE MAY a throng of a hundred or so young men, most of them from African or Middle Eastern minorities, started fighting in a square in Hjallbo, a suburb of Gothenburg, Sweden’s second city. Members of rival gangs seem to have started the scrap over the theft of a moped. Two days later a man in a nearby grocery shop was shot in the back of the head, thought to be as an act of revenge for the gangland battle. Then a policeman in Biskopsgarden, another suburb of the city, was shot dead. A few days after that a man was murdered in a barber’s shop in Frolunda, yet another suburb. To add to this litany of recent criminal violence, two young children were lucky to survive last week after being caught in the crossfire of yet another gang shoot-out, this time in Visattra, on the edge of Stockholm, the capital.

In the past 15 years, Sweden has had Europe’s highest rate of death by shooting, according to a recent report by the country’s National Council for Crime Prevention. Analysing data on 22 European countries provided by Eurostat and the UN’s World Health Organisation, Klara Hradilova-Selin, a researcher at the council, reckoned that Sweden came

second after Croatia between 2014 and 2017. But by 2018 preliminary data suggested that Sweden had risen to the top spot. Most of the victims are men between 20 and 29. Sweden’s rate of homicide by shooting is two-and-a-half times the European average.

Such violence is invariably fuelled by illegal drugs and ill-feeling between jobless, marginalised young men and the police. Recent immigrants, many of them Somali, have failed to integrate. The Syrian migrant crisis of 2015 has led to more ghettoisation. In Hjallbo 70% of residents were born abroad. Many of them, especially young men, scrape by on welfare benefits and the black market. Shooting has become a common way for gangs to settle their differences.

Some analysts also blame excessive centralisation in the past decade for the falling number of police serving on the streets of Sweden’s grimmer suburbs, despite higher police numbers overall. In some districts where immigrants are prominent, community policing has broken down, letting lethal gangs take over. In 1980 Gothenburg’s police solved 80% of all murders. Nowadays the figure is a dismal 20%.

Charlemagne | Minority rights and wrongs

The EU is both ally and accomplice when it comes to minority rights in Europe



AL CAPONE WOULD have recognised the tactic. When Hungary introduced a law that banned the “promotion” or positive portrayal of homosexual relationships or transgender people in schools, lawyers at the European Commission got to work. Brussels has little competence over a country’s education policy. No matter. Just as the Chicago gangster went down for tax evasion rather than racketeering or murder, Viktor Orban’s government found itself on 15th July accused of violating the Audiovisual Media Services Directive on being able to broadcast across borders, among other laws. Imagine “The Untouchables” with fewer machineguns and a lot more paperwork.

On the same day, 140 miles from Brussels, a different story was playing out. In Luxembourg, the European Court of Justice ruled that European companies were within their rights to sack Muslim women for refusing to take off a headscarf. Such a decision did not violate the EU’s rules on discrimination at work so long as the rule banned all religious items of clothing and was necessary to stop “social conflict” or to avoid displeasing customers.

In general, EU law is supposed to provide a floor. National governments are free to offer higher protection—more maternity leave, say—than the European minimum. When it comes to the bloc’s rules on discrimination at work, EU judges have dug a basement. The ruling is pandering to prejudice for profit, says Martijn van den Brink at Oxford University.

It was a curious moment. A law primarily designed to ensure European television channels are not swamped with American imports found itself being used to stop a Hungarian education law. Meanwhile, the EU’s laws against discrimination in the workplace offered little protection to Muslim women dismissed for their headwear. When it comes to the rights of minorities, the EU can be an ally or accomplice: it can stick up for them, or it can embed prejudice.

There was a time when the EU could simply ignore such questions. When it was largely an economic bloc, governments could do as they pleased beyond the EU’s narrow competences. Now, the EU covers the gamut of European life, from the cash in an Italian’s wallet to the limits of religion in the public sphere and the treatment of gay people. Everything is everyone else’s business.

This has political consequences. At a recent summit, European leaders queued up to attack Mr Orban’s proposed anti-gay law. Mark Rutte, the Dutch prime minister, told Mr Orban that Hungary should leave the EU if he passes such laws. Normally, domestic Hungarian policy would not rouse a Dutch prime minister. But more money at the EU level means more money dished out to poorer countries. Dutch taxpayers foot the bill for Hungarian bigotry, which means Dutch politicians now care intensely about it. Punishment beatings will continue until morals improve.

The EU is, after all, a tool. It does the bidding of its political masters, which are national governments and, ultimately, European voters. For gay people this has been a positive. Since the start of the millennium, their lot within the EU has improved markedly as old views have changed. Where only a few member states allowed civil partnerships two decades ago, most now do. Countries with once deeply homophobic laws, such as Ireland, where gay sex was criminalised until 1993, have caught up. Although progress has been much slower in eastern Europe, the countries actively going backwards, such as Hungary and Poland, are outliers. By aggressively pursuing Poland and Hungary, the EU institutions are being blown by political winds.

They do not always blow in a liberal direction. In the same time period countries have cracked down on religious items of clothing. France led the way, banning religious items for staff in the public sector as a way of enforcing the state’s strict secularism. Although it applies to all religions, the move hits the country’s Muslims hardest. Other countries followed suit. Now, a third of EU countries have rules banning burqas or headscarves in certain circumstances. Britain, the largest advocate of a laissez-faire multicultural approach, has left the EU. (When Boris Johnson wrote a column deriding some Muslim women as letterboxes, it was in defence of their right to dress as they wish.)

A particular view—that a business is within its rights to sack someone for wearing a headscarf or a kippah—is now embedded in EU law, thanks to the club’s top court. The commission could intervene, by proposing to tighten the law or adopting the Capone approach. It has no wish to do so. Some think it is simply too controversial to try; others reckon the French approach is better than the Anglo-Saxon one. Just as the EU’s institutional might is now swinging behind gay rights, so too is it following the trend on religious clothing, leaving Muslim women, kippah-wearing Jewish men and turbaned Sikhs in the lurch.

Platitudes or a punch-up

Such fights will become more common. Across the club, European politicians increasingly speak of “European values”. Before, they signalled platitudes. European values amounted to democracy, human dignity and long holidays in August. Now, they signal punch-ups. Any EU government that tramples on gay rights can expect a political onslaught and a bureaucratic beating. Depending on who you ask, allowing companies to sack employees for displays of religion is either a defence of European values or an affront to them. The EU has decided it is the former.

Unlike issues in its usual economic domain, these are not policies where one can split the difference. Disputes in the EU are usually solved via money and haggling. Looser regulation of a cherished industry here, removal of a veto there—and a bag of European subsidies for a sack of votes. As the EU barges into questions of identity, these problems are less soluble. EU institutions have to pick a side, someone has to win and someone has to lose. ■



Covid-19

Fighting for their right to party

In a national experiment, Britain tests the limits of mass vaccination

AS MIDNIGHT ARRIVED marking the start of “Freedom Day” on July 19th, clubbers returned to the dance floor. Yet there was trepidation. “It’s quite clear there’s extreme pressure on Boris to backtrack on ending restrictions,” read a viral Instagram post by a promoter. “If numbers surge he will 100% blame clubs as being superspreader events!” So please, it continued, take a lateral-flow test before heading out. They are “FREE from chemist[s]!”

The Delta covid-19 variant is ripping through Britain, with more than 40,000 cases reported a day (two-thirds of the peak in January). The number is doubling roughly every fortnight. The decision by the prime minister, Boris Johnson, to end most mitigation measures in England—including restrictions on the size of gatherings, and requirements to wear masks and keep distant—looks considerably braver than when he announced it earlier in the month. The club promoter had read the political dynamics more or less correctly.

What happens next is of interest be-

yond Britain’s borders. It is the first country to face a wave of the more transmissible Delta variant having already vaccinated most of its adult population. It will be watched by policymakers seeking to answer a crucial question: will a combination of vaccination and acquired immunity allow them to end severe restrictions and to treat covid-19 more like other endemic diseases, for example influenza and the coronaviruses that cause common colds?

Britain provides such a case study for two reasons. One is that Delta arrived early.

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— Read more at: [Economist.com/Britain](https://www.economist.com/Britain)

The other is that a speedy vaccination campaign means the country has offered two jabs to all of the most vulnerable, and at least one to all adults. Nearly 95% of over-65s in England have been vaccinated, compared with 80% of that age group in America and fewer still in the European Union. As a result of this and better treatment for those who fall ill, the British case-fatality rate has fallen sharply. Many countries will not have caught up by the time the Delta variant takes off, so in this sense Britain provides a best-case scenario.

Even if deaths are much lower than otherwise would have been the case, huge numbers of infections can still cause immediate damage. Officials are keeping a wary eye on the health service. At the moment, more than 700 covid-19 patients are admitted to hospital each day: a sixth of the peak in January, but twice as many as a few weeks ago. Growth in hospitalisations appears to be at the high end of official modelling that dates from the start of July. But with younger patients spending less time in hospital, bed occupancy remains in line with central expectations.

Predicting what is to come is even more difficult than normal. “You have three or four sources of uncertainty, and when you multiply them the uncertainty grows,” says Marc Baguelin of Imperial College London’s modelling team. These include how people will react to freedom with cases climbing, the degree of protection provid- ▶▶

► ed by infection with previous variants and exactly how well vaccines guard against the Delta variant. The difference between 95% and 98% protection against death may not look like much, but, as Mr Baguelin points out, the former implies more than twice as many deaths as the latter.

Don't step out of this house

The government appears ill-prepared for the turbulence. Advice for the immunosuppressed, who are most at risk, was vague and delayed, arriving only on July 12th. In the most recent week for which data are available, more than 800,000 people were asked to isolate by contact tracers or the National Health Service (NHS) app. Already, one in five 18- to 24-year-olds has deleted the app, many to avoid being "pinged". In January modelling by researchers at the University of Oxford, Public Health England and the health department found that lateral-flow tests could pick up around 90% of infections among those who have come into contact with a positive case, suggesting a test-and-release strategy could have many of the benefits of quarantine, at a much lower cost.

It was not until May that the government started a pilot study to test the idea. Some 40,000 people are now enrolled, but it has yet to produce results. In the meantime the government has vacillated over the best course of action. The prime minister's office has contradicted two ministers: one who suggested the government would reduce the app's sensitivity; another who described the guidance to isolate as advice, rather than instruction. Instead, ministers settled upon exempting asymptomatic fully vaccinated "critical workers", such as railway signallers, air-traffic controllers and doctors, from the requirement to isolate, thereby enabling them to go to work. When the government announced the policy, it had yet to decide upon who precisely would count as such a worker.

Having ruled out vaccine passports, Mr Johnson announced on July 19th that they would, in fact, be used in "closed spaces, crowded places and close-contact settings". They will also be required to get into clubs—with a negative test not sufficient, as had previously been suggested—in an attempt to increase vaccination rates among younger Britons. But this measure will apparently be introduced only in September, by when any wave will have done its worst. "I don't know who's advising them on their comms strategy," says a scientist who is advising the government. "Whoever it is, they should be fired."

TV producers used shots of heaving clubs to illustrate the reopening. These told only a small part of the story, however. Polling by YouGov found that, even among regular clubbers, nearly three-quarters were not yet willing to hit the dance floor.

Our "economic-activity index", constructed from Google data on visits to offices, transit stations and retail and recreation sites, has dropped by 5% or so since peaking in June, with little sign of more activity since July 19th (see Finance and economics section). Even without being ordered to, people are staying at home.

That will slow any economic recovery. And the government's blunders will damage the goodwill from a stellar vaccine roll-out. How much will depend on the progress of the huge experiment in which the British population has been enrolled. ■

Schools and covid-19

Summer blues

A blighted school year staggers to a disappointing end

THE SCHOOL year in England did not draw to a close, so much as sputter out. By the time schools began breaking up in mid-July, nearly a quarter of pupils were already absent, according to government figures released on July 20th. A large share were stuck at home as a result of rules requiring whole classes to isolate for ten days, should any pupil test positive for covid-19. But absences for other reasons were also far higher than usual. Some parents appeared to have taken children out of school for fear they would be ordered to isolate, potentially grounding the entire family just as the summer holidays began.

It was a depressing finish to a disappointing year. During the autumn term, pupils had seemed to be making up some of the ground lost as a result of low-quality

remote teaching when England's schools were first shut. But the second closure, which began in January, set them back once again. A government study suggests that in April the average primary pupil lagged about two months behind usual prowess in reading, and three months behind in mathematics. Children from poorer families have suffered worst, and will probably also be the slowest to catch up, no matter what help is on offer.

In theory, efforts to help pupils recover from school closures will continue during the holidays. The government has stumped up a little extra funding to enable schools to provide supplementary classes, especially for pupils about to make the tricky transition from primary to secondary school. But one recent survey found that only a fifth of school leaders had firm plans to offer summer lessons. The head teachers who responded said that staff and pupils needed a break, and that parents weren't keen. In any case, studies suggest that summer schools commonly fail to attract the disadvantaged children most in need of extra help.

Meanwhile, the government is facing severe criticism for skimping on other education catch-up strategies. Last month Sir Kevan Collins, an ex-teacher and education researcher who had only recently been asked to oversee those efforts, resigned after being told that just a tenth of the £15bn or so he had argued for would be forthcoming. He had wanted a lot of that money to go on lengthening the school day. Leaders of schools with lots of disadvantaged pupils believe the government's catch-up plans are "misconceived and inadequate", according to a study published on July 14th by the National Foundation for Educational Research, which interviewed 50 of them. The harm done by school closures to children's mental and emotional health was not being taken sufficiently seriously, they argued. They welcomed more money for personalised tutoring, but said that school leaders should be granted greater freedom to decide what any extra money should be used for.

The prime minister, Boris Johnson, has hinted that more money for schools will be forthcoming in the autumn spending review. In the meantime, the government promises that quarantine rules will be tweaked in order to reduce disruption in the coming academic year. When schools restart in September, whole classes of children will no longer be asked to isolate *en masse*. Even close contacts of pupils who test positive for covid-19 will be allowed to remain in school while they wait for their own test results. This change might be reversed if infections soar again. But for parents exhausted by on-again, off-again bouts of home-schooling, fewer absences will be a blessed relief. ■



I need a holiday

Bagehot | Boris at two

The prime minister's time in power has been marked by extraordinary turmoil



IT FEELS SURPRISING that July 24th marks only the second anniversary of Boris Johnson's arrival at Number 10, the prime-ministerial residence: into those two years he has packed enough incident to keep another man going for two decades. He has divorced for a second time, married for a third, witnessed the birth of what is thought to be his sixth child, contracted covid-19 and flirted with the Grim Reaper. On the politics front he has prorogued Parliament, expelled 21 Tory grandees from the party for voting against the government on Brexit, lost his majority in the process, won spectacular re-election and signed a Brexit deal.

What to make of this whirling dervish? Mr Johnson is notoriously a "Marmite" politician: fans forgive him anything; enemies regard him as a dangerous buffoon. The latter group now includes his former chief adviser, Dominic Cummings, who this week told the BBC that the very idea of Mr Johnson being prime minister "obviously is ludicrous". He is also an alpha/gamma politician, to invoke the pompous marking scheme of his former alma mater, Oxford University, sometimes dazzling with political genius and at others appalling with incompetence. The question is which will predominate during the rest of his time in office.

Mr Johnson understood intuitively that the financial crisis of 2008 ended the neoliberal consensus. Globalisation had left too many voters behind, and created self-satisfied, self-obsessed winners. No mere Trumpian wrecking ball, he is trying to reshape globalisation in the mould of Britain's buccaneering maritime past, rather than the European Union's bureaucratic pettifoggery. As parties withered and voters became more celebrity-obsessed, he cultivated a dishevelled bonhomie and became a media star, ascending to the top job by way of television studios and the London mayor's office rather than stuffy committees and the whip's office.

But the man who can sniff the future on every changing breeze can also make the most godawful hash of things. He fulfilled a promise to "get Brexit done" by blithely agreeing to a customs border in the Irish Sea and then denying that it meant anything. He dawdled in his initial response to covid-19, missing the first five emergency meetings to try to sort out his personal affairs. Scandals come thick and fast, from the £200,000 (\$275,000), some of it fronted by party donors, that went on redecorating his Downing

Street flat to a (rapidly reversed) decision to exempt himself from isolating when told to do so by the national contact-tracing app.

The prime minister's great problem—and therefore the country's—is that the very same characteristics and conditions account for both alpha and gamma. One is an unusual tolerance for chaos. Mr Johnson was brought up in an unstable home, with an endlessly unfaithful father and a mother who had a nervous breakdown and spent months in a mental institution; the two divorced. The family moved home 32 times in his first 14 years—around the age when he transformed himself from Alexander the introverted swot into Boris the Etonian swell. In both personal and professional life he repeatedly returns to chaos as an addict returns to the needle. Explaining why he chose politics over a comfortable life as an author and journalist, he chose a telling metaphor: "There comes a point when you've got to put the dynamite under your own tram tracks...[and] derail yourself." He has been derailing Britain ever since.

This tendency towards chaos is linked to two others: persistent optimism and a belief in the power of individuals (in particular, one Boris Johnson) to shape events. His sentences ring with exuberant words—"amazing", "fantastic" and "splendid"—as though Sinclair Lewis's *Babbitt* had swallowed a volume of P.G. Wodehouse. He loathes the common establishment affectation of world-weariness. On the matter of Scottish independence, upon which depends the very future of the United Kingdom he governs, he seems to think that the threat will dissipate if he does nothing. He instinctively hews to the "great man" theory of history, according to which figures such as Winston Churchill, about whom he has written a book, or Silvio Berlusconi, with whom he seemed smitten for a time, bend "fortuna" to their will.

This psychology lies behind his more inspired moves, from breaking the Conservative impasse over Brexit to handing the vaccine-procurement programme to a venture capitalist, Kate Bingham, with a virtually unlimited budget and permission to operate outside the usual government strictures. But it also lies behind his worst ones. Even his predecessor, Theresa May, who has not a scintilla of alpha about her, nevertheless recognised that the conundrum posed by the Irish border could neither be ignored nor wished away. Jeremy Hunt, who led the competition against Mr Johnson for the Conservative leadership in 2019, may not thrill the crowds like the man who defeated him. But thousands fewer might well have died in the early, chaotic phase of the pandemic if just 50,000 Conservative Party members had chosen calm competence over tousle-haired unpredictability.

Buckle up

Ominously for anyone who likes a quiet life, the gamma grades are becoming more numerous. Mr Johnson's seat-of-the-pants approach is ill-suited to sorting and stacking the building blocks of the post-Brexit political settlement. Moreover, he seems increasingly to have fallen for his own mythmaking. He succeeded as London mayor by appointing a crack team to handle administration while he hogged the limelight. But as prime minister he has failed to delegate, first falling for the grenade-throwing Mr Cummings and latterly acting like the king of a faction-ridden court. In testimony to a parliamentary select committee on covid-19 in May, Mr Cummings recalled complaining about the chaotic handling of the pandemic. "Chaos isn't that bad," Mr Johnson replied, in Mr Cummings's retelling. "Chaos means that everyone has to look to me to see who's in charge." ■



Primate research

Monkey business

America and Europe are growing warier of experiments on monkeys, even as China and Japan race ahead

IN 2014 A GERMAN animal-rights group called SOKO Tierschutz planted a caretaker in the laboratory of Nikos Logothetis, a neuroscientist working at the Max Planck Institute in Tübingen. The infiltrator secretly filmed around 100 hours of lab work over six months, some of which was later broadcast on German television. The footage showed monkeys with metal plugs grafted into their skulls—ports which researchers used to probe and study their brains. One vomits on camera, apparently as a result of damage done to blood vessels in its brain while electrodes were inserted.

The impact was immediate and lasting. Around 800 people massed outside Dr Logothetis's lab, demanding an end to his work with monkeys. He was called a monster and a murderer. He and his family received death threats. He faced charges (which were dismissed) of breaking German animal-welfare laws. So in 2020 he announced that his laboratory would move to China. He is building a new research facility in Shanghai, working with Mu-ming

Poo of the Institute of Neuroscience, one of China's leading brain researchers, who was on the team responsible for first cloning a genetically modified primate in 2018. Dr Logothetis is packing up his Tübingen lab.

Research on primates—mostly macaque monkeys—is increasingly unpopular in Europe and America. The EU has promised that it will reconsider rules about the use of monkeys in research every five years. It wants to end all animal research at an unspecified point in the future. American lawmakers are trying to pass the Humane and Existing Alternatives in Research and Testing Sciences Act. It would encourage scientists funded by the National Institutes of Health, the country's largest funder of biomedical research, to move away from reliance on animals. In both Europe and America the number of monkeys in research has been flat or falling for the last five years.

And yet in East Asia, particularly China and Japan, the volume of research carried out on monkeys is growing. Most of this

has been driven by creating and expanding domestic primate-research programmes. Leading institutions such as the Shanghai Institute of Neuroscience focus on breeding monkeys whose genomes have been modified in order to make their physiology more like humans' and so more useful for studying human diseases.

This kind of genetic modification of research animals is common around the world in biomedical research, but is almost exclusively carried out on mice. No American or European laboratory maintains a line of genetically modified monkeys, but several Chinese and Japanese laboratories do. And since monkeys' brains are far more like human ones than those of mice, transgenic monkeys will probably serve as a better model for studying neurological disease than transgenic mice. While such experiments remain beyond the pale in many countries, China and Japan are racing ahead.

Campaigners argue that no animal should be used for research because they cannot give informed consent. Julia Baines, who works on science policy at People for the Ethical Treatment of Animals (PETA), an animal-rights group, suggests that all animals, including primates, can be replaced in biomedical research by a combination of *in vitro* studies (carried out in Petri dishes and test tubes without relying on living creatures), computer simulations and consensual human trials. ▶

Others, such as researchers at the Centre for Alternatives to Animal Testing at Johns Hopkins University, advocate replacing animal experimentation where that seems possible and refining how it is used where it does not.

Monkeys make up just one in every 2,000 lab animals, according to Stefan Treue, a neuroscientist who works on them at the University of Göttingen in Germany. But they generate by far the most controversy. The social nature of their lives and their intelligence—which is why they are so useful for research—also help explain why such experiments are so troubling. Research which relies on them is simultaneously more valuable and more ethically fraught than research on other creatures. Neuroscientists in particular consider monkeys irreplaceable.

The brain is so poorly understood that looking at its activity in living creatures is the only way to fathom how it works, says Dr Treue. Dissecting dead brains produces only limited information. Brains only really make sense when active. Few humans would volunteer to have electrodes implanted in their brains. The consent of any who did would be suspect.

Allyson Bennett, a psychologist at the University of Wisconsin-Madison, also argues for experiments on monkeys based on the value of pure science—research with no set goal. She cites Vittorio Erspamer, a physiologist working in Italy in the early 1930s. He was curious about the properties of chemicals found in the intestines of rabbits and frogs. In studying them he discovered serotonin.

Didn't see that coming

Drugs that regulate the body's production of serotonin nowadays treat various depressive disorders, improve the lives of millions and help prevent thousands of deaths. Erspamer, however, had no interest in depression or anxiety. It was decades before his discovery became the foundation for such treatments.

The list of medical advances which rest on animal experimentation is long, but Dr Bennett points to one in particular that could not have happened without monkeys: prosthetic limbs which “talk” to the brain, known as neural prosthetics. The brains of non-human primates are sufficiently similar to ours to allow for a prosthetic developed on monkeys to be used by humans. They are still rare, but prototypes have restored the power to interact with the physical world to people who have lost the use of their own limbs.

China is becoming the global centre for the kind of neuroscience that uses monkeys. And the stakes are getting higher. Neurological disorders are the world's second-leading cause of death after heart disease. Conditions such as Parkinson's dis-

ease, Alzheimer's and dementia are becoming more burdensome as the world gets greyer. Meanwhile technology companies hope that an understanding of the brain can help them build cleverer software. Generals think advances in neuroscience can help them build better weapons.

The pandemic has bolstered China's position. In February 2020 China's government banned the export of all wild animals in an effort to tamp down the wildlife trade that is thought to be a vector for the zoonotic spillover of pathogens such as SARS-cov-2, the virus that causes covid-19. Exceptions for research are subject to the government's approval. Until recently the majority of monkeys used in America were imported from farms in China. But export controls have created shortages (see chart).

“China holding onto its primates fits into a long-term strategy it announced in 2015: the China 2025 policy,” says Kirk Leech of the European Animal Research Association. Understanding the brain was one of the key areas of scientific research for that policy. To achieve it, China needs more monkeys. Dr Treue says China has decided that research primates are a strategic resource. Exports are unlikely to revert to their previous levels.

This leaves Europe and America in a bind. The farms in China are well respected by the research community. Alternative suppliers from Vietnam and Cambodia operate in a way that is closer to grabbing wild monkeys out of their natural habitat. This is both more traumatic for the animal and less useful for research, as the health and age of such animals varies. Increasing the harms and reducing the usefulness of any research exacerbates the ethical dilemma of using monkeys.

Meanwhile, even as it keeps all of its farmed monkeys in its own country, Chinese neuroscience is expanding at such a pace that even domestic labs are experiencing shortages, according to Mr Leech. While researchers and campaigners in America and Europe battle over whether any sort of primate research is permissible,

China and Japan are racing ahead.

The Institute of Neuroscience in Shanghai is the largest buyer of the Neuropixel, a new brain probe. These are easier to install in animals' brains than the kinds currently used. The institute bought 3,000 of the probes when they were released to install in macaque monkeys. This would have allowed it to gather neurological data on an unprecedented scale. The probe also offers a path to less invasive research than older, bigger electrodes, though the harm done by putting sensors into a brain will always be considerable.

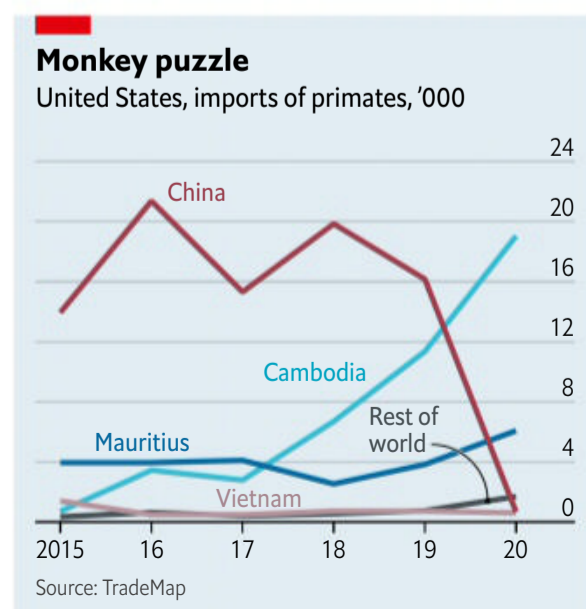
Erika Sasaki at the Central Institute for Experimental Animals in Kawasaki near Tokyo has developed a line of genetically modified marmosets, a small monkey native to South America. She and her collaborators at the RIKEN Centre for Brain Science, also in Japan, are creating a 3D atlas of the marmoset brain to map both the higher cognitive functions unique to primates (humans included) and the neurodegenerative diseases that disrupt them.

Drifting apart

Diverging attitudes towards scientific research on monkeys have three consequences. America and Europe may find themselves outsourcing the creation of knowledge that relies on research methods they consider unethical. In future they may have to choose between relying on the fruits of that knowledge, such as treatments for neurological disorders, and rejecting them in principle. The UN's World Health Organisation estimates that neurological disorders affect at least a billion people worldwide. Treatments for such conditions almost certainly involving some neuroscientific research on monkeys will become increasingly valuable.

Competition for control of the supply chains may sharpen. The pandemic has exposed the significance of Chinese supply chains for producing a range of medical equipment and supplies. If cutting-edge neuroscience becomes concentrated in China, new companies and medical treatments will emerge there too. Many governments are already wary of plugging Chinese-made networking equipment into their phone networks; they will probably be queasy about bunging vital Chinese-made probes into their citizens' brains.

Probing the workings of the brain is a 21st-century equivalent to exploring the farthest reaches of the planet. The results will not only teach humans about their own minds but will also help them design artificial intelligence—a separate but connected field in which competition between countries has become fierce. If such scientific knowledge is largely produced in China and Japan, it will become ever harder for others to catch up, should they decide they wish to do so. ■





Netflix

Season 3, coming soon

The streaming star looks for a new post-pandemic storyline

AS LOCKDOWNS LOOMED last year, people scrambled to stock up on home-survival essentials: food, medicine and a Netflix subscription. In the first half of 2020 the streaming giant registered 25m new members globally, twice as many as had signed up in the same period a year earlier. With viewers hunkering down to see out the pandemic on the sofa, “Outbreak”, a disaster movie from 1995, made Netflix’s top ten.

Now, as the world’s economies reopen, Netflix is sputtering. On July 20th it announced 1.5m new sign-ups between April and June, 85% fewer than a year ago. In America and Canada, where the market is saturated and competitors are multiplying, the total number of subscribers declined by 430,000. Netflix’s share price, which soared by nearly 50% in the first half of 2020, has barely risen in the past year (and dropped by 3% on July 21st).

The stall is unsurprising. Many new members from 2020 pulled forward subscriptions they would have bought this year. It still raises a difficult long-term question for Netflix. The company began by renting DVDs by mail. Its second, stun-

ning act was to invent and dominate subscription video-streaming. Now, as rich markets mature and rivals snap at its heels, growth must come from elsewhere. Netflix’s third season promises exotic new locations and, perhaps, a big plot twist.

Season two has a way to run. Despite the stagnating number of American subscribers, Netflix has scope to charge them more. It makes \$14.88 monthly from each, more than double the takings of Disney+, its main rival, reckons MoffettNathanson, a firm of analysts. And yet fewer members quit Netflix a month than ditch other streamers, according to Antenna, a data firm. Further price hikes could lift Netflix’s

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domestic revenues by 7% annually for the next few years, says MoffettNathanson.

The bulk of the growth, though, will come from overseas. Last year, for the first time, Netflix earned more than half its revenues outside America and Canada. By 2025 the share is expected to reach two-thirds. Already nine in ten new subscribers live abroad (see chart 1 on next page).

The international game is hard. Most foreigners are poorer, and even the rich ones don’t spend much on TV. The average American cable subscriber shells out nearly \$100 a month, so those who “cut the cord” can afford half a dozen streaming services. The equivalent British household spends less than \$45. Netflix has resisted price cuts, so even in low-income India it charges users \$8.70 a month. Its biggest concession has been to invent a mobile-only plan, now in more than 70 markets. Indians can sign up to this for \$2.70.

Like the financial barrier, cultural ones are high in show business. Enders Analysis, a research firm, found that programmes made by British broadcasters were richer in local idiom than those commissioned by foreign streamers. “Sex Education”, a Netflix series set in rural England, had fewer than five British references per hour. “Peep Show”, a home-grown hit, had more than 35, from “johnnies” (condoms) to Findus Crispy Pancakes, a national delicacy. Reed Hastings, Netflix’s boss, said in April that the firm was “still figuring things out” in India, where some senior executives have quit and rivals like ▶▶

► Disney+ and Amazon, an e-merchant with a streaming arm, have made headway.

Still, the international battle is one Netflix is winning. By the end of the year it will have 31m subscribers in Asia, half as many as Disney+, estimates Media Partners Asia (MPA), a consultancy in Singapore. But three-quarters of Disney's are in India, where it has the rights to the cricket Premier League, a national sporting obsession, but earns less than \$1 in revenue per subscriber. By contrast, more than 60% of Netflix's Asian members reside in the rich markets of Australia, Japan and South Korea. MPA expects Netflix's Asian revenues to reach around \$3.2bn this year, compared with \$800m for Disney+.

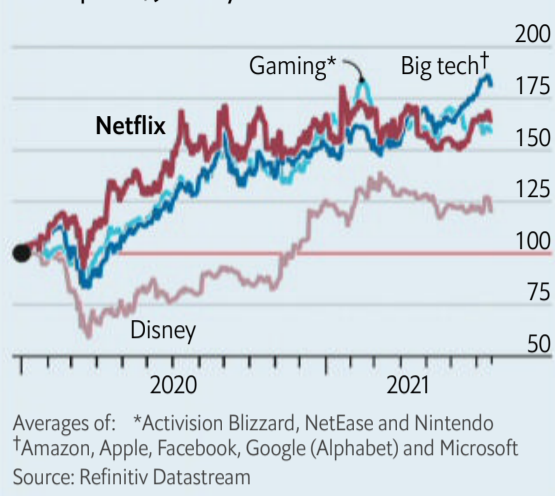
And whereas in America Netflix competes with a dozen or more streamers, in international markets it is seldom up against more than two serious rivals. Once WarnerMedia is spun off from AT&T, its corporate owner, and merged with Discovery, as planned, the global footprint of Warner's HBO Max will increase. But regulators' approval for that deal could be a year away, by which time Netflix may have signed up another 30m or so members. A rumoured partnership between Comcast, a cable firm that owns NBCUniversal, and ViacomCBS, another media group, to combine streaming services internationally could take a while to materialise.

Of Netflix's competitors, only Amazon and Apple, a gadget-maker with entertainment ambitions, are truly global; each claims to be streaming to audiences in more than 100 countries. But both lack Netflix's production chops. Last year Netflix became the biggest commissioner of European scripted content, overtaking the BBC, France TV and Germany's ZDF, reckons Ampere Analysis, another research firm. It has more foreign TV shows in the works than its three main rivals combined, and is shooting in regions where Hollywood fears to tread. Recent projects include its first Russian original, an "Anna Karenina" remake, and Korean K-pop-themed shows.

On the strength of this international

Competing visions

Share prices, January 1st 2020=100



onslaught, Netflix's overall revenues will grow by about 14% a year until 2025, calculates MoffettNathanson. The company is raking in an extra \$5bn or so each year. This compares favourably with show-business rivals, insiders note.

Yet some investors benchmark Netflix not against the entertainment industry but against big tech. That comparison is less flattering. The share prices of America's tech giants—Alphabet, Amazon, Apple, Facebook and Microsoft—have kept rising even as the pandemic burns out (see chart 2). Their revenue growth to 2025 is expected to be nearer 20% a year. To match them, Netflix needs to think outside the goggle box—not least because, as Matthew Ball, a media venture-capitalist, puts it, consumers are now asking not "What should we watch?", to which Netflix has become the stock response, but "What should we do?"

The answer, for many, is play video games. Gaming already generates nearly \$180bn a year in global revenues, and is expanding fast. PwC, a consultancy, estimates that games' share of global entertainment-media sales has risen from 15% in 2019 to 19% this year. In America, under-25s already rank gaming as their favourite pastime (and place watching TV shows and films last).

Mr Hastings has long posited that in the

attention economy Netflix competes with "Fortnite", a popular online multiplayer game, as much as it does with HBO. Until now, though, his firm fought for consumers' attention with its shows (and, more recently, merchandise, live events and podcasts aimed at spurring engagement with its content). Now it is taking the fight directly to the game developers. Under a new gaming boss nabbed from Facebook, Mike Verdu, Netflix plans to offer subscribers games on its mobile app within a year. One person with knowledge of the project says the initial investment is a single-digit percentage of Netflix's \$17bn annual content budget, with hopes that this will grow.

Other media and tech giants have tried and failed to crack gaming, whose interactive nature requires a different technical infrastructure to one-way video-streaming. Disney has closed its games studio. Google and Amazon have struggled to drum up interest in their respective game-streaming services, Stadia and Luna. It is unclear how Netflix plans to get around Apple's ban on gaming platforms in its app store. And whereas many hits like "Fortnite" make money through in-game micro-purchases (of power-ups, say), Netflix will include games in its subscription, a model with few successful examples.

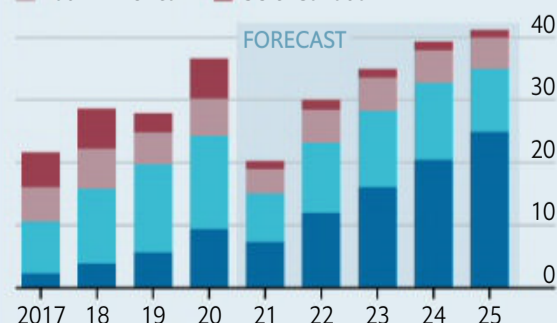
These difficulties lead many to suspect an acquisition is on the cards. "Games are like pharmaceutical companies—you need to spend years building or buying a pipeline," says a gaming-industry veteran. Though Netflix has preferred to grow organically, it has the means to splash out. It generated free cashflow last year and will generate more as its content binge flattens out. Its stable subscription business lets it safely take on debt. America's biggest game publisher, Activision-Blizzard, has a market capitalisation of around \$70bn, making it a "doable" target for Netflix, which is worth \$228bn, believes one of the streamer's investors. Others speculate about a deal with Microsoft, which has both cloud-gaming technology and a games studio.

The step from video to games is a big one—too big for a firm cosy in its streaming comfort zone, some former Netflixers believe. "It is now much more of a traditional entertainment company," laments one, adding that its risk-taking culture works less well at a behemoth with 9,000 employees than it did for a startup with a few hundred people. But that still makes it more nimble than the tech giants, with workforces in the hundreds of thousands and more rigid bureaucracies, notes a shareholder. And the move into gaming may not be as big as the transition from the postal service to the internet, which Netflix pulled off with aplomb. Searching for a cinematic analogy to describe the company, the share-owning optimist settles on a classic from 1953: "The Wild One". ■

Casting the net wide

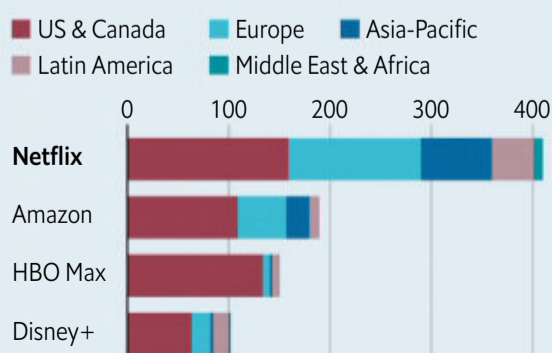
Netflix, net paid-subscriber additions, m

Asia-Pacific Europe, Middle East & Africa
Latin America US & Canada



Television shows, number in production

By region, July 14th 2021





The hydrogen business
Burning clean

Japan Inc wants to become an H₂ superpower

IN 2016 TOKYO'S then governor, Masuzoe Yoichi, predicted that the Olympics the Japanese capital was to host in 2020 would "leave a hydrogen society as its legacy", just as the 1964 Tokyo games left the Shinkansen bullet trains. Later that year Mr Masuzoe resigned over an expenses scandal. But as Tokyo prepares for the pandemic-delayed opening ceremony on July 23rd his dream lives on.

For the first time, the Olympic torch burned hydrogen (never mind that the flame is colourless). Officials will be ferried around in some 500 cars and 100 buses made by Toyota and running on fuel cells, portable power plants that consume hydrogen and emit only water vapour. The Kawasaki King Skyfront Tokyu Rei hotel gets energy from hydrogen sourced from waste plastics.

All nifty, to be sure. But also as immaterial as the lightest gas. Fuel-cell cars are miles from the mass market, despite 20 years of efforts by Toyota and other Japanese firms. The lack of refuelling infrastructure, difficulty of storing the stuff in small vehicles and fuel cells' persistently high cost all argue against a big role for hydrogen in decarbonising transport.

And yet Japan does have a shot at hydrogen-superpowerdom. Behind the scenes its firms are pursuing unglamorous applications in heavy industry and other hard-to-decarbonise sectors. The government is egging them on.

In June, for example, Japan's Ministry of Economy, Trade and Industry (METI) laid out a plan to slash carbon emissions from steelmaking by shifting to "direct-reduction iron" (DRI). This process both

uses considerably less energy and can replace some climate-unfriendly ingredients of the requisite industrial chemistry (such as carbon monoxide). METI is lavishing billions of dollars on the industry to commercialise the use of hydrogen in blast furnaces by 2030. Mitsubishi Heavy Industries, a conglomerate, is building a zero-carbon steel mill in Austria. Nippon Steel wants its DRI technology to be in commercial use by 2030.

Japanese firms are getting into the production of the feedstock, too. The easiest way to make hydrogen is to strip it from methane, each molecule of which contains four atoms of hydrogen and one of carbon. That process, known as "reforming", is cheap but dirty, since its byproduct is planet-heating carbon. Hydrogen can be made cleanly from ammonia or water but this is more expensive. To bring costs down, ENEOS, Japan's biggest oil refiner, recently unveiled plans to build a giant factory by 2030. It will use an electrolytic process to slash the cost of making clean H₂ from H₂O by two-thirds.

In July Marubeni, a Japanese industrial conglomerate, struck a deal with Providence Asset Group, an Australian investment firm, to develop 30 solar farms down under that would combine renewable energy with battery and hydrogen storage. They aim eventually to export green hydrogen to Japan. Kawasaki Heavy Industries recently won regulatory approval to build the world's largest liquefied-hydrogen cargo ship. Not quite as eye-catching as the Shinkansen. But, just maybe, even more consequential.

Social media

LinkedIn

HONG KONG

A Western social network faces awkward choices in China

FOREIGN INTERNET firms have a rough time in China. To stop the spread of ideas it deems dangerous, the Communist Party blocked YouTube's video-sharing site, Facebook's social network and Twitter's microblog in 2009. A year later Google abruptly shut its Chinese search engine after a dispute with censors. Chinese who want to access Western social media must do so via virtual private networks, which is finicky and can be illegal.

One exception to this heavy-handed rule is LinkedIn. China's government tolerates the professional network, perhaps because most people use it to hunt for jobs and business contacts, not talk about democracy. The number of LinkedIn's Chinese users has grown rapidly since Microsoft purchased it in 2016, to 53m. They make up around 7% of LinkedIn's global total, up from 1.4% in 2014. Microsoft does not disclose how much China contributes to LinkedIn's revenues, which reached \$8bn in 2020. Still, the software giant can tout it as a rare Western social-networking win in a market of nearly 1bn netizens.

But operating in a dictatorship presents awkward choices for a platform designed for the exchange of ideas, as well as business cards. To comply with China's laws, LinkedIn must limit what users can post. Since March, when China's cyberspace regulator criticised its lax controls, it seems to have stepped up those efforts. Many users have received notices that their profiles and activities are not displayed in China. One academic based in Taiwan, J. Michael Cole, recently discovered that his profile was blocked there. LinkedIn indicated the presence of sensitive content in the "publications" section of his profile but did not elaborate further. Mr Cole believes it may have something to do with references to books he has written about Taiwan, which China claims as part of its territory.

Mr Cole's experience points to a conundrum for LinkedIn. Like other social media tolerated by Beijing, it must not allow certain words to appear on its service. But the rules are fuzzy, even for large internet platforms. If LinkedIn has received a list from regulators, or come up with an internal one, it does not divulge it. Liu Dongshu, a scholar of China's internet politics at City University of Hong Kong, thinks LinkedIn probably does not have such a list but instead censors some content that China's government may potentially find objec-

Bartleby How to lead from afar

New and old skills will be needed

WHEN OFFICE workers were sent home in the spring of 2020, managers suddenly faced a new challenge: how to supervise teams that were working remotely. While employees are now gradually heading back to their desks, a much greater share will work from home at least occasionally than before the pandemic. A new book, “Leading at a Distance”, by James Citrin and Darleen Derosa of Spencer Stuart, an executive-search firm, attempts to provide some practical tips for managers dealing with staff whom they do not see face to face.

The authors are not in the gloomy camp that believes remote working is a disaster. They think it can be just as effective as face-to-face work. They point out that the ability to hire people who can work anywhere means that businesses will find it easier to develop more diverse workforces. A study by McKinsey, a consultancy, found that 70% of companies thought remote hiring would help in this respect.

The book offers some useful advice. For starters, keep virtual teams small. The upper threshold seems to be around a dozen. A study found that 37% of low-performing teams had 13 or more members, compared with just 24% of high-performing teams. In addition, the best-performing teams tended to be drawn from one department, such as marketing, rather than from across the firm.

The trickiest part of the manager’s job is building rapport. It is easy for remote workers to feel isolated so supervisors should be in regular contact. But it is a tricky line to walk. There is a difference between checking in to see if someone needs support and constantly monitoring their progress. If team members feel they are being nagged, they will conclude their superiors don’t trust them.

Much communication will be by email, which has its advantages. It is easily shared, can be read several times to aid comprehension and can be referred to long after it is sent. But email also introduces the risk that nuance is lost. The authors cite studies showing that emails perceived to be neutral in tone by the sender are seen as negative by the recipient; and recipients consider neutral those perceived by the sender to be positive.

Mr Citrin and Ms Derosa also warn of the dangers of virtual meetings. Just because it is possible to schedule one does not mean it is necessary or wise to do so. Poorly run meetings do not just waste time, they jeopardise the ability to meet deadlines, adding to workers’ stress. Long meetings should have breaks, which the manager should take responsibility for enforcing. And any meeting should be 20 or 50 minutes long, rather than 30 minutes or an hour, to allow for a gap between sessions in an hourly schedule.

At times, the authors’ advice becomes a little generic. Virtual meetings should have one of four objectives, they argue: to



solve problems, make decisions, to gain support or build relationships. Sadly, in Bartleby’s experience, an inventive manager could describe almost all meetings as conforming to at least one of these criteria. Later in the book, they describe the most important characteristics for virtual leaders as including “strong communications and interpersonal skills, initiative, flexibility and the ability to learn and adapt”. Surely these are useful attributes for all leaders, whether operating remotely or not?

And some of the suggestions seem distinctly offbeat. As part of team-building, the authors propose that colleagues display pictures on their bookshelves or give a tour of the kitchen and tell the stories behind the items within it. Much as Bartleby would love to hear about Bagehot’s egg whisk or Schumpeter’s salad spinner, he hopes this idea does not catch on at *The Economist*. The same goes for the suggestion that virtual festive parties would be enlivened by having staff dress up, with a vote on the best outfit, or for colleagues to submit videos of their children or pets. Pet videos should be confined to YouTube.

A few things must change when people work remotely. But not everything does. Managers will need to make a more determined effort to keep in contact with their staff but those who are good at listening, and who can empathise with how their team members are coping, should still be able to flourish. If, as most people expect, a hybrid model emerges with remote working a couple of days a week, there will be plenty of scope for interaction when managers and team members are both present. What office life doesn’t need is gimmicks. Work colleagues do not need to be treated like game-show contestants.

tionable on a case-to-case basis to avoid trouble. This leaves LinkedIn users in a position not dissimilar to that of the social network itself: with no explicit rules on what they can and cannot post in China, they are, like Mr Cole, left guessing. That, in turn, can lead to self-censorship.

LinkedIn says that it has an “obligation to respect the laws that apply to us, including adhering to Chinese government regulations”. When asked by *The Economist* to cite the regulations that force it to block user profiles, LinkedIn’s spokeswoman did not respond. Microsoft did not respond to

a request for comment.

All foreign firms face difficult trade-offs in China, which is both a vast market and an autocracy. Those with large Chinese operations tend to fall in line. Apple, which both makes and sells lots of iPhones in China, has removed sensitive programs from its Chinese app store. Companies with less exposure to China can take the high road. Facebook, Google and Twitter have reportedly threatened to pull out of Hong Kong, on which the Communist Party has recently tightened its grip.

Microsoft sits somewhere in the mid-

dle. China has been a source of grief for the company: from pirated Windows and Office software to raids on its offices by anti-trust regulators. On July 19th America and several allies blamed China for a big hack of Microsoft’s Exchange email service. At the same time, many Chinese do pay for its original wares—and Microsoft would no doubt like more of them to do so. It does not break out its Chinese sales but last year its president said they contributed less than 2% to global revenues. If that share is to grow, self-censorship on LinkedIn may be the price. ■

Technology

Unicornuopia

The venture-capital boom is a risk for investors—and a gift for everyone else

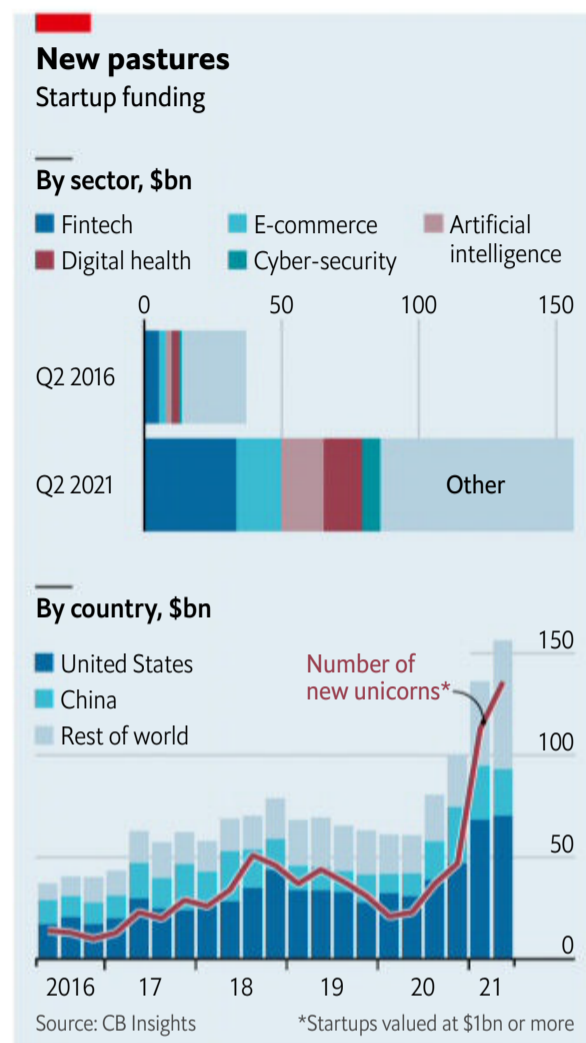
AILEEN LEE, a venture capitalist who founded an investment firm called Cowboy Ventures, coined the term “unicorn” in 2013 to refer to what was then a rare, mythical species: privately held startups valued at \$1bn or more. Any magical attributes aside, today they are commonplace—and becoming ever more so. Consumers, who stand to benefit from an array of novel, often cheap products and services, can expect to enjoy the ride. Investors betting on the unicorn derby should tread more carefully.

The world’s unicorn herd is multiplying at a clip that is more rabbit-like. The number of such firms has grown from a dozen eight years ago to more than 750, worth a combined \$2.4trn. In the first six months of 2021 technology startups raised nearly \$300bn globally, almost as much as in the whole of 2020. That money helped add 136 new unicorns between April and June alone, a quarterly record, according to CB Insights, a data provider. Compared with the same period last year the number of funding rounds above \$100m tripled, to 390. A lot of this helped fatten older members of the herd: all but four of the 34 that now boast valuations of \$10bn or more have received new investments since the start of 2020.

The latest tech darlings are no longer primarily Uber-esque marketplaces for matching services with consumers. Instead, they offer, or are developing, sophisticated products, often in more niche markets. Some 25% of the funding in the second quarter went to financial-technology firms, with lots also flowing into artificial intelligence, digital health and cyber-security (see chart).

The recipients of investors’ largesse are also getting more global. Although American and Chinese startups continue to top the fundraising league tables, the share from outside the two biggest markets grew from around 25% in 2016 to 40% in the past quarter. In July Flipkart, an Indian e-commerce firm, raised \$3.6bn in a round that valued it at \$38bn (see Buttonwood). Grab, vying to be South-East Asia’s answer to China’s super-apps, hopes to go public in New York this year at a valuation of \$40bn.

The torrent of cash can be explained by two factors. The first is a divestment spree by the startups’ early venture-capital (vc) backers. These stakes command top dollar from investors desperate for exposure to



the pandemic-era digitisation wave. Exits, via public listings and acquisitions, more than doubled globally year on year, to nearly 3,000. The proceeds are flowing back into new vc funds, which have so far this year raised \$74bn in America alone, nearing the record \$81bn in 2020 in half the time. The venture capitalists cannot spend the dough fast enough. In the three months to June Tiger Global, a particularly aggressive New York investment firm, made 1.3 deals on average every business day.

The second reason for soaring valuations is more competition among investors. Relative newcomers to tech-investing, such as pension funds, sovereign-wealth funds and family offices, are encroaching on the private markets that used to be dominated by vc firms from Sand Hill Road in Palo Alto. In the past quarter “non-traditional” investors in America took part in nearly 1,800 deals that together raised \$57bn. Many may have been encouraged by the success of earlier forays by dabblers from outside the vc world. Their annual returns from exited investments in a first round of financing have averaged 30% in the past decade, reckons PitchBook, another

data firm. That is more than double the 10-15% for veteran vcs.

This winning streak may yet end in tears. That is what happened two years ago, when richly valued firms with shaky business models either fizzled after their initial public offerings (like Uber and Lyft, two ride-hailing rivals) or never got that far (WeWork, an office-rental firm whose flotation was shelved after investors got cold feet). Many recently listed unicorns continue to bleed cash. According to *The Economist’s* calculations, those that went public in 2021 made a combined loss of \$25bn in their latest financial year.

Assessing whether the remaining ones are worth their lofty valuations looks harder than ever. Like their predecessors, they do not disclose financial results. At the same time, extrapolating from the earlier unicorns, which tended to pursue growth at all costs in winner-takes-all markets, offers little help because today’s lot often aim to capture good margins by selling genuinely unique technology. This could be a more sustainable strategy—if the technology works. But it is harder for non-experts to evaluate, especially based on what is often little more than a prototype. Nikola and Lordstown, two electric-vehicle companies that listed in 2020 via reverse mergers with special-purpose acquisition companies (SPACs), are under investigation by American authorities over allegedly exaggerating the viability of their technology.

Another risk comes from politics. Authorities around the world are growing warier of letting tech firms get too big or entering regulated markets such as finance or health care. As part of a broader crackdown against big tech firms China’s government recently sabotaged the operations of Didi, by banning its app from Chinese app stores days after the firm’s \$68bn initial public offering in New York, ostensibly over misuse of users’ data. Such moves have chilled investors’ appetite for Chinese startups, funding for which has actually declined in the past two quarters. In America the Securities and Exchange Commission is beginning to scrutinise the use of cryptocurrencies. Many crypto-exchanges set investors’ pulses racing in last year’s bitcoin rush. Now the market capitalisation of Coinbase, one of the biggest, has shrunk by half, or \$56bn, since peaking after its listing in April.

Investors, then, had better beware. For everyone else, the unicorn stampede is a boon. Because venture investments involve mostly equity and little debt, even flops such as WeWork or cautionary tales like Didi pose little risk to the financial system. So long as venture capital is bankrolling lossmaking startups while they offer subsidised services or develop clever new products, consumers have no reason to look the gift horned horse in the mouth. ■

Schumpeter | War war v jaw jaw

China offers a masterclass in how to humble big tech, right?



ANTITRUST USED to be as American as apple pie. The Boston Tea Party was, in part, a protest against the monopoly of the British East India Company. The word itself stems from the trusts, such as Standard Oil, that lorded it over the American economy in the 19th century. For stretches of the 20th it became America's charter not just for free enterprise, but for political freedom. Contrast this with China, a Communist dictatorship whose Anti-Monopoly Law, introduced in 2008, has more often than not been used only to cudgel foreign firms. In such hands, it is easy to dismiss trustbusting as Orwellian gobbledygook.

And yet suddenly antitrust in China has come to life in the way police internal affairs have done thanks to the British cop show "Line of Duty": as a source of unending fear and fascination, carried out by agencies with impenetrable acronyms and a keenness for Stasi-like dawn raids. In short order, it has transformed the country's erstwhile tech giants into simpering poodles.

The onslaught marks the rise of a new sort of regulatory authoritarianism. Both America and China have similar qualms about the influence of their big technology firms. But since President Xi Jinping gave the nod to his trustbusting warriors last autumn, China has leapfrogged America in the speed, scope and severity of its antitrust efforts, giving new impetus to the word "techlash". For those frustrated at the power of the tech giants in America, China offers a masterclass in how to cut them down to size. If only, that is, America could emulate it.

Start with speed, the Communist Party's biggest edge over America's democratic ditherers. When overweening tech barons treat politicians like patsies, don't invite them to mind-numbing congressional hearings. Force them to keep a low profile for a while, as China did with Jack Ma, co-founder of Alibaba, China's biggest e-commerce firm, who also founded its fintech stablemate, Ant Group. In no time, the billionaire class got the message. It took just over six months after the humbling of Mr Ma for the founders of two other Chinese tech giants, Pinduoduo and ByteDance, to announce they were retreating from public life. It also took less than four months of antitrust investigation for Alibaba to be clobbered with a \$2.8bn fine in April. By contrast, a trial date for Google, sued last October by America's Department of Justice

(DOJ) and 11 states for alleged monopolistic abuse by its search business, will not come before 2023. Yawn.

Next, scope. Don't let pesky courts stand in your way, as they do in America. Throw the book at mischief-makers using whatever tools a one-party system affords you. As Angela Zhang puts it in "Chinese Antitrust Exceptionalism", a book written before the latest tech crackdown, Chinese regulation of monopolies starts with agencies jostling for power and influence. Their recent rampage has been supercharged by modified laws in an array of subjects. They have slapped fines on firms for crimes ranging from online price discrimination to merchant abuse and irregularities in tech merger deals. The recent crackdown on Didi, a ride-hailing giant, days after its initial public offering in New York, focuses on concerns encompassing data security and spying.

Do not expect Didi, or the alleged monopolists, to seek protection from the courts. In China trustbusters are almost never subject to judicial checks and balances. Chinese agencies, writes Ms Zhang, handle "investigation, prosecution and adjudication". In other words, they are police, judge and jury rolled into one. In America the reverse is true. In June an American judge threw out a six-month-old lawsuit by the Federal Trade Commission (FTC), America's antitrust regulator, against Facebook, arguing that the government never proved that the social network had monopoly power. Round two to the totalitarians.

Third, severity. It isn't the fines tech titans fear most. It is having their business models torn apart, as Ant's was, as well as the reputational damage; bureaucrats can use state media and populist outrage to wreak havoc on a miscreant's sales and share price. This year, amid the crackdowns, the value of China's five biggest internet firms has plummeted by a combined \$153bn. In America, despite lawsuits, probes and hearings, the value of Alphabet, Amazon, Apple, Facebook and Microsoft has soared by \$1.5trn. As Chinese firms capitulate, American ones fight back, publicly challenging their antagonists, such as Lina Khan, who heads the FTC. Jonathan Kanter, President Joe Biden's Google-bashing pick to run the DOJ's antitrust division, can expect similar treatment.

Be careful what you wish for

Presumably all this would arouse envy among trustbusters in Washington, DC—were "China" not an even dirtier word than "tech" these days. Not only has China taken up the antitrust mantle from its superpower rival. It has done so strategically. It strengthens Mr Xi's control over potential rivals for popular adulation: the tech billionaires. It gives the central government more oversight of an ocean of digital data. And it encourages self-reliance; the aim is to have a thriving tech scene producing world-beating innovations under the thumb of the Communist Party.

But autarky carries its own risks. Already, Chinese tech darlings are cancelling plans to issue shares in America, derailing a gravy train that allowed Chinese firms listed there to reach a market value of nearly \$2trn. The techlash also risks stifling the animal spirits that make China a hotbed of innovation. Ironically, at just the moment China is applying water torture to its tech giants, both it and America are seeing a flurry of digital competition, as incumbents invade each other's turf and are taken on by new challengers. It is a time for encouragement, not crackdowns. Instead of tearing down the tech giants, American trustbusters should strengthen what has always served the country best: free markets, rule of law and due process. That is the one lesson America can teach China. It is the most important lesson of all. ■



The uncertain economic recovery

Mixed messages

Depending on where you look, the recovery is either on track or in trouble

SO MUCH IS unfamiliar about the pandemic that it has never been easy to make sense of what is going on. Yet in recent days uncertainty has gone into overdrive. Stockmarkets are volatile; uncertainty about the path of inflation and labour markets is high. The fate of the economic recovery seems to hinge on the answers to a number of big questions. Will the spread of the Delta variant of the coronavirus derail the global recovery? Will underlying weaknesses be revealed as governments unwind stimulus? How enthusiastic are households and firms about spending? But the answers are unclear. And four gauges of the recovery—market prices, “high-frequency” activity indicators, hard data and economists’ forecasts—are all giving mixed signals.

Start with markets. America’s Treasuries are a haven in uncertain times. In March investors sold them off as they took fright at rising inflation, pushing the ten-year Treasury yield up to 1.7%. But it has slowly slipped back since, as doubts about the continued strength of the economic re-

covery have taken hold. The growth scare seemed to intensify on July 19th, when the ten-year yield dipped to 1.19%. The S&P 500, America’s main stock index, fell by 1.6%, with smaller companies hit hardest. Commodity prices also took a knock. That of Brent crude oil fell by 7% to \$69 a barrel. The dollar strengthened against other rich-world currencies.

All this seems consistent with concerns about the recovery and, in particular, a reassessment of what is known as the “reflation trade”, where investors buy assets most likely to benefit from an economic upswing. Yet by the next day the growth scare had seemingly blown over. Stockmarkets reversed their fall. The oil price and bond yields recovered a little.

High-frequency data present a similarly muddled picture. Global mobility measures are still edging up, according to a recent report by JPMorgan Chase, a bank, suggesting continued growth in GDP. Yet Britain, the first big, rich country to be hit hard by the Delta variant, is telling a different story. Our “economic-activity index”

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for the country, using Google data on visits to workplaces, transit stations and sites of retail and recreation, has dropped by about 5% since peaking in June (and there is little sign of greater mobility from July 19th onwards, when England lifted all domestic covid-19 restrictions). The British story seems likely to set a trend to a degree. In America surveys suggest that the uptick in coronavirus infections linked to the Delta variant has been accompanied by a pickup in people’s reported fear of the virus.

The hardest sort of data—releases from official statistical agencies—do not yet reflect the impact of rising covid-19 infections. But they also give contradictory signals. Measures of economic “surprise” in activity indicators (ie, a comparison of the published numbers with economists’ forecasts) still look fairly positive, especially in Europe. Housebuilding in America is proving more vigorous than almost anyone expected; Britain’s government is borrowing less than economic forecasters thought it would, a sign of a decent recovery in tax receipts. But there have also been disappointments. In America, for instance, the University of Michigan’s index of consumer sentiment declined in July, against expectations of an increase.

Owing in part to the movements in activity indicators, economists’ revisions to their expectations of GDP growth—our fourth measure—also send mixed messages. Analysts at JPMorgan reckon that American output will rise at an annual rate of ▶▶

▶ 4.3% in July, which is lower than what they had forecast a week ago (yet represents an acceleration compared with the month of June). Economists at Goldman Sachs, another bank, see downside risks to the global economy but still expect a robust recovery in 2021.

Bring all this together and the picture is one of increasing uncertainty about whether or not the global economic recovery carries on at a rapid clip. In the rich world consumers are still sitting on piles of hoarded savings, and workers are in high demand. Yet the biggest rebound in

activity, flattered by a favourable comparison with last year's lockdown-induced depths and, in America, generous stimulus cheques, has passed. In its place are niggling doubts about whether the recovery can be sustained. Governments' emergency stimulus programmes are coming to an end. There are growing fears that, as the Delta variant of the coronavirus spreads, the resurgence in cases could impinge on economic growth, especially in places with large unvaccinated populations. The following two stories consider each of those worries in turn. ■

Stimulus programmes

Peering down the cliff-edge

As emergency-support schemes draw to a close across the rich world, will the recovery stumble?

IN "GAME OF THRONES", a fantasy drama, a duel takes place between Khal Drogo, a fearsome warrior, and a rival. Khal Drogo comes off barely scathed, suffering only a scratch to his chest. But the wound festers, weakening the fighter. A few scenes later, he falls off his horse and eventually dies.

Many economists worry that the recovery in the rich world could face a similar fate. The past 18 months of lockdowns have left surprisingly few economic scars. But has the damage from covid-19 been avoided, or merely deferred? As stimulus schemes put into place last year come to an end, the question may soon be answered.

When they first imposed lockdowns, governments in the rich world introduced a raft of measures to support firms and households, from doling out cheques and setting up furlough schemes to offering low-interest loans to firms and tax and rent holidays. Many of these are now coming to an end, or have done so already. In the euro area at least three-quarters of debt holidays have expired. In America half of states are abolishing a \$300 weekly top-up to unemployment benefits in June and July; the rest follow in September. A federal moratorium on evictions ends on July 31st. Britain's and Canada's job-retention programmes end in the autumn.

Taken together, these schemes have prevented much of the economic scarring usually seen after a recession. That is not to say that many people have not suffered deprivation; global extreme poverty, for instance, has risen sharply. Yet in the rich world overall family finances look surprisingly strong. Real disposable income per person rose by 3% in 2020 even as GDP tanked (see chart 1). Government spending on extra benefits and cash transfers, which

came to 2.3% of rich countries' GDP, undoubtedly helped. In America the poverty rate rose only slightly from 10.7% in January 2020 to 11% in June this year, albeit with fluctuations in between.

Resilient household finances ensured robust demand for goods and services even in lockdown. That, plus a series of rescue measures, means that firms too look unscathed. In stark contrast to usual recessions, business bankruptcies did not soar but fell sharply in most rich countries last year (see chart 2 on next page).

The uncertainty now is how this picture will change once stimulus ends. In a recent report the Bank for International Settlements, a club of central bankers, identified a "wave of firms' insolvencies" as a "big question-mark clouding the outlook". There are three areas of concern: that reduced cash transfers cut people's incomes and hit spending; that the end of furlough schemes puts millions out of work; and that deferred bills come due, crimping

spending or forcing bankruptcies.

Consider cash transfers first. Just as unemployment insurance is becoming stingier in America, Britain too is cutting its main welfare payment by £20 (\$27) a week. Some people will surely reduce their outgoings as a result.

Yet overall spending need not suffer much. Households in total have saved far more than normal. Our analysis of OECD data puts "excess" savings across the club of mostly rich countries at \$3trn, worth a tenth of overall annual consumer spending. The big worry about consumers in 2021 is not that an already large cash pile is no longer topped up, but that people choose not to spend their savings.

The second concern relates to job-protection schemes. Research by UBS, a bank, suggests that roughly 5% of employees in the four largest euro-area economies and Britain remain on these programmes. If they cannot find work once the schemes end, the average unemployment rate across the five countries will exceed the peak seen in the global financial crisis.

Here Australia offers hope. Its job-retention scheme, which a year ago was supporting 3.5m people, ended in March. Since then the unemployment rate has dropped to its lowest in a decade. Nine out of ten people on the scheme have moved back into work. As in many rich countries the problem in Australia is not an abundance of labour but a shortage. The pandemic has created new demands and job vacancies.

The third concern is perhaps the most significant—and is also the hardest to judge. It relates to bills that are due but as yet unpaid, from taxes and interest to rents. The Bank of England's financial-stability report notes that "businesses may face substantial repayments as VAT [valued-added tax] and rent deferrals begin to lapse." The extent of these is tricky to gauge. Although companies rushed to borrow early in the pandemic, indebtedness has grown less rapidly since. But it is far from clear how company or national accounts treat overdue or deferred bills.

Debtors themselves may not know where they stand. Non-payment of rent by American firms in 2020 "occurred privately and in a somewhat disorganised way", according to a paper by Goldman Sachs, a bank, leaving "lingering disagreements about whether rents have been truly abated or merely deferred". Estimates of the "back rent" owed by American households to their landlords vary by a factor of six.

The scale of the problem may be manageable in aggregate. Take commercial rent in America. Estimates of unpaid rent vary, but a report by the city of San Francisco reckons that local businesses failed to pay up to \$400m in the nine months to December. Scaling that up as an inevitably rough guide suggests missed rent of about \$30bn ▶▶





▶ in America as a whole—about 3% of annual commercial rents paid in a normal year.

So far the evidence suggests that bills are being largely repaid. In Britain over 80% of households taking out deferrals on mortgage payments have since returned to full repayments, suggesting many people may have made use of the scheme out of caution rather than need. In the euro zone loans emerging from moratoriums have performed only slightly worse than the rest of banks' loan books thus far.

But as with so many things in the pandemic, the likeliest outcome is that withdrawing stimulus will hit people at the bottom hardest. Cutting welfare may push some into poverty, and millions of renters in America could face eviction (see United States section). The least productive firms might go bust. In 2020 governments were quick to launch universal, generous stimulus schemes. The task now is to scale those back and enable creative destruction, while protecting those in need. ■

The Delta effect

Hemmed in

Fresh covid outbreaks leave South-East Asian countries with little policy room

LAST YEAR many South-East Asian countries were praised for preventing large outbreaks of covid-19, even as they recorded sharp declines in output. They have not escaped unscathed this year. While widespread vaccination may limit the spread and the severity of the Delta variant in much of the rich world, the vast majority of South-East Asians are still unjabbed. Indonesia, Malaysia, Myanmar and Thailand are reporting more cases than ever. New daily cases in Vietnam are three times higher than the annual total for 2020.

High-frequency indicators suggest that

the surge in cases has knocked economic activity. Daily mobility figures from Google suggest that people in Indonesia and Vietnam are spending more time at home than they did during the outbreaks of last summer. The most reliable indication of the scale of the economic impact may come from Malaysia, which was hit by a fresh outbreak a little before its neighbours. There the manufacturing purchasing-managers' index, a gauge of activity in the sector, fell to 39.9 in June, the lowest since April 2020. (A figure below 50 indicates contraction.)

On July 20th the Asian Development Bank (ADB) pared back its growth forecasts for South-East Asia. It now expects an expansion of 4% this year, compared with an earlier forecast of 4.4%. That may not sound so bad, given the scale of the public-health catastrophe. But it means that the region is no longer expected to return to its pre-pandemic level of output by the end of 2021. Some countries, moreover, will suffer much more than others. And they have fewer tools available to soften the blow.

Vietnam has perhaps been luckiest. The country's goods trade runs to 201% of its GDP, third-highest in the world after the free-trading ports of Hong Kong and Singapore. Burgeoning demand for consumer products from locked-down Westerners helped the country to one of the fastest recoveries in the world, and made it one of the few economies to expand in 2020. Though the ADB has trimmed its 2021 growth forecast for Vietnam, it is still among the highest in the region, at 5.8%.

By contrast, Thailand has suffered without tourists, whose spending accounts for around a fifth of the country's GDP. The economy shrank by more than 6% last year, and the ADB expects growth of only 2% this year. Faced with this dire economic picture, Phuket has reopened to some vaccinated foreign tourists, a move that Prayut Chan-o-cha, the Thai prime minister, described bluntly last month as a "calculated risk". The decision by Indonesia's government to ease lockdown restrictions from July 26th, while cases are still perilously close to their highs, likewise illustrates the difficult choices many middle-income countries face.

Yet reopening at home alone cannot restore economic normality. The recent outbreaks have also dashed any remaining hope of the resumption of tourism from China. Chinese visitors made up between a quarter and a third of tourists in Cambodia, Myanmar, Thailand and Vietnam before the pandemic. Beijing's reluctance to open its borders, which could persist well into next year or beyond, adds to the economic squeeze.

Meanwhile, central banks in the region are less able to stoke domestic demand and cushion the impact of the outbreaks than

they were when the pandemic began. Last year interest rates were slashed to historical lows in most emerging markets. Central banks in Indonesia and the Philippines even joined those in rich countries in pursuing modest bond-buying schemes. Nothing similar seems likely this time. Currencies across the region have stumbled, with selloffs accelerating in the past month. In May Thailand ran its widest current-account deficit in eight years, leaving the country little room to lower interest rates, for fear of discouraging foreign capital. The combination of more covid-19 and less policy space will make the climb back to normality far more arduous than it looked even a few months ago. ■

Climate resilience

Overlooked no more

NEW YORK

The private sector starts to invest in climate adaptation

"WE'RE GOING to make a lot of money," says Ken LaRoe, chief executive of Florida's Climate First Bank. That might seem like an unseemly boast from a traditional banker peddling conventional loans. But the lender aims to make its profits by financing green refrigeration, construction retrofits and other investments designed to help borrowers adapt to climate change. "Storm-hardening is getting to be a really big thing in Florida," Mr LaRoe reckons, "which will be a nice lending opportunity for us." ▶▶



Adapt and overcome

▶ The need for such spending is clear. The UN Environment Programme reckons that annual adaptation costs in poor countries alone are likely to rise from around \$70bn today to \$140bn-300bn in 2030, and twice that by 2050, in nominal terms. It seems likely that private investors will have to get more involved. According to the Climate Policy Initiative, an expert body, they contributed a paltry 2% to global adaptation spending in 2018. The apathy reflected, among other things, a lack of reliable data on climate risks and the perception that adaptation offers low returns. But the

mood could be shifting, as Mr LaRoe's enthusiasm suggests.

There is reason to think that investing in climate adaptation can pay off handsomely, if only because not making such investments can cost companies. A study in 2019 by BlackRock, an asset manager, argued that property will be especially badly hit by the impacts of climate change. Beyond the immediate damage from storms and floods, it pointed to costlier or reduced insurance coverage, pricier energy, costs of installing backup generators and other emergency systems, and falling property

prices in vulnerable areas.

In hurricane-prone Florida a study of insurance data found that new buildings adhering to a stricter building code suffered far less damage, yielding \$3.50 in benefits for every dollar in extra compliance costs. A recent report by the Global Commission on Adaptation (GCA), an NGO of worthies that include Bill Gates, identified \$1.8trn in investments that could deliver net benefits of \$7.1trn by 2030.

It makes sense, then, that reinsurers are also banging the drum. Swiss Re reckons it is far cheaper to invest ahead of climate di- ▶▶

Buttonwood A tiger's tale

Growing sums of venture capital chase a receding opportunity in Indian tech

IN FINANCE there are numbers people and stories people. Quants are archetypal numbers people: they only buy securities that fit statistical criteria. Venture capitalists are stories people. They have to be. They provide finance to technology startups that may have great potential but do not—or do not yet—have the numbers to back it up. Nothing speaks of potential quite like India with its vast, young, tech-savvy population. And no venture-capital story is quite as seductive as Indian tech.

A flood of foreign money is washing into India's startup scene. Flipkart, an e-commerce site, has just raised \$3.6bn in a record-breaking funding round. There has been a wave of public listings this year, as fledglings take advantage of India's buoyant stockmarket to raise capital and provide an exit for their venture-capital backers. The recent initial public offering of Zomato, a food-delivery firm, was heavily oversubscribed. Paytm, a much-touted payments app, is due to list soon.

This burgeoning interest in India owes a lot to the diminishing appeal of China, whose tech firms are facing a regulatory backlash. To outsiders, India seems like a younger, more freewheeling China. Look closer, though, and it does not live up to the billing.

Start with what is meant by Indian tech. An ideal tech startup would give investors exposure to a couple of important elements. One is entrepreneurship. India is a hard place to make a living in. Every proprietor of a *kirana* (a small shop) has to overcome obstacles that would floor MBA-educated managers in richer places. India's tough business climate thus breeds a certain commercial flair, which its best startups exhibit. The other element is engineering chops.



India's computing talent is in design rather than patent-level technology, says a Bangalore-based tech investor. But it is a distinctive edge. Add a dash of venture capital to these elements and, with luck, the result is a company with a true competitive advantage that can be exploited in India and beyond.

In practice, however, the Indian tech firms that draw attention belong to one of two types. The first carries out routine tasks on behalf of businesses in the rich world. The big names here are Infosys and Tata Consultancy Services, the mainstay of Tata Group, a family-owned conglomerate. They are not purely tech; you might think of them as engaged in tech-enabled wage arbitrage. The second type is the copycat firm. These are versions of American or Chinese tech businesses that require an on-the-ground presence in the markets they operate in. So Flipkart is the Indian Amazon; Ola is the Indian Uber; and Paytm is the Indian Alipay. Much of the current enthusiasm is for copycat firms. This is a story that investors who are fairly new to venture capital seem happy to buy

into. If a business model has made money for others elsewhere, it can make money for them in India.

But can it? Flipkart was founded in 2007 by two software engineers who had worked at Amazon. The e-commerce market was then wide open. It isn't anymore. Amazon itself entered the Indian market in 2013. India's old conglomerates have woken up to the fact that their consumer franchises might be upended by startups. Reliance, one of India's big business groups, has invested heavily in telecoms and broadband, and has a large network of supermarkets. Incumbency is an especially powerful force in Indian business. With it comes the lobbying power to tilt regulations in your favour.

That is not the only hole in the story. India has a population that is similar in size to China's. But it is a lot poorer. Average income per head is around \$2,000 in current prices, compared with more than \$10,000 for China. The average figure in India masks a hefty skew towards a wealthy elite. The vast majority of India's workforce is not in formal employment and earns far less than the average. And despite the odd burst of impressive GDP growth, India is not obviously on a path to follow China's rapid economic development. Its addressable market is a lot smaller.

India has undeniable strengths, too, of course. Its computing and commercial talent makes it natural territory for venture capital. The potential to spawn game-changing startups is there. But the money flowing into venture capital worldwide is not really seeking originality. Like a Hollywood producer, it prefers to back variants of ideas that have already been hits. India is a decent story, but only a few will make decent money from it. The numbers just don't add up.

► saster than to pay to fix it afterwards. Bofins at Munich Re have co-written a recent paper showing that linking adaptation and insurance, for example by restoring coral reefs that reduce the damage done by subsequent storms, could lead to reduced premiums and a sixfold return on initial costs over 25 years.

The trickle of investment into climate adaptation could turn into a torrent as companies are forced to disclose climate-related risks. The EU is moving towards mandatory disclosure. In America, President Joe Biden issued an executive order in May along the same lines, and the Securities and Exchange Commission is expected to unveil a related proposal soon.

Investors are paying more attention. “If you are not protected against climate risk, you are probably going to get lower financial returns in future,” says Vivek Pathak of the International Finance Corporation, the private-sector arm of the World Bank. Natalie Ambrosio Preudhomme of Four Twenty Seven, an advisory firm, points to the emergence of resilience bonds, the proceeds of which must go to climate adaptation, as something that fits with “the investment strategies of many large institutional investors”. An issuance in 2019 by the European Bank for Reconstruction and Development was oversubscribed.

Resilience-focused investment funds are emerging too. Sanjay Wagle, co-founder of Lightsmith Group, a private-equity firm, is ploughing money into technologies such as geospatial imaging, weather analytics and precision agriculture. On July 19th Generate Capital, an American private-equity fund focused on sustainable infrastructure, said it had raised \$2bn, taking its balance-sheet to some \$10bn. Scott Jacobs, the fund’s boss, insists that “we do not accept lower returns for investments with resilience benefits.” He points to his firm’s durable electric “microgrids” in Texas and California, which kept the power flowing and continued to earn revenues during recent outages caused by freezing weather and wildfires.

Utilities firms may prove to be keenest on resilience of them all. Mr Wagle contrasts Pacific Gas & Electric, a northern Californian utility driven to bankruptcy in large part by its failure to prepare for wildfires and weather-related shocks, with Southern California Edison, its flourishing southern counterpart that is spending more than \$1bn a year on resilience. BlackRock’s report analysed the climate exposure of 269 American utilities and found that the most resilient of them trade at a premium. “We believe this premium could increase...as the risks compound and investors pay greater attention to the dangers,” it concluded. Adaptation sceptics should note that its lead author was Brian Deese, now a top adviser to Mr Biden. ■

The Big Mac index

The happiest meal

HONG KONG

...in an unhappy place

WHEN *The Economist* introduced its Big Mac index 35 years ago, the ubiquitous McDonald’s hamburger cost just \$1.60 in America. Now it costs \$5.65, according to an average of prices in four cities. The increase comfortably outstrips inflation over the same period.

Indeed, the Big Mac’s birthplace is one of the priciest places to buy it, according to our comparison of over 70 countries around the world (see chart). In Vietnam, for example, the burger costs 69,000 dong. Although that sounds like an awful lot, you can get a lot of dong for your dollar and, therefore, a lot of bang for your buck in Vietnam. You can buy 69,000 dong for only \$3 on the foreign-exchange market. And so a Big Mac in Vietnam works out to be 47% cheaper than in America.

Good to know. But the index was intended not as a shopper’s guide to burgers but as a tongue-in-cheek guide to currencies. In principle, the value of a currency

should reflect its power to buy things, according to the doctrine of “purchasing-power parity”, a term coined by Gustav Cassel, a Swedish economist, in 1918. Since 69,000 dong and \$5.65 have the same power to buy a burger, they should be worth the same amount. The fact that you can buy a burger’s worth of dong for 47% less than a burger’s worth of dollars suggests the dong is undervalued.

America’s Treasury certainly thinks so. Twice a year it reports to Congress on countries that might be keeping their currencies artificially cheap to boost exports and steal a competitive edge. In April it confirmed that Vietnam was one of a trio of trading partners, alongside Switzerland and Taiwan, pursuing “potentially unfair” currency practices, based on three tests of its devising. (Vietnam has a “significant” trade surplus with America, a “material” external surplus with the world, and its central bank buys a lot of dollars and other foreign currencies.) In recent months, America’s Treasury has been browbeating Vietnam to mend its ways, a process known as “enhanced engagement”.

On July 19th the two sides reached a deal. Vietnam’s central bank promised not to indulge in competitive devaluation. It also said it would gradually let the currency fluctuate more freely and it would be more open about its interventions in the currency markets. With luck this will avert harmful tariffs or any similar enhancements of the two countries’ engagement.

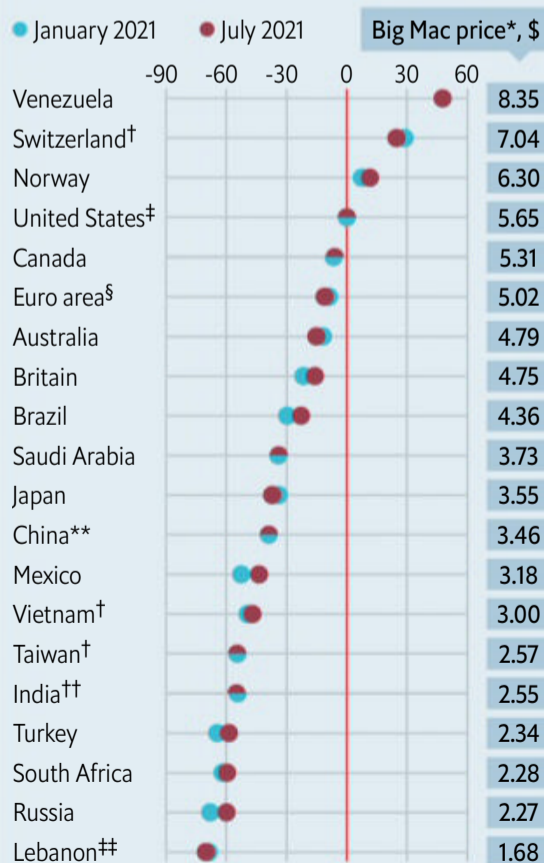
Lest the Big Mac index contribute to Vietnam’s difficulties, it is worth pointing out that it is common for poor countries to seem cheap relative to rich ones in any simple comparison of prices. Vietnam is not an outlier in this regard. The price of a burger is about what you would expect given the country’s GDP per person. (Taiwan, another country on the Treasury’s naughty step, is a different case. It remains surprisingly cheap, given how prosperous it has become. And Switzerland seems expensive by any measure.)

The cheapest burger we could find is in Lebanon. Although the price of a Big Mac has increased spectacularly to 37,000 Lebanese pounds, the currency has collapsed even more dramatically on the black market, where 22,000 pounds buy a dollar.

As a consequence, the Big Mac costs the equivalent of only \$1.68. One reason the burger has remained so cheap may be that Lebanese importers can purchase some of the Big Mac’s ingredients at a more favourable, subsidised exchange rate. They can buy a dollar’s worth of wheat, for example, for 1,500 pounds and other foodstuffs, including cheese, at a rate of 3,900. Lebanon’s currency chaos is both a reflection of its economic disaster and a contributor to it. Even at an artificially low price, a Big Mac is small consolation. ■

The Big Mac index

Local currency under(-)/over(+) valuation against the dollar, selected currencies, %



*At market exchange rates (July 20th 2021) †Subject to “enhanced engagement” with US Treasury ‡Average of four cities §Weighted average of member countries **Average of five cities ††Maharaja Mac ‡‡Unofficial exchange rate

Sources: McDonald’s; *The Economist*

Explore the full, interactive version of our Big Mac index at economist.com/BigMac

Free exchange | War and peace

Could high public debt tilt the balance between monetary and fiscal policy? A warning from Britain

NOWADAYS THE Bank of England, like most rich-country central banks, has two main functions: maintaining monetary stability and ensuring the soundness of the financial system. For most of its life, though, it was also responsible for managing government debt. (Thankfully, the original reason for the bank's creation in 1694, to raise money for "carrying on the war against France", fell by the wayside.) That function was only hived off to the newly created Debt Management Office (DMO) in 1997, when the bank was given free rein over monetary policy. But in the past decade the bank's successive rounds of quantitative easing (QE), whereby it creates new money to buy bonds, have left it holding more than a third of the government's entire stock of debt. That has, awkwardly, dragged it back into the realm of public-debt management.

Britain ran a fiscal deficit of 14.3% of GDP in the latest financial year, higher than in any peacetime year on record and comparable to the wartime borrowing of 1914-18 or 1939-45. The stock of government debt has risen from around 80% of GDP before covid-19 to 100%. The pandemic is the second fiscal shock in little over a decade, after the global financial crisis of 2007-09. As the experience of managing debt after war shows, the divisions between fiscal and monetary policy can often become hazy in times of high public debt and wide deficits, and especially so during crises.

Policy pick 'n' mix

Britain's government debt to GDP over the past century tells a dramatic but familiar story. The huge borrowing of the two world wars is clearly visible, as is the impact of the banking crisis and the pandemic. Looking at servicing costs changes that dramatic narrative. Despite a large increase in debt in the second world war, the burden on taxpayers of servicing that debt fell compared with the 1920s. In the latest financial year debt rose to its highest since the early 1960s but the ratio of interest costs to tax receipts dropped to new lows (see chart). Understanding the varying relationship between debt levels and interest costs means looking at how the functions of fiscal and monetary policy have varied over time.

The first world war may have ended in a military victory for Britain but it was also a fiscal disaster. Interest rates rose, enticing investors into buying gilts. The 1917 War Loan, a bond issued by the government, came with a yield of 5%, compared with a pre-war norm of under 3%. This left a toxic legacy for the 1920s, especially as much of the borrowing was short-term and left the Treasury exposed to rising interest rates. Monetary policy in that decade was

primarily concerned with returning sterling to the gold standard. The result was higher interest rates than needed for domestic purposes, which not only depressed demand and employment but added to soaring interest costs for the Treasury.

The fiscal crisis of the 1920s and 1930s cast a long shadow, leading things to take a different course during the second world war. John Maynard Keynes outlined his plans for a "three per cent war". The "business-as-usual" approach that had characterised the early years of the first world war was entirely absent in the second. Monetary policy was made subservient to debt management and the purpose of the Bank of England became to help finance war.

Debt management remained central to monetary policy between the 1940s and the mid-1970s. Interest rates were set with an eye on sustaining the public-debt burden, and fiscal policy took the lead in trying to stabilise the economy. Central banks were, in other words, subject to what economists call "fiscal dominance". Real interest rates were negative for more than half of the period 1945-80, thanks in part to high inflation. A 2011 paper by Carmen Reinhart and Belen Sbrancia found that such financial repression—a combination of negative real rates with capital controls and the use of prudential powers to force domestic investors to hold public debt—accounted for most of the reduction in the debt ratio after 1945. Similar policies were pursued in America and much of Europe.

Only in the late 1970s and 1980s, as concerns about inflation intensified, did British monetary policy downplay the importance of debt management in setting interest rates. By the late 1990s a new framework was in place. Monetary policy, set by an independent central bank, would target inflation and stabilise the economy. Debt management would be handled by the DMO. For as long as the debt stock remained low, this separation appeared to work well.

Those low-debt days now seem like a distant memory, however. The question of the roles of monetary and fiscal policy therefore looms again. Suborning monetary policy to fiscal needs can make managing public debt much less painful. A spell of low or even negative real interest rates may well provoke fewer political problems than years of tight spending and high taxes. But while austerity is not popular, nor was the inflation that accompanied financial repression. Independent central banks stabilised inflation expectations in the 1990s and 2000s. That hard-won credibility would vanish if investors thought that helping the government meet its bills was the main job of monetary policy.

Worryingly, some investors already seem to believe that the monetary-fiscal separation has broken down in Britain. A survey by the *Financial Times* of the 18 largest gilt managers in January 2021 found that most believed that the main aim of QE was to lower government-borrowing costs. Cynics note that monthly asset purchases by the Bank of England between April and December last year almost exactly tracked DMO issuance. Andy Haldane, the Bank of England's departing chief economist, warned in June of the risk of "fiscal dominance". On July 16th a House of Lords committee, led by Lord Mervyn King, a former governor of the Bank of England, branded QE "a dangerous addiction", arguing that the trade-offs involved were only acceptable as a temporary measure.

The fears are understandable. The subordination of monetary policy to fiscal needs is not inevitable, but history suggests that when debt is high the temptation will always be strong. The central bank could do more to reassure investors that it is not bending to political pressure. It could start by more openly setting out the rationale for QE, and outlining its plans for an eventual exit. ■

Gilt trip

Britain

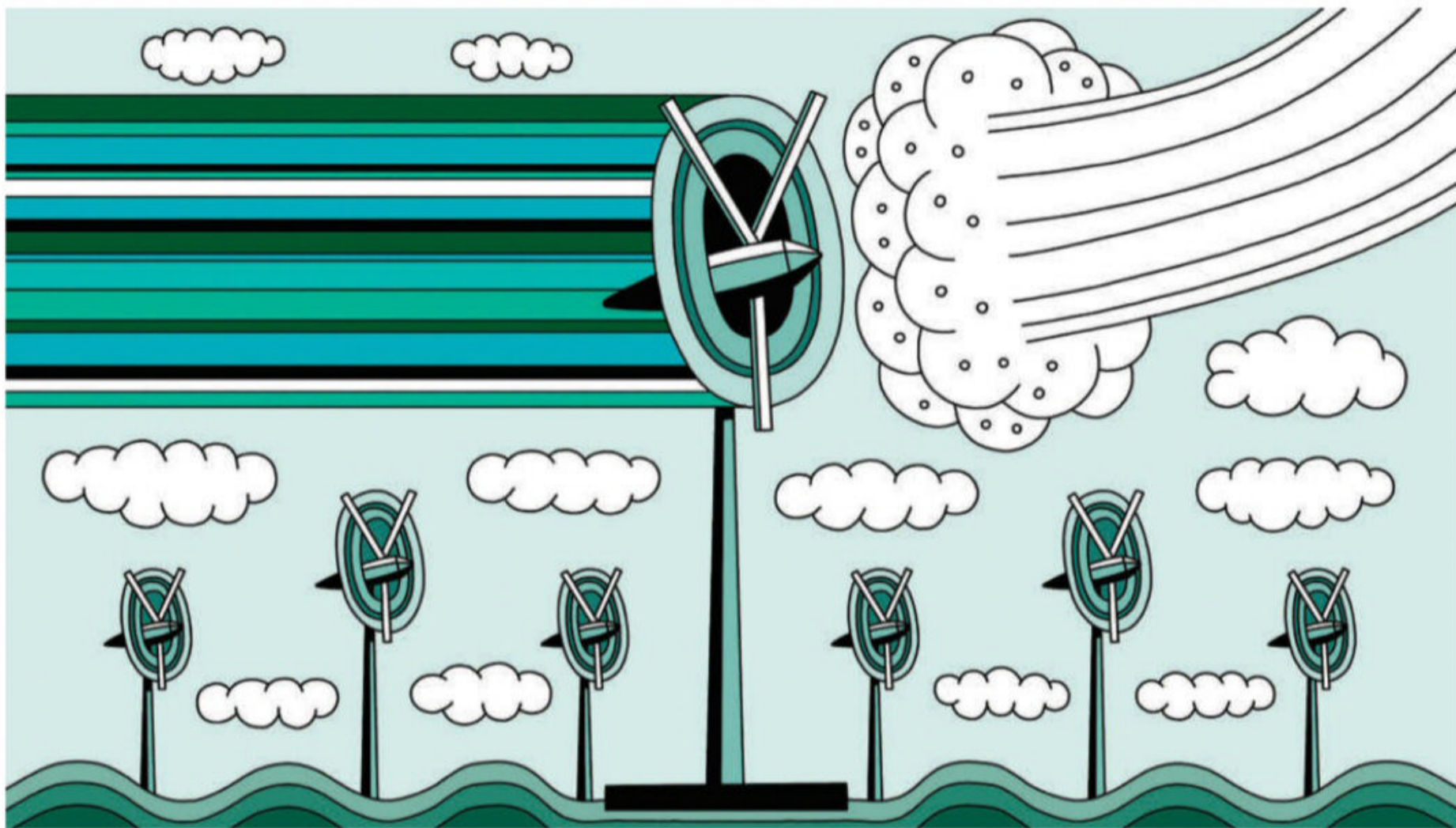
Net government debt
% of GDP



Interest payments
% of tax receipts



Sources: Office for Budget Responsibility; Bank of England



Renewable energy

Floating wind turbines could rise to great heights

But the taller they get, the harder they will be to repair

ON JULY 16TH Royal Dutch Shell, an oil and gas company, and Scottish Power, a subsidiary of Iberdrola, a Spanish electricity utility, made an announcement. They were, they said, jointly submitting proposals to the British authorities to build, off the coast of Scotland, the first large-scale set of floating wind farms in the world. At the moment, the largest floating farm is a six-turbine, 50MW array which is due for completion next month in the North Sea, 15km from Aberdeen. The consortium, by contrast, has said it is thinking in gigawatts (GW).

Offshore wind farms with foundations in the seabed are now part of the energy mix in several places. In the past four years their capacity has nearly doubled, from 19GW to 35GW, and amortised costs have dropped by a third, from \$120 per MW-hour to \$80. They are, however, of limited deployability, being restricted to waters shallower than about 60 metres.

Unfortunately, 80% of the world's offshore wind blows over places deeper than that. Making these accessible, says the International Energy Agency, an offshoot of

the OECD, would unlock enough power to meet the world's probable electrical needs in 2040 11 times over. The trick is to build turbines which, though moored to the seabed, will float. If Shell and Scottish Power can pull this trick off, it will be a big step towards tapping that potential.

Blowing in the wind

A decade ago, floating-turbine technology was a fringe affair. The difficulty was not the turbines themselves, but making them float. The oil and gas industry had, since the 1960s, developed a range of floating foundations that could keep titanic objects like drilling rigs stable at sea. But transferring that know-how to wind power was hardly straightforward. First, unlike an oil rig, a wind turbine is lanky and top-heavy,

making it prone to tip over. Second, turbines generate powerful gyroscopic forces that would further destabilise a floating machine. It was hard, in those days, to see how these problems could be solved cheaply enough to compete with turbines bolted to the ocean floor—much less with conventional power sources.

No longer. A decade of development has yielded two things: proof that turbines can float and clarity as to how these floating units might look. Engineers achieved this through patient prototyping. They took designs previously tested in university wave pools and scaled them up into small demonstration units off the coasts of Norway, Portugal and Japan.

Each unit, bedecked with sensors, gathered data on variables such as pitch, wind speed and wave height. These data were then folded into designs, for bigger, more stable units. The results, visible today in newer models off the Norwegian and Portuguese coasts, can safely float turbines four times as powerful as their predecessors. Engineers therefore consider the flotation problem solved. “The turbines function nicely. They don’t flip. It can be done,” said Alla Weinstein, a pioneer of the field who is now pursuing permits for a floating wind farm off the coast of California.

Four approaches to flotation have emerged (see diagram on next page). The commonest is a semisubmersible. Principle Power, an American company, is one firm pursuing this. Semisubmersibles come in various designs. Principle’s uses a ▶▶

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▶ buoyant steel triangle that has water-filled cans at two of the vertices. These ballast tanks balance the weight of a turbine at the third vertex, with water pumped around inside the triangle to trim its stability.

A second tack, pursued by, among others, Equinor, a Norwegian firm, is to stick a turbine on a bottle called a spar that is filled with heavy ballast, to make it float upright. Equinor does this by placing the turbine on top of an 80-metre-high concrete tube containing water, rocks or some other cheap and heavy material.

Two other approaches are less developed, but may prove useful. Glosten, an American engineering firm that has formed a partnership with General Electric, uses a tension-leg platform. This is a starfish-shaped steel structure with a turbine at its hub. The starfish is submerged and yoked to the ocean floor with cables. This arrangement, similar to that for the ultra-deep-water Magnolia rig, drilling in the Gulf of Mexico, holds the turbine upright. And BW Ideol, a Norwegian firm, erects the turbine on a flat concrete or steel barge that resembles an empty picture frame. When the turbine sways, water sloshes within the frame, dampening its movement. The company claims its prototype, off the coast of Japan, has already survived three typhoons.

Just do it

Project developers have seen enough to convince them. Though the Shell-Scottish Power consortium's proposals (which make no mention of a preferred technological approach) are the most ambitious so far, they are not the first. Besides the 50MW array off Aberdeen, which is owned by Grupo Cobra, a Spanish construction company that uses Principle's design, Equinor has begun construction on an 11-unit, 88MW project which will power a

group of North Sea drilling platforms. Total, a French oil and gas company, and Green Investment Group, a project-development arm of Macquarie, a bank, intend to start work on a 500MW floating wind project off the coast of South Korea by 2023—though they, too, have not yet specified which technology they plan to use.

Bigger farms obviously require more turbines. But they also, ideally, require bigger turbines. And the bigger a turbine is, the harder it is to maintain. Wind turbines occasionally need big parts, like blades or generators, replaced. That is challenging on *terra firma*. But on land, a crane can brace itself against the earth. At sea, “jack-up” vessels achieve similar stability by dropping steel legs to the seabed. Floating turbines will, however, operate in waters too deep for jackup vessels to work, so any vessel servicing one will have, itself, to remain floating. “You have two structures that are moving, and you’re going to shift the load from one of these moving structures to another one,” said Olav-Bernt Haga, a project director at Equinor. This will be technically demanding and thus hard to do cheaply.

A group called the Floating Wind Joint Industry Project (FWJIP), the job of which is to flag up matters of collective interest, deems this an urgent problem. This group is made up of 17 project developers and the Carbon Trust, a not-for-profit consultancy based in Britain. In an analysis published last year the FWJIP said that wind turbines are nearing the physical limits of what can be handled at sea. The oil industry has a number of heavy-lift ships that work in deep water. But these are optimised for weight, not height, and are expensive to hire. The floating-wind industry needs new answers, or it could find itself stunted, both literally and metaphorically.

Fortunately, prospects are in develop-

ment. They take two broad approaches to the problem: lifting and climbing. An example of the former is OWL Heavy Lift, a Dutch company, which has started work on the OWL-010, a vessel dedicated to offshore-wind maintenance. Anyone working on floating wind turbines must contend with waves. A gentle swell at the surface can cause a treacherous sweep up high. The OWL-010 will iron out the effect of this swaying by using motion-compensation software that steadies the position of the crane's hook to within 5cm. This works even when that hook is 150 metres above sea level.

The price tags for such vessels, though, start at around \$250m. The cost alone implies that the industry would have to share a small number of ships, presenting a bottleneck to growth. That is why some propose to stop reaching up to turbines, and to start climbing them, instead.

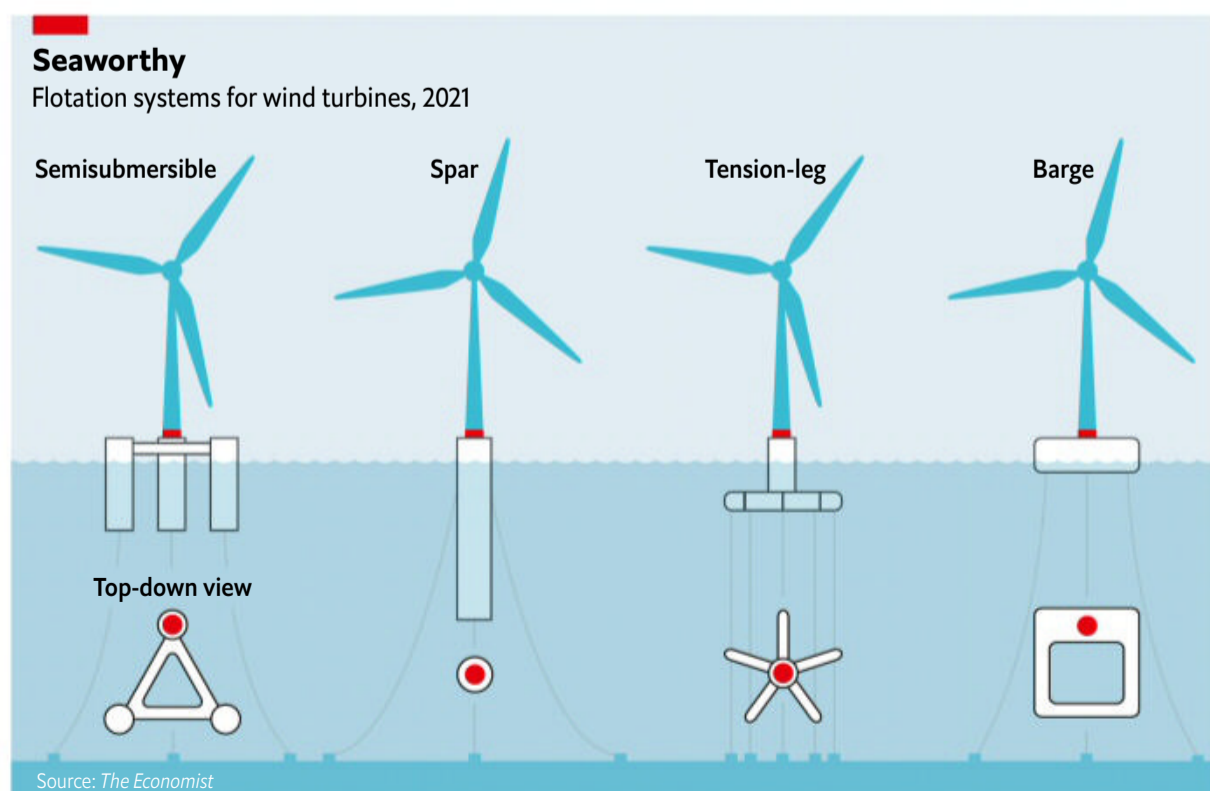
Reach for the sky

Climbing cranes, which scurry up the very object they are building, are often used to raise skyscrapers on land. They are unproven at sea, but several groups are developing versions that might suit floating wind power. SENSEWind, a firm in Cambridge, England, for example, suggests putting tracks on the sides of turbine towers. This would let a ship pull up alongside, place a maintenance car on the tracks, and thus move large parts up and down the tower.

Others propose to lift from the turbine itself. Most turbines have a small crane for light items. Liftra, a Danish company, uses this to raise progressively larger cranes. The biggest fits in a standard 40-foot (12.2 metre) shipping container. Once bolted on, the company claims, the arrangement is as powerful as a conventional external crane. Alternatively, as Conbit, a Dutch contractor, proposes, pulling a few metal parts and cables to the top of the tower would allow a heavy-duty crane to be fashioned temporarily on the turbine's crown.

None of these technologies is beyond the prototype stage. But they may prove valuable for the mega-turbines of tomorrow, be they fixed or floating. For floating turbines, however, an alternative may exist. Unlike fixed turbines, they can be unplugged and dragged to shore. Recent analysis sponsored by the FWJIP suggests that what is best in individual circumstances may depend on location. If a floating turbine is near the shore, it may be easiest to tow it back to port for repair. If far away, exotic gadgets like the OWL-010 or climbing cranes may work better.

The upshot of all this is that it may soon be possible to extract a lot more electrical power from the wind, to do so without covering hillsides with turbines, and to make a profit while doing it. And that is enough to put wind in anyone's sails. ■



Air conditioning

Cool ideas

A new, green air-conditioning system manages without nasty gases

IN A WARMING world it helps to stay cool. But doing so also threatens the planet. Most air conditioners use refrigerant gases called hydrofluorocarbons (HFCs). Though these do not deplete Earth's ozone layer in the way the chlorofluorocarbons they replaced back in the mid-1990s did, they are hundreds of times more effective at trapping heat in the atmosphere than carbon dioxide is. Less-potent greenhouse gases are now being phased in as refrigerants, but these are not without problems of their own. They can be expensive, and some are inflammable.

Researchers have long sought ways to produce cooling systems that do without these troublesome gases, but none has come close to being a direct replacement. A small Irish company, however, now claims to have come up with an answer. Exergyn, based in Dublin, has developed a new type of air conditioning which not only avoids HFCs, but also has the benefit of having few moving parts at its core.

Exergyn has been working secretly on the project for two years, in collaboration with a multinational company which it is not at liberty to name (though its partner is understood to be Carrier, a giant American manufacturer of heating and cooling equipment). The two firms are currently testing a 60kw version, which would have the capacity to cool 15-20 apartments. Exergyn has also begun talks with carmakers and aerospace companies about setting up

similar joint-development projects. With cars, and some small aircraft, going electric, it is not just cooling the cabin that manufacturers are having to think about, but also cooling the batteries.

Squeeze me

Exergyn's system uses a substance called a shape-memory alloy. SMAs, as they are known for short, are a group of materials with the unusual ability to return to a predetermined shape when heated. They are sometimes employed to make spectacle frames, and also in medical implants such as stents. Nitinol, the SMA chosen by Exergyn, is a blend of nickel and titanium.

All SMAs release heat when deformed by compression, and then absorb it when the pressure is released and they return to their original shape. But Exergyn's version of nitinol displays this property to a remarkable degree. For its prototype, the company produced 4cm-square plates of the alloy, each pierced by holes intended to permit the passage of a heat-carrying liquid or gaseous medium. A range of benign substances can be employed in that role. The firm's engineers have tested water, brine, glycol and air, all with success.

To build a refrigerator involves assembling these plates into stacks of 50 or more. Four stacks make a unit. The stacks are compressed in turn by hydraulic rams or electric actuators, in a sequence that works a bit like a four-stroke engine, explains Kevin O'Toole, Exergyn's managing director. At any given moment, one stack is being compressed, one released, one preheated and one pre-cooled.

To cool a room involves passing two circuits of the heat-carrying fluid through this four-stack unit. Fluid in a "cold" circuit first travels through a heat exchanger in the room to be cooled down, absorbing warmth as it does so (see diagram). It is then directed by a series of valves and pumps into whichever core is undergoing its relaxation stroke. The relaxing nitinol absorbs the heat burden and the fluid is pumped back to the heat exchanger for the cycle to be repeated.

Heat thus accumulated is removed by the passage through the stack of fluid from the second, "hot", circuit during the compression stroke. It is then dumped to the outside world via an external cooling unit. Using four stacks permits both the hot and the cold circuits to run continuously.

Tony Ennis, Exergyn's chairman, reckons this method of cooling is not only more environmentally friendly than an HFC set-up, but will also be less expensive to buy and 30-40% cheaper to run. It will be lighter and smaller, too—an important requirement, not least because air-conditioning units often have to go up lift shafts to be installed. As for reliability, he says the prototype's performance suggests the unit at its core could operate for more than 40 years without a problem.

When Dr O'Toole, an expert in memory materials, co-founded Exergyn in 2012, his intention was to use nitinol to create a system that would generate electricity from low-grade waste heat. But the challenges presented by HFCs persuaded him that air conditioning would be a quicker way to bring the technology to market. Development is still continuing, but products may be only a few years away.

His thoughts of a generator have not diminished, though. Nor has interest in other products that could use the technology. These include refrigerators, and also heat pumps to extract warmth from the ground for domestic heating. When time allows, Dr O'Toole and his colleagues hope to get to work on those ideas, too. ■

Gold, fool's and real

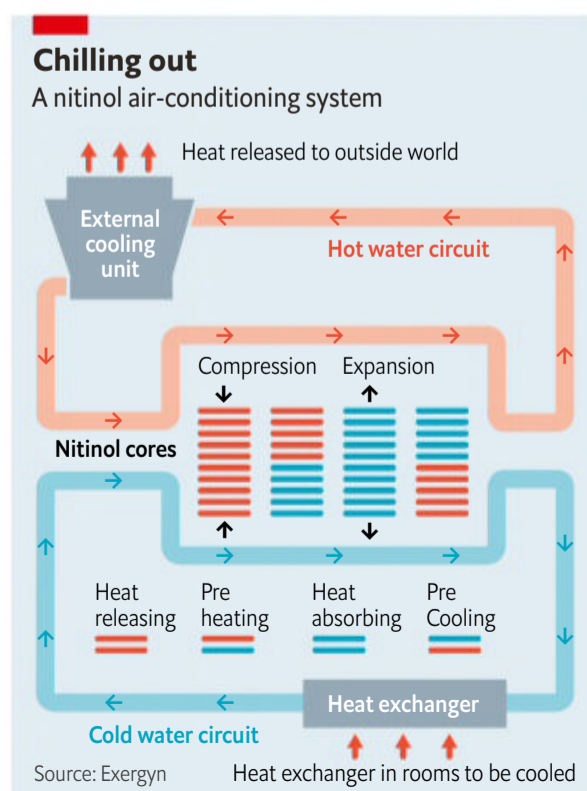
Interior decorations

There's gold in them thar dislocations

FOOL'S GOLD—pyrite, to give its proper name—may once have disappointed prospectors looking for nuggets. But modern miners have learned to love it, because inside its crystal lattice of iron and sulphur there is often actual gold to be found.

It is never much—at most a few tenths of a percent. And extracting it is hard work which involves grinding and heating the mineral, and then treating it with sodium cyanide, which is extremely toxic. But that can be worthwhile. Some 5-10% of the world's gold production derives from pyrite. And this is likely to increase. According to estimates by McKinsey, a consultancy, 24% of the world's gold reserves are "refractory"—meaning the gold must be yanked from the clutches of some mineral, in most cases pyrite.

To a large extent, however, this extraction process is flying blind. That is because it has never been properly established quite how the gold is lodged in the pyrite. One theory is that it forms tiny inclusions—nanonuggets, so to speak. Another is that it is integrated, atom by atom, with-





Hidden treasure

► in the crystal, thus forming a kind of iron-sulphur-gold alloy.

Nick Timms of Curtin University, in Perth, Australia, though, reckons he has found another explanation. As he and his colleagues write in *Geology*, they used a scanning electron microscope and an atom probe (a device which combines a field-ion microscope and a mass spectrometer) to investigate samples from a Chinese gold mine. They discovered that the gold in pyrite (along with many other “foreign” atoms, including arsenic, copper, nickel and lead) is concentrated in places known as dislocations, where the crystal, having been exposed to high pressure or high temperature at some point in its past, has got kinked.

Dr Timms suspects this concentration happens when foreign atoms, which because of their odd sizes do not fit properly into the crystal, migrate through the lattice to relieve the tensions that result when it is bent. That migration herds them towards particular places, and when there are enough of them in such a place the lattice buckles and the tension is released.

This process must be quite efficient. Aliens made up just over 1% of the metal atoms in the sample (the rest being iron). In the deformation zones they were three times as abundant.

That is useful information. Experiments with other types of crystal have shown that impurities in such deformed areas are easier to dislodge than those elsewhere in a lattice. If this is also true for pyrite, it might point the way to a more efficient way of extracting its gold—perhaps by using a harmless solvent like thiosulphate, rather than cyanide, or even employing bacteria to do the job. And only a fool would not be interested in seeing how that panned out. ■

Billionaire astronauts

Jeffrey Bezos goes into space

He was carried there by one of Blue Origin’s New Shepard rockets

A FEW MINUTES after 1pm Universal Time, on July 20th, Jeff Bezos, founder of Amazon, a successful online bookshop and parcel-delivery company, and of Blue Origin, an aspiring rocket firm, became the first billionaire in space. Or maybe not the first. It rather depends on your definition of “space”.

Mr Bezos and three companions—his brother Mark; Wally Funk, an American woman who trained as an astronaut in the 1960s on an unofficial, privately sponsored programme, but did not fly into space; and Oliver Daemen, an 18-year-old Dutch physics student, who thus unarguably became the youngest astronaut ever—blasted off in one of Blue Origin’s human-rated capsules, mounted on top of a New Shepard reusable rocket. The rocket launched the capsule on a trajectory that would culminate above an altitude of 100km. The capsule then separated and carried on into space, while the rocket returned to a landing pad 3km downrange of its launch site in Culberson county, Texas. Its jaunt complete, the capsule, too, then parachuted back to Earth.

The debate about who goes into the record books as “first billionaire in space” was made live on July 11th, when Sir Richard Branson, a Briton, flew to an altitude of 85km in a rocket-propelled plane built and owned by Virgin Galactic, a firm he founded. Sir Richard announced this trip after Mr Bezos had set the date for his—apparently to pre-empt him. There is nothing wrong with a bit of friendly competition, of course. But Sir Richard’s jaunt muddied the waters because many people think it was not exactly the real deal.

The lower bound of outer space is, by convention, something called the Kármán line. This is the altitude above which a craft relying on aerodynamic lift to keep itself aloft would have, because of the thinness of the air at high altitude, to travel faster to obtain that lift than the speed required to go into orbit around Earth.

The exact height of the Kármán line does, though, vary with atmospheric conditions. So again, by convention, it is usually pegged at 100km. This convention is recognised by the Fédération Aéronautique Internationale, the keeper of standards for such matters. One up to Mr Bezos.

America’s armed forces, however, lack the means to reach such heights, but still want some of their own pilots recognised as astronauts. So they claim instead that

space begins at an altitude of 80km, the upper bound of an atmospheric layer called the mesosphere—and to avoid diplomatically awkward distinctions between its own astronauts and military ones, NASA, America’s aerospace agency, has conceded the point. One up to Sir Richard.

New Shepard itself is named after Alan Shepard, a NASA astronaut who was the first American to make a suborbital ballistic flight of the sort Mr Bezos has just experienced, which he did in 1961 on top of a modified Redstone intercontinental ballistic missile. And the date Mr Bezos chose for his flight was also historically redolent, being the 52nd anniversary of the landing of Apollo 11’s lunar module, which carried the first human visitors to the Moon.

Blue Origin’s next project is New Glenn, named after John Glenn, the first American to orbit Earth. As its name indicates, this will be powerful enough to reach orbit. If all goes well, New Glenn will fly (uncrewed) in 2022, and may subsequently carry passengers, though its main purpose will be to launch satellites. So, unless Elon Musk decides to take a trip in one of the Dragon capsules made by his firm, SpaceX, which already routinely orbit Earth, Mr Bezos does stand a chance of being the first billionaire in orbit. Meanwhile, for anyone who wants a suborbital hop, tickets on New Shepard trips will soon be available, for an as-yet-undisclosed amount. For those who prefer to fly Virgin, \$250,000 will buy you a seat. ■



Up, up and away!



The history of work

What a way to make a living

A long view of work shows how little it has changed over millennia

OF THE MANY habits and institutions on which covid-19 has shone a harsh light, none has been more exposed and disrupted than work. The pandemic has drawn attention to the disjuncture between the indispensability of certain jobs, from nursing to making deliveries, and how little they tend to pay. It left many workers bewilderingly idle, or stuck at a disorienting remove from their colleagues. Having downed their usual tools, the bored often took up Neolithic habits, like growing food or baking bread—ironically, given that it was the turn to agriculture, beginning some 12,000 years ago, which first set humankind on the path towards arduous work in dense cities, through which zoonotic diseases might one day run rampant.

“The Story of Work” by Jan Lucassen, a scholar at the International Institute of Social History in Amsterdam, chronicles the long-term background to these jarring developments. The narrative begins with the hunting-and-gathering past, which accounts for most of humankind’s time as a distinct species. Hunter-gatherer life is often portrayed as Edenic. In fact, early

The Story of Work. By Jan Lucassen. *Yale University Press*; 544 pages; \$30 and £25

societies could be violent, people often died young, and few enjoyed a leisurely existence—as the Cuiva do in South America today, reputedly spending up to 16 hours a day in their hammocks.

Nevertheless, this ancient way of life retains an undeniable appeal. Work among hunting-gathering bands was co-operative, social and highly varied; members were masters of many skills, rather than specialists in just a few. Social inequality of any sort scarcely existed. The business of obtaining food generally occupied fewer hours than a modern full-time job, though work included other tasks as well, such as

the collective raising of children, the fashioning and repair of tools and the fulfilment of social obligations that fostered group cohesion. In as much as the hunting-gathering life is humankind’s natural state, it is one in which work is rewarding and meaningful, community is central and fairness matters.

Just as hunter-gatherer society is often characterised as idyllic, the adoption of settled agriculture is frequently presented as the moment when everything went wrong. This, too, is misleading. For one thing, it was not a moment at all; the progression from the first turn towards dependence on domesticated plants and animals, to the production of surpluses big enough to support cities, took some 5,000 years. Agriculture did not immediately lead to patriarchy or drastic inequality. Rather, the road to class divisions ran through millennia of “transegalitarian” societies, in which some people or households controlled a larger share of a community’s output, but did not necessarily take ownership of the means of production. In early urban economies, producers surrendered their output to a central authority—usually a temple—which reallocated goods to community members.

Yet as people learned to wring more output from the land, they built the basis of modern human existence, with all its advantages and drawbacks. Surpluses freed ever more individuals from a hard life producing food. Professions began to emerge—beginning with the odd soldier or ▶▶

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► smith but widening to include an entire menagerie of artisans and functionaries. From around 7,000 years ago the first great cities arose, in Mesopotamia and then South and East Asia. And as societies grew in size and complexity, new working arrangements appeared, from unfree servitude to self-employment and, crucially, wage labour.

If you can get it

This last category expanded with the rise of the first states and their armies; soldiers were among the first working people to earn a money wage. Wage labour and standardised, low-denomination coinage combined to produce economic magic, as true markets began to operate. Not only did these allow commerce to flourish, but by granting the freedom to choose when and how to earn a living, a marketplace for work may also have helped kindle a more individualistic outlook than other arrangements encouraged.

Progress brought complications. War-like and patriarchal societies—such as the Yamnaya of the Eurasian steppe, pastoral nomads who violently displaced matriarchal and egalitarian communities in Europe and South Asia from roughly 5,000 years ago—upended old norms and sowed the seeds of many modern ills. States harnessed the labour of the masses in the construction of grand projects, from mausoleums to aqueducts, and in the destruction of rival civilisations.

Within and across societies, the powerful exploited the powerless. Whereas traditional histories often present drudges and slaves as anonymous extras in the dramas of luminaries, passive in the face of their unhappy fates, Mr Lucassen affords them attention and agency. Africans waylaid by slavers often resisted to the death, he notes. In 1785 captives placed aboard the Dutch ship *Neptunus* rebelled and lit the gunpowder in its hold, preferring to kill themselves and their assailants than to submit to the lash.

If economic injustice is perennial, so is dissatisfaction and resistance to it. Throughout history, elites have deployed cosmologies, from ancient religions to modern political philosophies, in a bid to legitimise inequalities. Even so, vast differences inevitably prompt backlashes: from the first known strike action, in the 12th century BC in the village of Deir el-Medina in Egypt—which housed artisans gathered to work in the Valley of the Kings—to modern trade unionism and the political unrest sparked by globalisation and mechanisation.

Indeed, the most powerful impression left by “The Story of Work” is of continuity. The Industrial Revolution brought a decisive break in the capacity to increase economic output. But the forces that made it

possible—specialisation and trade, expansion of markets, intensification of production—are age-old. So is the motivating power of the desire for more, from the Neolithic enthusiasm for precious stones, which gave a spur to the making of tools; to the “industrious revolution” of the centuries before industrialisation, in which an appetite for new consumer goods drove increased participation in labour markets among both men and women; to the modern-day cult of the side hustle.

In the end the long perspective that the book provides is a mixed blessing. These days it is tempting to imagine that new technologies might mean a chance for workers to recapture the more appealing aspects of the prehistoric past. Were machines eventually able to handle all the world’s unpleasant tasks, people could spend more time on activities that they

find meaningful, or in engagement with their communities, a benign possibility that Mr Lucassen considers. Already, as he points out, in the 20th century many countries constructed generous welfare states, the length of the working week declined from 19th-century highs, and the share of life spent in a relatively workless retirement soared.

And yet his history also shows how much today’s workers have in common with every other soul who has toiled these past 12,000 years. They remain at the mercy of their appetites, and of political and economic institutions built, often consensually, to help them produce more. As it always has, work still provides a structure for both individual lives and societies at large. Little wonder that many people have been itching to get back to it as quickly as circumstances allow. ■

Sex and censorship

Uneasy virtue

The tussle between “sex radicals” and a 19th-century censor still resonates

The Man Who Hated Women. By Amy Sohn. Farrar, Straus and Giroux; 400 pages; \$30

MOST PEOPLE who come to New York see a world bristling with opportunity. When Anthony Comstock arrived in 1867, all he saw was smut. He was shocked by the streetwalking, gambling, saloons and brothels, and by the peddlers openly hawking dirty pictures and “rubber goods” (sex toys and condoms). A pious Congregationalist, brought up in Connecticut to believe women were pure and saintly, he was horrified by the proliferation of manuals

on contraception and better sex, and scandalised by newspaper advertisements for products that promised miscarriages.

As Amy Sohn writes in her colourful new book, “The Man Who Hated Women”, Comstock put his righteous indignation to use. He harnessed the state’s obscenity law to personally seize offensive books, assist in arrests and shut down saloons, often while brandishing a revolver. Having pushed and prayed for the federal ban on the distribution of “obscene, lewd or lascivious” material of 1873, Comstock used his position as a special agent in the US Post Office to crack down on anyone who promoted sex for purposes other than pro-▶▶



Comstock goes postal

► creation. Petty and vindictive, he often resorted to deception and reportedly boasted of the number of people he had driven to suicide. Many of his victims were impoverished and uneducated.

“As one of the most powerful and single-minded men of his time, Comstock dealt a near-century-long blow to women’s health,” Ms Sohn writes. In his efforts to protect women, he arrested many of the midwives and homeopaths who provided essential reproductive care. His federal advocacy spawned various “little Comstock laws” across the states, which often made it a crime to own advice on preventing conception. In 17 states and Washington, DC, a doctor could not discuss ways to avoid pregnancy with a patient. Only in 1965 did the Supreme Court rule that married women could receive contraception from their doctors. Single women were granted that right in 1972.

But it is not quite right to say Comstock hated women, at least not all of them. He revered his mother, who died in childbirth when he was young, and loved his wife, a prim, tiny woman he called “Wifey”. He just didn’t trust women to think for themselves. His rise coincided with a “rich period of radical publishing”, when activists increasingly argued that marriages should be based on love and respect, with a fair division of labour and pleasurable, consensual, recreational sex. Inspired by the abolition movement, these renegades called for the American woman to be—in the words of Victoria Woodhull, a suffragist, stockbroker, publisher and presidential candidate—“emancipated from the sexual slavery maintained over her by man”.

Ms Sohn devotes much of her book to the lives of some “sex radicals” who riled Comstock with their big ideas about marital harmony and bodily autonomy. Besides Woodhull, she includes Emma Goldman, an anarchist and labour organiser, Margaret Sanger, a birth-control activist, Ann Lohman, a “notorious” abortionist known as “Madame Restell”, and Ida Craddock, a sexologist whose thoughts on mutual sexual pleasure were somewhat complicated by her claim that her lover was a ghost. Comstock hounded them all.

A bestselling novelist, Ms Sohn makes clear the depth of her research for her first non-fiction book, occasionally overdoing the details (once, on a date, Craddock had “a satisfying dinner of spring chicken”). She sometimes veers into hyperbole and, at the close, casts off her historian’s mantle to give a feminist pep-talk. Yet she is right to highlight the work these women did to define reproductive liberty as an American right, which paved the way for the birth-control pill and *Roe v Wade*. Comstock has faded into obscurity, but many of the ideas about love, sex and marriage that he resisted are still being debated today. ■



A Baltic travelogue

The wrong side of history

The Glass Wall. By Max Egremont. Picador; 320 pages; £25. To be published in America by Farrar, Straus and Giroux in September; \$30

THE BALTIC states of Estonia, Latvia and Lithuania once seemed to have disappeared as utterly as Atlantis. The collapse of the Soviet Union put them back on the map. As Max Egremont writes in his elegiac account of ties between the past and present, “the 1990s brought a chance at last to discover a world that you thought had been closed for ever. History and memory took on a new bright dimension, as if a window had been suddenly wiped clean.”

In fact locals remember the Soviet past all too clearly. But the author’s voyage of discovery in these supposedly unknown lands sails over such quibbles. The book is confidently written, featuring reportage interwoven with his own and other writers’ literary and genealogical insights.

“Max Egremont” is a deceptively simple pen-name. In his other life the author is John Max Henry Scawen Wyndham, the 7th Baron Leconfield and the 2nd Baron Egremont; he lives in Petworth House, one of the stateliest homes in Britain. This may explain, but does not excuse, his over-emphasis on the region’s long-departed aristocracy, the Baltic German barons who for two centuries ran Estonia and Latvia as provinces of the Russian empire. The names, dates and places can at times read like a kaleidoscopic version of the “Almanach de Gotha”, a handbook of European

nobility. A more ruthless editor would have pruned this material, allowing the central themes to emerge more clearly.

One of these is a paradox of the pre-1918 era, when German baronial families fostered the development of cultures that they had previously oppressed. Another is the lasting scars of armed conflict. The upheavals of the first world war were followed by polygonal fighting between parties including Red and White Russians, revanchist Germans and independence-hungry locals (heftily helped by Britain). The author also writes sympathetically about the trauma of the second world war, when the Baltic states were smashed between Nazi hammer and Soviet anvil, with dreadful consequences for everyone, but particularly the Jewish population.

In places, he hits his stride. His description of the former tsarist naval port of Liepaja is exemplary, bringing together a grand historical narrative, local details, accounts of lives shaped and shattered, and architectural and literary insights. But more often the tone is hurried, sloppy and patronising. He visits an important Estonian war memorial but guesses (wrongly) at the significance of the inscription. Why not ask someone? He cites, but misquotes, the opening line of “Pan Tadeusz”, the most famous Polish poem, which refers to Lithuania. Historical and geographical asides are strewn with errors.

That reflects the biggest flaw: a blithe orientalism. Hardly anyone these days would write about former European colonies in Africa through the eyes of nostalgic imperial administrators or their hangers-on. Mr Egremont quotes Elizabeth Rigby, an Englishwoman who in 1838 visited what is now Estonia to catch up with her Baltic German in-laws. Her account of these benighted lands features observations about Estonians’ “servile obedience and cunning evasion”; they were “as improvident as the Irishman, without his wit—and phlegmatic as the German, without his industry”.

Those deplorables were not illiterate and landless because of the weather. They had recently emerged from what elsewhere in the world is called slavery. The enforcers and beneficiaries of that system were those grand families with their splendid manor houses and cultivated tastes.

All this might be more forgivable if the author paid more attention to the modern Baltic states. Atlantis has re-emerged. What is it like? Though pen portraits of individuals abound, the overall picture, buzzing with cultural and technological innovation, gets a cursory couple of sentences at the end of the book, with a characteristically whimsical pay-off about the mysteries of migrating storks.

These are real places. They deserve more than to be the backdrop to someone else’s story, however evocatively told. ■

Journalism in Africa

Open letters

KAMPALA

Intellectual discussion is flourishing in an array of new African magazines

LAST OCTOBER young Nigerians took to the streets to protest against police brutality. At first “none of the traditional media companies were covering it,” recalls Wale Lawal. A few years earlier he had started the *Republic*, a quarterly magazine of ideas and analysis, and now his readers wanted to discuss the movement that was swelling around them. So he and his team in Lagos ran a series of online pieces on the protests, later collected in a special print edition. This kind of in-depth coverage of under-reported stories was “exactly what we were set up to do”.

Mr Lawal says he hopes the *Republic* will one day become “a *New York Times* for Africa”. But in temperament it is more like the protest movement itself—youthful, tech-savvy and decentralised, its freelance writers touching on topics as diverse as modern slavery or the sexism of Fela Kuti, a revered musician. The publication is an example of the new intellectual spaces that have opened up in Africa over the past decade, from long-form journalism to literary magazines, in an efflorescence of political commentary, criticism and fiction.

African intellectual journals have an illustrious history. The independence era of the 1950s and 1960s produced titles such as *Présence Africaine* and *Transition*. “A good literary magazine is like a blind man’s stick,” wrote Rajat Neogy, the Ugandan founder of *Transition*; “it helps you feel the way.” He published work by luminaries

including Chinua Achebe, Wole Soyinka, Ngugi wa Thiong’o and James Baldwin. But in 1968 he was arrested for sedition after running an article critical of Uganda’s government, a harbinger of the authoritarian cloud that would smother free expression in many African countries.

By 2000 speech was again becoming freer, and the new century saw the birth of publications such as *Chimurenga*, a literary magazine that took its name from a Shona word for Zimbabwe’s liberation struggle. But it was on the internet that restraints really fell away. “For many African countries the digital space is the freest,” says John Githongo, a Kenyan anti-corruption campaigner and former writer for *The Economist*. In 2016 he was one of a group of Kenyans who founded the Elephant, an outspoken political website that had 3.2m views in 2020. (Online freedom can be fragile: Uganda’s government blocked the site during last year’s election campaign, after it covered massacres by the security forces, among other sensitive subjects.)

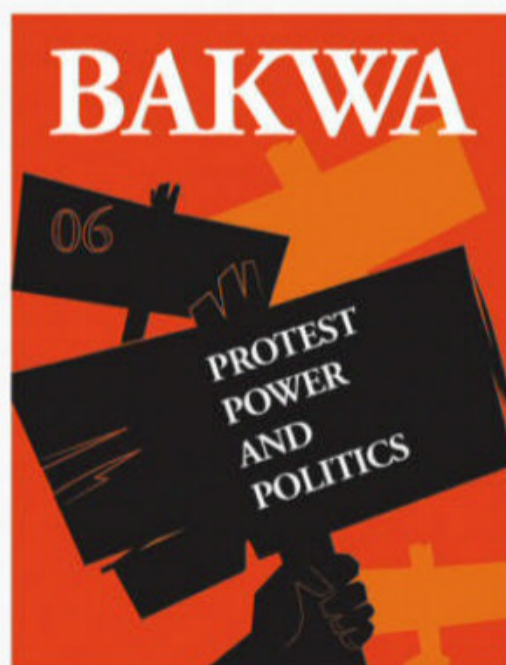
New online outlets experiment with podcasts and video and embrace social media. Some of the best-known—such as the analysis site Africa is a Country, or the literary one Brittle Paper—began as personal blogs. They generally reject both the staid habits of mainstream African papers and the narrow preoccupations of much Western writing about the continent. Many are more cultural than political, but most lean

left. The outlook is typically pan-African, finding both solidarity and difference with activists elsewhere. Through a series of essays on “the Black Atlantic”, Mr Lawal hopes to “change the perspective on blackness around the world”. The focus, he thinks, tends to be narrowly American.

These outlets also emphasise the universal interests of African writing. Jennifer Malec, editor of the *Johannesburg Review of Books*, says it aims “to give a voice to African writers to comment on significant literary works from around the world”. Its latest edition discusses both Manyano, a women’s prayer movement in South Africa, and the influence of Charles Dickens. *Bakwa*, a literary magazine from Cameroon, has collaborated with a journal in Mexico and ran a series of essays about travelling as an African, with contributions from across the continent.

“If we didn’t live in the internet era I don’t think we would ever have started *Bakwa*,” says Dzekashu MacViban, its founder. Although funding is a perennial challenge for small magazines, the internet makes it cheaper to reach a scattered readership. Increasingly, says Bwesigye bwa Mwesigire, founder of the Arts Managers and Literary Activists Network in Kampala, African intellectuals are building the platforms that make cultural commentary possible. “It’s not just that people are interested in writing, now they are also interested in being the ones publishing.”

That spirit is beginning to extend from Africa’s megacities into quieter places. In 2019 Rémy Ngamije co-founded *Doek!*, a Namibian literary magazine. Contemporary Namibian writers are, he says, exploring the legacies of colonialism and “the unspoken losses of the liberation struggle” against white-ruled South Africa. “We’re basically doing the grassroots work of starting a literary tradition.” ■



Economic data

	Gross domestic product				Consumer prices			Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago				% change on year ago			%		% of GDP, 2021†		% of GDP, 2021†		10-yr gov't bonds		per \$	
	latest	quarter*	2021†		latest	2021†						latest,%		change on year ago, bp		per \$	% change
																Jul 21st	on year ago
United States	0.4	Q1	6.4	6.0	5.4	Jun	3.1	5.9	Jun	-3.0		-13.5	1.3	69.0	-		
China	7.9	Q2	5.3	8.5	1.1	Jun	1.6	5.0	Jun [§]	2.8		-4.7	2.7	9.0	6.47	8.0	
Japan	-1.6	Q1	-3.9	2.2	0.2	Jun	-0.2	3.0	May	3.5		-8.9	nil	-8.0	110	-3.1	
Britain	-6.1	Q1	-6.2	5.7	2.5	Jun	3.1	4.8	Apr ^{††}	-4.5		-10.8	0.6	43.0	0.73	6.8	
Canada	0.3	Q1	5.6	5.4	3.6	May	2.3	7.8	Jun	-2.0		-8.8	1.2	70.0	1.26	6.3	
Euro area	-1.3	Q1	-1.3	4.4	1.9	Jun	1.8	7.9	May	3.3		-7.1	-0.4	7.0	0.85	2.4	
Austria	-5.5	Q1	-12.6	3.4	2.8	Jun	2.2	6.9	May	3.0		-7.6	-0.2	10.0	0.85	2.4	
Belgium	-0.5	Q1	4.5	4.3	1.6	Jun	1.5	6.5	May	-0.7		-6.6	-0.1	4.0	0.85	2.4	
France	1.2	Q1	-0.4	5.5	1.5	Jun	1.6	7.5	May	-1.3		-8.7	nil	10.0	0.85	2.4	
Germany	-3.1	Q1	-7.0	3.5	2.3	Jun	2.5	3.7	May	6.8		-5.4	-0.4	7.0	0.85	2.4	
Greece	-1.4	Q1	18.9	5.4	1.0	Jun	nil	15.4	May	-3.7		-5.8	0.7	-51.0	0.85	2.4	
Italy	-0.8	Q1	0.6	4.6	1.3	Jun	1.3	10.5	May	3.2		-11.8	0.7	-48.0	0.85	2.4	
Netherlands	-2.4	Q1	-3.1	3.4	2.0	Jun	2.1	3.3	May	10.3		-1.7	-0.4	-3.0	0.85	2.4	
Spain	-4.2	Q1	-1.7	5.9	2.7	Jun	2.0	15.3	May	1.5		-8.6	0.3	-10.0	0.85	2.4	
Czech Republic	-2.6	Q1	-1.4	3.6	2.8	Jun	2.6	3.4	May [‡]	2.6		-5.6	1.8	92.0	21.8	5.3	
Denmark	-0.9	Q1	-3.9	2.8	1.7	Jun	1.4	4.0	May	7.8		-0.5	-0.1	24.0	6.31	2.7	
Norway	-1.4	Q1	-2.5	2.6	2.9	Jun	2.9	4.9	Apr ^{††}	2.5		-1.0	1.4	76.0	8.91	2.5	
Poland	-1.3	Q1	4.5	4.6	4.4	Jun	4.1	6.0	Jun [§]	2.2		-6.9	1.6	26.0	3.89	-0.8	
Russia	-0.7	Q1	na	3.4	6.5	Jun	5.7	4.9	May [§]	3.8		-1.8	7.2	127	74.0	-4.5	
Sweden	-0.1	Q1	3.4	3.9	1.3	Jun	1.9	9.8	May [§]	4.8		-2.2	0.1	17.0	8.70	2.3	
Switzerland	-0.5	Q1	-2.0	3.0	0.6	Jun	0.3	3.1	Jun	7.4		-4.0	-0.4	6.0	0.92	2.2	
Turkey	7.0	Q1	na	3.9	17.5	Jun	14.5	12.4	May [§]	-2.2		-2.8	16.7	453	8.59	-203	
Australia	1.1	Q1	7.3	4.4	1.1	Q1	2.1	4.9	Jun	1.6		-5.9	1.1	25.0	1.36	3.7	
Hong Kong	7.9	Q1	23.5	4.9	0.9	May	1.6	5.5	Jun ^{††}	3.2		-4.1	0.9	40.0	7.77	-0.3	
India	1.6	Q1	6.0	10.4	6.3	Jun	5.2	9.2	Jun	-0.9		-7.2	6.1	32.0	74.6	0.2	
Indonesia	-0.7	Q1	na	3.9	1.3	Jun	2.4	6.3	Q1 [§]	-0.1		-5.7	6.3	-72.0	14,542	1.4	
Malaysia	-0.5	Q1	na	4.4	4.4	May	2.4	4.5	May [§]	4.4		-5.8	3.1	38.0	4.23	0.7	
Pakistan	4.7	2021**	na	3.8	9.7	Jun	9.0	5.8	2018	-1.8		-7.1	9.9	118	161	4.1	
Philippines	-4.2	Q1	1.2	5.1	4.1	Jun	4.2	8.7	Q2 [§]	-1.1		-7.5	3.9	110	50.4	-2.0	
Singapore	14.3	Q2	-7.7	4.6	2.4	May	1.8	2.9	Q1	17.8		-4.4	1.4	51.0	1.37	1.5	
South Korea	1.9	Q1	7.1	3.8	2.4	Jun	2.0	3.8	Jun [§]	4.6		-3.2	1.9	52.0	1,154	3.8	
Taiwan	8.9	Q1	12.8	5.9	1.9	Jun	1.7	4.2	May	15.6		-0.7	0.4	-4.0	28.1	5.0	
Thailand	-2.6	Q1	0.7	2.8	1.2	Jun	1.5	1.5	Dec [§]	3.7		-6.5	1.3	28.0	32.9	-3.6	
Argentina	2.5	Q1	11.0	7.0	50.2	Jun	47.3	10.2	Q1 [§]	1.6		-5.9	na	na	96.4	-25.6	
Brazil	1.0	Q1	4.9	5.5	8.3	Jun	7.1	14.7	Apr ^{§††}	-0.2		-2.0	9.2	294	5.26	-0.8	
Chile	0.3	Q1	13.4	6.7	3.8	Jun	3.4	10.0	May ^{§††}	-0.2		-7.1	4.1	130	755	3.0	
Colombia	2.0	Q1	11.9	7.8	3.6	Jun	3.1	15.6	May [§]	-3.6		-8.9	6.9	153	3,859	-5.9	
Mexico	-3.6	Q1	3.1	5.9	5.9	Jun	4.9	4.1	May	1.4		-2.8	6.9	115	20.2	10.8	
Peru	3.8	Q1	8.3	10.1	3.3	Jun	2.9	8.8	Jun [§]	-0.2		-5.8	5.7	218	3.95	-11.7	
Egypt	2.9	Q1	na	3.3	4.9	Jun	5.6	7.4	Q1 [§]	-3.8		-8.0	na	na	15.7	2.0	
Israel	-1.0	Q1	-5.8	4.2	1.7	Jun	1.8	5.5	May	3.9		-7.6	1.1	41.0	3.28	4.3	
Saudi Arabia	-4.1	2020	na	2.2	6.2	Jun	2.9	6.5	Q1	3.4		-2.1	na	na	3.75	nil	
South Africa	-3.2	Q1	4.6	3.0	5.1	Jun	4.0	32.6	Q1 [§]	1.5		-9.4	8.9	-37.0	14.7	12.4	

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

Markets

In local currency	Index	% change on:	
		Jul 21st	Dec 31st 2020
United States S&P 500	4,358.7	-0.4	16.0
United States NAScomp	14,632.0	-0.1	13.5
China Shanghai Comp	3,562.7	1.0	2.6
China Shenzhen Comp	2,492.5	0.9	7.0
Japan Nikkei 225	27,548.0	-3.7	0.4
Japan Topix	1,904.4	-3.0	5.5
Britain FTSE 100	6,998.3	-1.3	8.3
Canada S&P TSX	20,110.1	-0.2	15.4
Euro area EURO STOXX 50	4,026.7	-1.8	13.3
France CAC 40	6,464.5	-1.4	16.4
Germany DAX*	15,422.5	-2.3	12.4
Italy FTSE/MIB	24,675.6	-2.1	11.0
Netherlands AEX	733.7	-1.5	17.5
Spain IBEX 35	8,567.0	-1.1	6.1
Poland WIG	67,093.9	-0.8	17.7
Russia RTS, \$ terms	1,586.1	-2.4	14.3
Switzerland SMI	12,021.6	-0.2	12.3
Turkey BIST	1,351.6	-1.1	-8.5
Australia All Ord.	7,580.9	-0.7	10.7
Hong Kong Hang Seng	27,224.6	-2.0	nil
India BSE	52,198.5	-1.3	9.3
Indonesia IDX	6,030.0	0.8	0.9
Malaysia KLSE	1,516.5	0.3	-6.8

	% change on:		
	index	Dec 31st 2020	
Pakistan KSE	47,873.3	0.8	9.4
Singapore STI	3,119.0	-1.1	9.7
South Korea KOSPI	3,215.9	-1.5	11.9
Taiwan TWI	17,458.8	-2.2	18.5
Thailand SET	1,540.9	-1.8	6.3
Argentina MERV	65,832.2	2.9	28.5
Brazil BVSP	125,929.3	-1.9	5.8
Mexico IPC	50,035.2	1.2	13.5
Egypt EGX 30	10,646.9	0.4	-1.8
Israel TA-125	1,731.7	-1.1	10.4
Saudi Arabia Tadawul	10,794.5	0.2	24.2
South Africa JSE AS	66,558.4	-2.0	12.0
World, dev'd MSCI	3,036.7	-0.7	12.9
Emerging markets MSCI	1,312.2	-1.9	1.6

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 31st 2020
Investment grade	120	136
High-yield	361	429

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

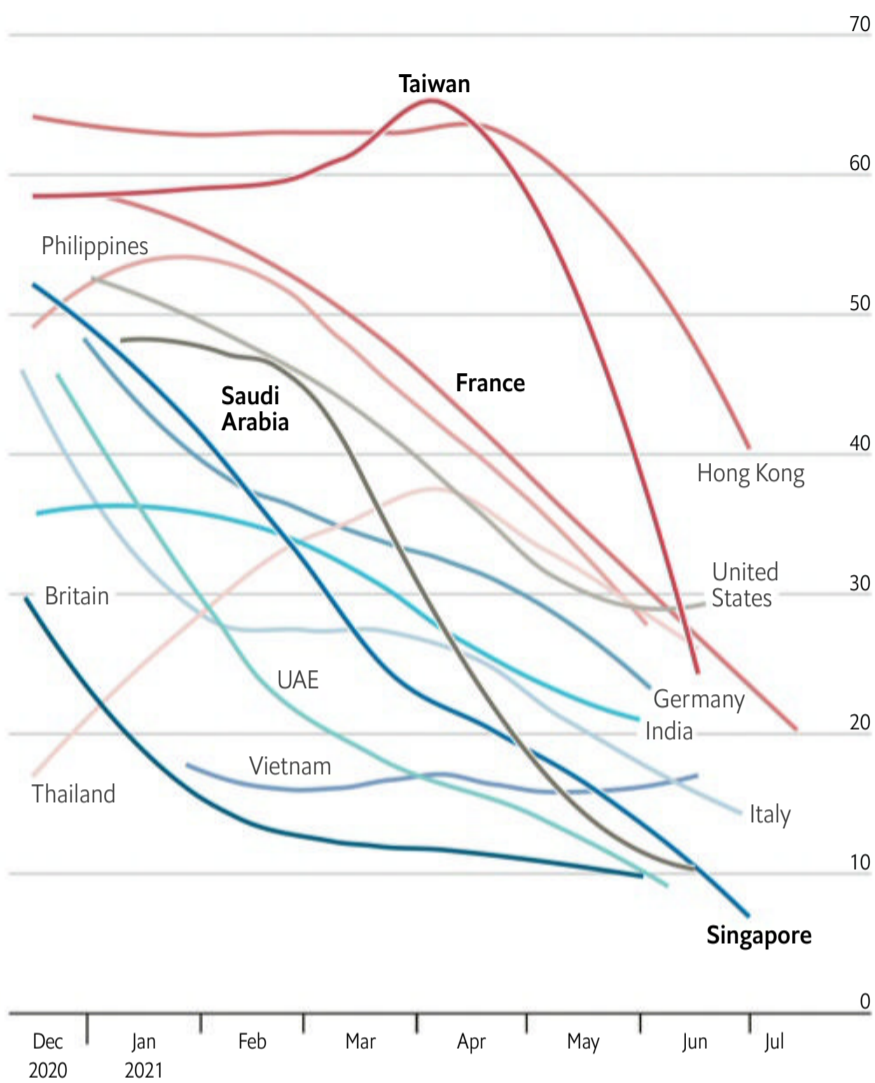
The Economist commodity-price index	% change on			
2015=100	Jul 13th	Jul 20th*	month	year
Dollar Index				
All items	184.3	184.0	1.2	59.3
Food	130.8	130.8	1.4	43.2
Industrials				
All	234.1	233.6	1.1	69.2
Non-food agriculturals	146.7	142.9	-5.4	52.1
Metals	260.1	260.5	2.3	72.4
Sterling Index				
All items	203.1	206.3	3.5	49.2
Euro Index				
All items	172.8	173.5	2.4	55.6
Gold				
\$ per oz	1,812.6	1,810.1	1.6	-1.5
Brent				
\$ per barrel	76.6	69.5	-7.2	56.5

Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

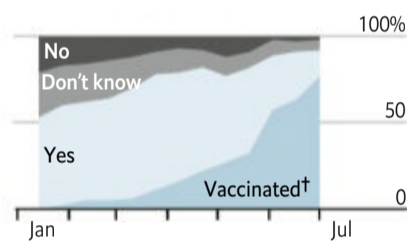
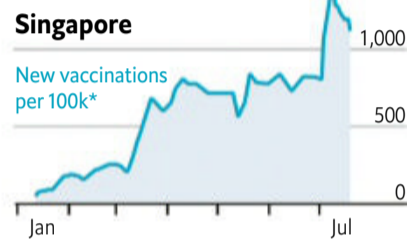
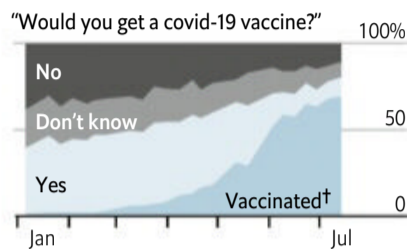
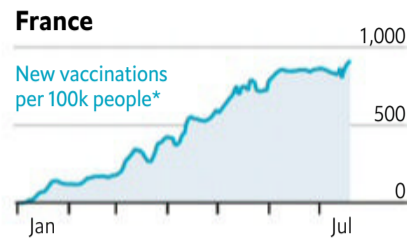
For more countries and additional data, visit [Economist.com/indicators](https://www.economist.com/indicators)

→ Willingness to get jabbed has been rising—particularly where vaccine rollouts are speedy or covid-19 is getting worse

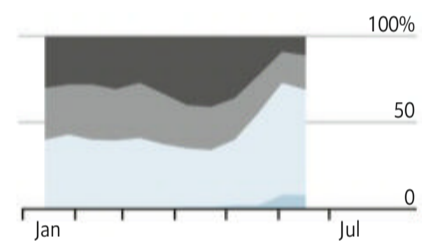
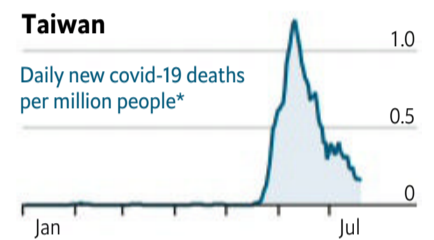
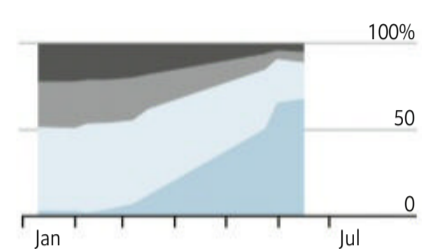
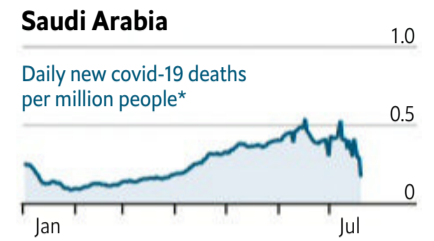
“Would you get a covid-19 vaccine?”, % responding “no” or “don’t know”
Smoothed trend



Countries where hesitancy fell as more people got vaccinated



Countries where hesitancy fell as the covid-19 death rate increased



*Smoothed trend †Self-reported Sources: YouGov; Our World in Data; The Economist

Two roads diverged

The right and wrong ways to reduce vaccine hesitancy

FOR COUNTRIES with lots of covid-19 vaccines, the most important task is convincing people to get jabbed. In America most adults who want the shots already have them, leaving an unvaccinated population full of hardline refuseniks. France, where scepticism about vaccines has long been high, will soon require vaccine passports for entry at restaurants and cinemas.

Fortunately, hesitancy has been falling steadily. YouGov, a pollster, has run surveys about vaccination in 20 countries. Counting each country equally, in January around 45% of respondents said either that they would not get a shot or that they were unsure. By late June just 20% did.

Identifying the cause of this dip is hard because hesitancy has declined almost everywhere. However, the drop has been unusually steep in some places. Moreover, within countries, the rate of change in hesitancy has varied from month to month.

Among the many factors that could change sceptics' minds, two can be measured readily with national statistics. One is the pace of vaccination. The more doubters see that shots are available and that people they know have not suffered ill effects, the more willing they may be to follow suit. The other is the gravity of the pandemic. If lots of people are dying, fear of the virus might trump fear of the vaccine.

To assess these variables' impact, we built a model of vaccine hesitancy. For each of YouGov's polls, we calculated the gap between the result and the country's average hesitancy in 2021. We then measured how much each country's rates of new vaccinations and covid-19 deaths on the date of the poll differed from its overall averages. Next, we tested to see if hesitancy fell faster than the global average did at times when rates of deaths or vaccinations were unusually high, by countries' own standards. We also checked if hesitancy in January affected the pace of decline later on.

Whereas starting hesitancy levels had no effect, vaccinations and deaths were both strong predictors. Vaccinations mattered three times more, a pattern that is clearest in places the pandemic has spared.

For example, covid-19 has killed just 36 people in Singapore so far. Nonetheless,

the share of people there expressing hesitancy fell from 53% in December to 10% in June. The sharpest declines in hesitancy occurred just as vaccinations revved up. Another case is France, where the share of respondents who said they would or might refuse a vaccine dropped from 60% in January to 20% in July. During this period, a majority of French adults got vaccinated, and the daily death toll fell from 300 to 20.

However, deaths have had a greater impact in some places. For most of 2021, hesitancy in Taiwan was common, reaching 66% in April. Taiwan had also fended off the pandemic, with just 12 deaths by May 16th. Since then, however, over 700 people have died. And no sooner did a serious outbreak begin than hesitancy plummeted. It reached 27% on June 3rd, long before vaccinations ramped up. Deaths were also probably a driver of falling hesitancy in Saudi Arabia, where most of the decline occurred amid rising mortality from March to May.

No country wants to imitate Taiwan, reducing hesitancy only as deaths rise. Supplies permitting, rolling out vaccines early can help sceptics overcome their doubts. However, as America's vaccination slowdown shows, supply creates its own demand only up to a point. Flipping fervent anti-vaxxers may require sterner tactics. ■



Eating the crab

Yang Millions Huaiding, “China’s first shareholder”, died on June 13th, aged 70

IF YOU HAD been riding on one of China’s crammed, rickety green trains in 1989, bouncing in a hard-seat carriage, you might have noticed Yang Huaiding sitting nearby. Or you might not. He had taken pains not to stand out, wearing drab clothes and carrying a faded mock-leather travel bag. The black-rimmed glasses, messy hair and stained teeth were his customary look. If he was smoking more than usual, and wiping more sweat, it was because in the bag, layered in newspaper, he had thousands of yuan in ten-yuan notes. He needed a police escort and, at times, he hired one.

He was travelling to Hefei, in Anhui province, from Shanghai, his home town, to buy Chinese government bonds. In 1988 the Communist regime, needing to rebuild the economy and shore up its state-owned enterprises, had decided in a limited way to let the public become investors. Bonds could be freely traded, at first, in only seven cities. But Shanghai and Hefei, two of the seven, were only a night’s train ride apart. And Mr Yang had learned, from intense scouring of local papers in the public library, that bonds priced at 94 yuan in relatively poor Anhui, where collective farmers were getting them as part of their wages, were selling at quite a bit more in Shanghai. Hence the travel-bag, containing (since he had no chequebook) a large wodge of his savings.

He was the first man in China to do long-distance bulk trading in government bonds, making a million yuan by it, his first “bucket of gold”. And he had also been the first to buy them. Most others were wary, even afraid, of this bizarre capitalist venture, but he was not. He liked the old saying that the first man to suppose a crab might be edible was either very forward-looking or very hungry. He was both, and later, when he had become a famous name in investing, his business card declared: “Learn from those who have the courage to eat crab...and make friends with them!”

On April 21st 1988, therefore, he had been at the doors as the bond sale started, with 20,000 yuan (then \$5,400) saved from his

job as a warehouse-keeper at the Shanghai Ferroalloy Factory and from his wife’s business ventures on the side. That morning he put his money into a single bond; in the afternoon he sold it at a profit of 800 yuan, or more than his annual salary. He was hooked. When in 1990 the government ordered trading to be done through two national stock exchanges, he sailed into the Shanghai securities market as if born to it. His first purchase was 2,000 shares in a maker of television tubes, bought for 100 yuan each and sold in six months for more than 800. Another bucket of gold. He had long since given up the factory for a private trading room in an investment firm where, fortified by giant tea-jars and countless Double Happiness cigarettes, he watched and played the market all day.

By now his name was Yang Baiwan, Millions Yang, and crowds of eager Chinese punters jostled to follow his example. If a warehouse-keeper with only an elementary education, living in a one-room flat, could make such a fortune in the markets, so could they. They hung on his advice, besieging him in the street and at his office door in lunch-breaks, clamouring for tips. He had plenty: “When the front of the exchange is full of bicycles, sell.” “The only money you really have is in your pocket.” “Hunt the bottom, avoid the top.” He wrote five books, gave lectures, and in 1993—when the Shanghai market got too frothy, and he prudently dumped his stock when the index hit 1,500, thereby missing the inevitable crash—was hired as a professor. Though institutional investors rapidly took over from amateur traders, China’s leap to becoming the world’s second-largest stockmarket was largely spurred by people like him.

Wealth did not seem to change him much. After his first wind-fall he treated himself to some fancy foreign cigarettes and shared them round the factory. He bought a sharp suit or two. But a polo shirt or an anorak was more his style, and he carried on living for some time with his wife and son in the one-room flat where, early on, he had spread out his profits in bundles all over the bed.

His fans called him the Stock God, riding the markets like a rip tide or striding boldly through its ravaging flames. He viewed it more like ordinary life (his entire life), with many downs as well as ups. A chunky set of worry beads was also on his desk. When in 2007 on state tv he recommended PetroChina stocks, which then dived, he vowed not to give his tips so casually again. When some people complained, as they loudly did, that his Millions Software didn’t work and that his investment system made them no money, he shrugged. It was no good treating the market like a casino. You had to study it constantly, the companies, the conditions, the mood, before you jumped.

He also closely watched what the government was doing. His big break in 1988 had come from a surprising change of policy. Another might come in the very next communiqué out of a plenary session of the Central Committee. And he wanted to be double-sure his rampant capitalist doings stayed within Communist rules. As a teenager, born in “new China” under the red flag, he had been a Red Guard, struggling gamely to enforce a traffic edict in Shanghai that revolutionary red meant “Go”, not “Stop”. Now he fretted that what he was doing, urging on the economy by buying cheap and selling dear, was profiteering and therefore a crime. Among his many firsts was the first voluntary trip by a Chinese man to a tax office (his father had worked in one), to ask whether he owed any tax on his bond sales. The sweet answer was no.

In fact, he was fairly sure he was a hero of the people. Chinese state tv said as much in 1998, when he was named “Man of the 20th Anniversary of China’s Reform and Opening Up”. And he made the case himself. The revolution’s goal, he said, was to make people rich, and that was what a stockmarket did. It was a socialist university of finance without walls; anyone could play it, learn from it and become as rich as he was, or richer. He had set the example, picked up the crab, boiled it, cracked it open and feasted. Then all China had shared it and immediately decided that they loved it, too. ■

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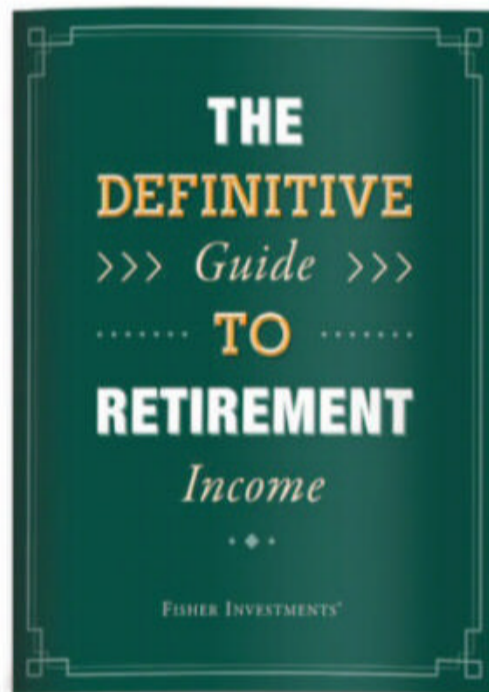
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