

The Economist

How to shut down QE

A red-hot boom in green startups

Covid-19: bats and labs

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BIDEN'S DEBACLE

What it means for Afghanistan and America



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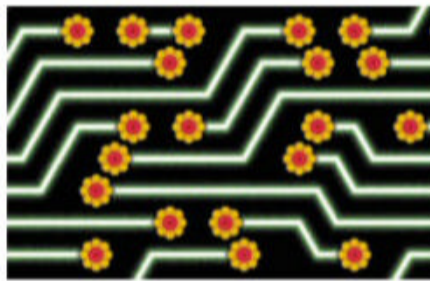
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Ashraf Ghani, **Afghanistan's** president, fled to the United Arab Emirates as Kabul, the Afghan capital, was captured by the insurgents of the **Taliban**. A chaotic evacuation of Western personnel and some of their Afghan associates followed from Kabul airport, where at least seven people died in the tumult. President Joe Biden defended the decision to withdraw American security forces from the country and blamed the Afghan government for lacking “the will to fight”.

Muhyiddin Yassin, **Malaysia's** embattled prime minister, resigned after months of political instability and the loss of his parliamentary majority. He remains in office while Malaysia's king chooses his successor after consulting MPs. Sultan Abdullah said holding a new election during the pandemic would be dangerous.

Tropical Storm Grace drenched **Haiti**, slowing efforts to rescue survivors of a 7.2-magnitude **earthquake** that struck on August 14th. The death toll rose to more than 2,000, a number likely to increase further. The quake was stronger than the one estimated to have killed more than 200,000 people in 2010.

Peru's foreign minister, Héctor Béjar, resigned after videos surfaced of him claiming the CIA, America's intelligence agency, backed the Shining Path, a communist insurgency. Critics say Mr Béjar was one of several radical, inexperienced ministers chosen by the left-wing president, Pedro Castillo, who narrowly won an election in June. Mr Castillo must select a new foreign minister by the

end of the month, when Congress will vote on whether to accept his cabinet.

The government of **Cuba** laid out laws tightening its control of social media. The sweeping decree forbids disseminating content that attacks “the constitutional, social and economic” rules of the state or that encourages demonstrations that threaten “public order”. It also provides a model form for the public to denounce offenders.

Canada's politicians hit the campaign trail after Justin Trudeau announced that the country will hold an early election on September 20th. The prime minister is cutting short his minority government, which has been in office for just two years, as he hopes that the electorate will reward his administration's handling of the covid-19 pandemic. His Liberal Party hopes to win more than the 170 seats necessary for an outright majority in the country's Parliament.

France became the latest European country to suffer from dangerous **wildfires**, as a large area near the south coast had to be evacuated. **Greece, Portugal, Spain and Turkey** have all been badly affected by blazes as well.

Israeli firefighters battled one of the largest **wildfires** in the country's history. The blaze burned thousands of hectares of forest and sent a plume of black smoke over Jerusalem, though no serious injuries were reported. The authorities are unsure if it was caused by arson or negligence. The fire has since been contained.

Assailants on motorcycles killed 37 people in western **Niger**, the Ministry of the Interior said. It was not clear who carried out the attack, but armed groups linked to Islamic State and al-Qaeda, two militant groups, have been terrorising the region. Hundreds of civilians in western Niger have been killed by Islamist rebels this year.

The **World Health Organisation** said a second case of Ebola may have been detected in Ivory Coast, raising concerns that the virus has spread in the country's economic hub, the city of Abidjan. The first case involved a woman who travelled by bus to Abidjan from Guinea, where an outbreak of Ebola claimed 12 lives earlier this year.

Israeli border police killed four **Palestinians** during a raid in the occupied West Bank. According to **Israel**, the police came under fire after entering Jenin refugee camp to arrest a member of Hamas, a militant Islamist group. It was one of the deadliest battles in the area in months.

A petrol-tank explosion killed 27 people and injured dozens more in **Lebanon**, leading protesters to attack the home of the prime minister-designate, Najib Mikati. Fuel is scarce in Lebanon, which is mired in an economic crisis. The blast occurred as the army was handing out petrol seized from black marketeers.

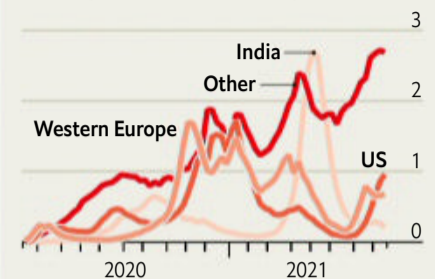
The **International Atomic Energy Agency**, the UN's atomic watchdog, reported that **Iran** was continuing to produce enriched uranium that can be used in a nuclear bomb. The report complicates efforts to revive the international deal that curbed Iran's nuclear programme. America demanded that Iran stop its “nuclear escalations”. Iran continues to insist it has only peaceful aims.

China's crackdown on dissent in Hong Kong continued. Officials arrested four students at the **University of Hong Kong** for “advocating terrorism” after they paid tribute to a man who had stabbed a policeman and then killed himself. The four students were among 30 participants at a student-union meeting last month, which had been live-streamed online, that approved a resolution “appreciating the sacrifice”. HKU has since cut ties with the union.

Coronavirus briefs

To 6am GMT Aug 19th 2021

Weekly confirmed cases by area, m



Vaccination doses

	Total '000	% of over-11s with	
		1st dose	2nd
Malta	786	>99	>99
Iceland	477	95	88
UAE	17,454	94	83
Seychelles	141	92	86
Mongolia	4,241	91	83
Uruguay	5,124	90	83
Chile	26,728	88	80
Israel	12,422	88	81
Qatar	4,163	87	75
Bhutan	1,010	86	77

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

The director of **America's** National Institutes of Health described people who have not been vaccinated as “sitting ducks”, and warned that the number of daily cases in America could soon reach 200,000. Greg Abbott, the governor of **Texas**, who has refused to introduce mask and vaccine mandates, tested positive for covid-19.

The authorities in **Iran** said the country was undergoing a fifth wave of infections. Curbs on travel were imposed, and shops, restaurants and cinemas ordered to close.

A controversial vaccine-passport scheme in **France**, which has led to mass protests, was extended to around 120 department stores and shopping centres.

New Zealand went into lockdown after a single case was detected. The government has faced criticism for its strict “zero-covid” approach to the pandemic.

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

China unveiled proposed **antitrust regulations** for tech firms. The guidelines would ban activities that regulators think will stifle competition and harm internet users. The list includes controlling user traffic, blocking competitors' products and discriminatory pricing. The shares of Alibaba, Tencent and JD.com, three Chinese tech giants, all tumbled. Alibaba's shares in Hong Kong are at their lowest price since they were listed there in 2019.

Meanwhile, the release of disappointing **economic data** from China raised concerns about the country's slowing recovery. Figures for factory output, retail sales and investment activity were all below analysts' expectations. Economists said that renewed travel restrictions, floods and typhoons were to blame for the bad news.

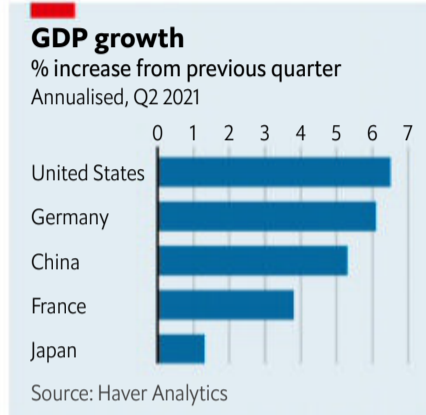
What's in store

In America the giants of the **retail sector** reported solid results. Walmart's quarterly revenue for the three months ending in July reached \$141bn, a 2.4% increase from the previous year. Sales and foot traffic also rose at Target, a rival. However, there are signs that the shopping spree may be coming to an end. The Commerce Department said that its measure of national retail sales dropped by 1.1% in July, compared with a month earlier. Spending fell across many categories, with notable declines in the sales of clothing, furniture and cars.

The inflation rate in **Britain** dropped to 2% in June, compared with 2.5% the month before. But inflation is expected to climb in the second half of the year, on the back of rising energy costs and global production bottlenecks.

The same factors pushed up consumer-price inflation in the **European Union**. The inflation rate there was 2.5% in July, up from 2.2% a month earlier.

Japan's economy grew at an annualised rate of 1.3% in the second quarter. The expansion beat market forecasts and was the result of strong consumer spending and investment. Even so, the rebound is slower than that of other big economies such as America. That is partly because only 41% of Japan's population has been fully vaccinated. Analysts expect Japan's growth to be modest for the rest of this year.



BHP, the world's biggest miner, announced plans to leave the London Stock Exchange and list only in Sydney. Ken MacKenzie, the chairman, said the move will make BHP's corporate structure "simpler and more efficient". The firm is the second-biggest listed in London by market capitalisation. It also announced that it will merge its oil and gas division with Woodside Petroleum, an Australian firm.

Glencore, another big miner, acquired a stake in Britishvolt, a startup with plans to build Britain's first gigafactory to make batteries for electric cars. As part of the deal, Glencore will supply the factory with cobalt, which is used in the batteries. The firm is one of the world's largest producers of the metal.

In America road-safety regulators opened an investigation into **Tesla**. Since 2018, 17 people have been injured and one killed in crashes involving the carmaker's partially automated driving systems. The investigation will cover 765,000 cars made by Tesla since 2014. The probe is primarily concerned with an apparent inability of Tesla's autopilot to cope with emergency vehicles stopped in the road while attending other accidents.

Nvidia, a big American chipmaker, reported strong results, thanks to surging demand for online services and gaming. Revenues rose to \$6.5bn in the second quarter, 68% higher than a year earlier. Net income almost quadrupled to \$2.4bn over the same period. The growth was propelled mainly by its data-centre and gaming businesses.

T-Mobile, an American wireless carrier, said that hackers stole customers' data from its computer network. The theft affects over 40m current and potential customers. The stolen information includes social-security numbers and driving-licence details.

Wan Long, the chairman of **WH Group**, the world's biggest pork producer, has been accused of financial misconduct by his son, Wan Hongjian. The younger Mr Wan previously held a senior position at the firm. In an article published on Weibo, a Chinese social-media site, he claimed that his father has committed fraud, evaded tax and mismanaged company funds. WH Group says the claims are "untrue and misleading". But investors were spooked. The firm's share price dropped by 11% on the news.

Space case

Blue Origin, a space firm owned by Jeff Bezos, sued the American government over NASA's decision to award a \$2.9bn contract to build a lunar lander to **SpaceX**, a rival owned by Elon Musk. Mr Bezos thinks the deal should have been divided up between companies rather than being given to a single firm.





How Netflix

^{Duffer 1} transforms ^{Duffer 2}



Hollywood





Act II: Costumes



is **how** Oakwood Elementary *nails* the fall play. 38

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Own your tomorrow.

Biden's debacle

The fiasco in Afghanistan is a huge and unnecessary blow to America's standing

IF THE PROPAGANDISTS of the Taliban had scripted the collapse of America's 20-year mission to reshape Afghanistan, they could not have come up with more harrowing images. As insurgents swept into Kabul, desperate Afghans, terrified about what the victorious zealots might do, chased departing American cargo planes down the runway, trying to clamber into the landing gear and inevitably falling to their deaths. The American-backed government had surrendered without a fight—something that American officials were insisting would not happen only days before. Afghans were left in such a horrifying bind that clinging to the wheels of a hurtling aircraft seemed their best option.

America has spent \$2trn in Afghanistan; more than 2,000 American lives have been lost, not to mention countless Afghan ones. And yet, even if Afghans are more prosperous now than when America invaded, Afghanistan is back to square one. The Taliban control more of the country than they did when they lost power, they are better armed, having seized the weapons America showered on the Afghan army, and they have now won the ultimate affirmation: defeating a superpower.

The insurgents have made a show of magnanimity, pledging that they will not take revenge on those who worked for the toppled government and insisting that they will respect women's rights, within their interpretation of Islamic law. But that interpretation kept most girls out of school and most women confined to their homes when the group was last in power, in the 1990s. Brutal punishments—floggings, stonings, amputations—were common. The freedoms that urban Afghans took for granted over the past 20 years have just gone up in smoke. It is an appalling outcome for Afghanistan's 39m people, and deeply damaging for America (see Briefing).



It is not surprising that America failed to turn Afghanistan into a democracy. Nation-building is difficult, and few imagined that it could become Switzerland. Nor was it unreasonable for Joe Biden, America's president, to want to draw the conflict to a close. America has spent 20 years in a place of only modest strategic importance about which most American voters have long since ceased to care. The original reason for the invasion—to dismantle al-Qaeda's main base of operations—was largely achieved, though that achievement could now be reversed.

The claim that America is showing itself to be a fickle ally by allowing the Afghan government to fall is also overblown, given the duration, scale and expense of the American deployment. The defunct regime in Kabul was not an ally in the way that Germany or Japan is. It was far weaker, more corrupt and completely dependent on America for its survival.

But none of that absolved America of the responsibility to withdraw in an orderly fashion. Mr Biden failed to show even a modicum of care for the welfare of ordinary Afghans (see Lexington). The irony is that America had a plan to do just that, which had been in the works for several years. It had hugely scaled down its garrison, from around 100,000 troops in 2011 to fewer than 10,000 by 2017, along with a similar number from other NATO countries. They were not supposed to defeat the

Taliban, but prevent the Afghan army's collapse, largely through air power, and so force the Taliban to the negotiating table.

Apologists for Mr Biden argue that his predecessor, Donald Trump, had already scuppered this plan by trying to rush it to a conclusion before last year's presidential election in America. It is true that Mr Trump was so desperate to strike a quick deal that he accepted preposterous terms, agreeing to end America's deployment without even securing a ceasefire, let alone a clear plan to end the civil war. He had already reduced the American presence to little more than 2,000 soldiers by the time Mr Biden took office, and had promised to get the rest out by May 1st.

But Mr Biden did not have to stick to this agreement. In fact, he didn't entirely, refusing to keep to the original timetable. The Taliban were clearly not holding up their end of the bargain, pressing their advantage on the battlefield instead of negotiating in good faith with the Afghan government. That could have been grounds to halt or reverse the American withdrawal. There was little political pressure within America to bring the war to a speedy conclusion. Yet Mr Biden was working to an arbitrary and flippant deadline of his own, seeking to end the war by the 20th anniversary of 9/11. Although the speed of the Afghan government's implosion surprised most observers, including this newspaper, America's soldiers and politicians were among the most naively optimistic, insisting that a total collapse was a vanishingly remote prospect. And when it became clear that the Afghan army was melting away, Mr Biden pressed on intransigently, despite the likely consequences.

As a result, America's power to deter its enemies and reassure its friends has diminished. Its intelligence was flawed, its planning rigid, its leaders capricious and its concern for allies minimal. That is likely to embolden jihadists everywhere, who will take the Taliban's victory as evidence that God is on their side. It will also encourage adventurism on the part of hostile governments such as Russia's or China's (see Chaguan), and worry America's friends. Mr Biden has defended the withdrawal by arguing that Afghanistan was a distraction from more pressing problems, such as America's rivalry with China. But by leaving Afghanistan in such a chaotic fashion, Mr Biden will have made those other problems harder to deal with.

After the fall

The shambolic withdrawal does not reduce the obligation of America and its allies to ordinary Afghans, but increases it. They should use what leverage they still have to urge moderation on the Taliban, especially in their treatment of women. The displaced will need humanitarian aid. Western countries should also admit more Afghan refugees, the ranks of whom are likely to swell, and provide generous assistance to Afghanistan's neighbours to look after those who remain in the region. The haste of European leaders to declare that they cannot take in many persecuted Afghans even as violent zealots seize control is almost as lamentable as America's botched exit. It is too late to save Afghanistan, but there is still time to help its people. ■

Biosafety

No more leaks

Covid-19 may or may not have leaked from a lab. Either way, biosafety needs tightening

TO PREVENT THE next pandemic, it would help to know how this one started. However, the answer to that question might embarrass China's rulers. So they have obstructed investigations into how the virus emerged, and promoted far-fetched theories about it having originated somewhere else. The world thus has only a shaky understanding of what happened in Hubei province in the second half of 2019 (see International section).

American spooks are about to finish a 90-day review of covid-19's possible origins, on President Joe Biden's orders. It is unlikely to reach a firm conclusion. Yet it is clear that the answer China least wants to hear—that the virus could have leaked from a lab in Wuhan, or been picked up by a researcher collecting samples in the field—is plausible. And it would not be the first time this has happened. The flu pandemic of 1977, which killed 700,000 people, is now believed to have begun with a lab leak in north-east Asia—possibly in China, possibly in the Soviet Union. With new laboratories being built all the time to handle dangerous pathogens, and with the era of synthetic biology just around the corner, the task of tightening lab biosafety has become urgent.

People who work with deadly pathogens do so with scandalously little transparency or supervision. Rules in some places are not legally binding or subject to independent oversight. That has to change. The world needs to know who is working with which pathogens, where, and under what sort of safety protocols. (Intelligence agencies do not see this as part of their remit, but they should.) International standards are needed, and a global body to advise on the most dangerous kinds of work. This will be hard to accomplish, but there is a precedent. A committee of the World Health Organisation (WHO) monitors and inspects the two labs that hold smallpox, a deadly virus that was

eradicated in the wild through vaccination, and reviews proposed research.

America, which could be leading the way, is not. Researchers who receive federal grants to study pathogens have to follow federal rules. Private labs are not so constrained. This will not do. Ideally there would be an agreed set of basic rules, enforced by a watchdog that is independent of the bodies that fund research. The backers of a project cannot be neutral arbiters of its safety.

Many other countries follow America's lead on biosafety. So if it improves its rules and procedures, others will, too. That could be a step towards a proper set of global norms. And it would be in every country's interest, even China's, to abide by such norms.

Meetings this year to discuss a pandemic treaty offer a chance to harmonise rules on lab biosafety. Organisations such as the WHO, the G7 and the OECD could also do more to promote transparency and security.

Governments need to ask whether certain kinds of research are too risky to be allowed. Gain-of-function research, which genetically alters organisms such as viruses in ways that can make them more dangerous, deserves special scrutiny. So does viral collection in the wild.

New tools are needed as well as new rules. Real-time genomic surveillance at border crossings could catch novel pathogens as they emerge. Sewage and air could be sampled more widely. Ways to create vaccines even faster should be explored.

And if some scientists complain that all this will make their work costlier and harder, there is an obvious rejoinder. Perhaps 15m people have died directly of covid-19, and the resulting economic damage has impoverished many millions more. If better biosafety reduces the chance of another pandemic even slightly, it will be cheap at the price. ■



Central banks

Bringing clarity to QE

Central banks should make clear what their balance-sheets are for, and then shrink them

ON AUGUST 26TH central bankers will gather for their annual Jackson Hole jamboree with the shine having come off their record. A year ago they had forestalled a financial crisis during the pandemic's first wave. Today an inflation surge has made a mockery of the Federal Reserve's forecasts; a parliamentary committee has said that the Bank of England has a "dangerous addiction" to buying bonds; and everybody expects the European Central Bank (ECB) to undershoot, over a period of years, its shiny new "symmetric" inflation target of 2%, unveiled in July.

The disquieting sense of monetary powerlessness is compounded by the spread of the Delta variant of coronavirus, which threatens to raise prices and depress global growth. Monetary policy cannot do much about port terminals closing because of

outbreaks—as China's Ningbo-Zhoushan did on August 11th—nor about Australia and New Zealand returning to lockdowns. In America consumer confidence tumbled in the first half of August. It was not for want of monetary stimulus.

Yet the trickiest challenge facing central banks is when and how to reverse the past year-and-a-half of quantitative easing (QE), the buying of long-term bonds using newly created money. On current forecasts rich-world central banks' balance-sheets will have reached a combined \$28trn in size by the end of the year, about two-fifths of which is attributable to QE during the pandemic. Critics say central banks face a "QE ratchet" because their bond holdings only go in one direction: they surged after the global financial crisis and never fell much before the pan-▶

demographic struck. Even many emerging markets, now grappling with an inflation problem (see Finance section), have dabbled in QE and must soon decide its future.

Debate over QE within central banks is dominated by short-term considerations about the need for stimulus. Yet there is only weak evidence that accumulating or holding bonds helps economies much when, as now, financial markets are calm. The trouble is that investors have been encouraged to interpret decisions about QE as a signal about when central banks might raise interest rates, a policy whose effects are more tangible. The resulting sensitivity of interest-rate expectations to QE announcements makes the policy hard to unwind. The Fed is nervous about triggering another “taper tantrum”, the episode in 2013 when the suggestion that it might curtail its bond-buying shook markets. In the euro zone things are further complicated because QE has also had the side-effect of mutualising some of the debts of member states.

Central bankers should be explicit about the purpose and effectiveness of QE. Buying bonds is an essential tool for stabilising financial markets in a crisis like that of spring last year. But it is increasingly clear that it should fall to government spending or tax cuts to rescue the real economy when interest rates have already reached zero. Today’s economic data bear that out: one reason America has a troublesome price surge while the ECB’s inflation target looks unfeasibly high is that America has had much more fiscal stimulus—cumulative QE, as a share of GDP, has been similar. Being explicit about which tools serve what

purpose, and playing down the perceived link between bond-buying and interest rates, would let central banks unwind QE.

That would be welcome because of QE’s long-term downsides, of which there is growing awareness. One danger about which *The Economist* has long warned is that bloated central-bank balance-sheets are a threat to the stability of the public finances. Purchases of long-term bonds are paid for by creating central-bank reserves—electronic cash which carries a floating rate of interest (commercial banks hold these reserves and receive any interest). Should policymakers need to raise interest rates to fight inflation, the new reserves will become costlier to service. Because central banks are owned by governments—Britain’s has explicitly underwritten QE—any such burden will ultimately fall on taxpayers.

A rapid exit from QE would remove that danger. But the overarching goal should be to recognise the tool’s limitations and consequences. At present central bankers do not want to talk

down their own firepower and do not see it as their job to take account of QE’s fiscal threat. Instead the state should take an integrated view of its finances. That may involve redesigning how institutions work, by giving governments the job of weighing up the policy’s costs and benefits. At the same time, central banks might be given an advisory role on the size of government deficit that would help stabilise economies in a downturn. As it is, the justifications for QE have become murky, as have the interactions between fiscal and monetary policies. It is time for transparency and a clear division of labour. ■



Shopping in America

Retail revival

How American retailers have adapted to the Amazon effect

AFTER REELING from the shock of the pandemic, America’s consumers came roaring back early this year, fuelled by vaccines, stimulus cheques and their instinctive bullishness. Now their enthusiasm is starting to ebb. Retail sales in July were 1.1% lower than a month earlier and a consumer-confidence survey by the University of Michigan suggests that shoppers lost more of their swagger in early August. The Delta variant has played on their nerves while price spikes and supply-chain glitches have dulled enthusiasm for buying some products such as cars—sales of which dropped by 3.9% last month, compared with June. There is now a sense that the rate of growth in consumer spending is returning to a more pedestrian pace after 18 giddy months of wild shrinkages and splurges.

Yet even as normality beckons it is ever clearer that the pattern of spending has been transformed. One change is well-known: a lift in the level of e-commerce. The other is less familiar. An industry that was supposed to have been annihilated by Amazon has bounced back.

In 2017-19 all the talk was of a “retail apocalypse” and “retail-mageddon”. The fear was that a steady rise in e-commerce and Amazon’s relentless expansion into new products would drive traditional retailers towards extinction, just as Kodak failed to adapt to the digital-photography revolution and eventually went bust. When Sears, which led the rise of suburban shopping cul-

ture after the second world war, declared bankruptcy in 2018 it seemed possible that many more large retailers would struggle to avoid the same fate. The spectre was of a pile of shopping-mall rubble, 16m lost retail jobs and a mountain of useless inventory, loomed over by a dominant Amazon and the grin of Jeff Bezos.

Things have turned out rather differently. The pandemic has certainly sped up the shift towards e-commerce sales, which have risen from 14% of the total in 2018 to 20% this year according to JPMorgan Chase, a bank. Although the pace of growth has slowed in the past few months there will be no return to the past.

Meanwhile the industry’s structure is starting to look different. Amazon has thrived: its market share of e-commerce stands at about 40% overall and is far higher than that in some categories, such as books. Shopping centres have struggled to attract the same numbers of visitors as before, and some have defaulted on their debt. Nonetheless, the health of the non-Amazon retail industry looks better than it once did. At \$2.5trn, for example, the market value of American listed retailers is 88% higher than at the start of 2018, while their total net debt burden has been easing since the end of 2019. The number of people employed in the retail trade is only 4% below its post-war peak in 2017.

Behind these numbers there are three types of fightback. First, the biggest retailers have embraced the digital world. This week Walmart predicted that its global e-commerce revenues ▶▶

► would reach \$75bn for the full year (about 13% of the firm's total sales). It has made a big push in hybrid types of shopping that involve online activity but harness its stores, such as "click-and-collect" and online memberships. Target has promoted a similar service and digital sales now make up almost a fifth of its total.

The second fightback is from digital-only alternatives to Amazon. Although the veteran marketplace eBay has struggled over the years, Shopify, which helps merchants sell online and fulfil orders, has seen its share of American online sales reach 9% and its market value soar to \$188bn. Many other digital firms are operating in lucrative niches, from Instacart in grocery delivery to Etsy in interactive shopping for artisanal goods.

Finally, some brands are taking control of distribution. Nike stopped selling directly on Amazon in 2019 and instead reaches consumers through its own apps and platforms. Its digital sales rose by two-thirds in the year to May, to 20% of the total.

The retail drama has several lessons. For firms in other industries facing digital disruption the key is to experiment and invest. Before Walmart got back its groove it had innumerable false starts and it has raised its capital spending by 40%. Antitrust regulators need to stay more up to date. Even as they stampede to regulate big tech there is mounting evidence that the e-commerce marketplace is more dynamic than they realise.

Apocalypse averted

The wave of experimentation will probably continue. New payment apps and social-media firms with hordes of customers are expanding into e-commerce, and retailers are shifting into online advertising and entertainment. For America's indefatigable consumers, and for its workers, the good news is that competition—combined with an almighty shock—have led to a more innovative industry, rather than the end of the world. ■

The American West

Megadry

Americans are moving to a region suffering from a 22-year drought. Pricing water properly would help

“WEATHER WAS the ultimate arbiter in the American West,” Marc Reisner wrote in “Cadillac Desert”, his book on water there, published in 1986. Reisner was musing about the great white winter of 1886, which devastated cattle ranching, and the blistering drought that followed. But 135 years later the sentiment still rings true. The West is in the grip of a 22-year megadrought that is the second-worst in the past 1,200 years.

The effects are being felt across the West. Lake Mead, the largest reservoir in the United States, is at its lowest level since it was first filled in the 1930s. Water levels are so low that the Bureau of Reclamation, an agency of the Interior Department, declared the first-ever water shortage on the Colorado River on August 16th. Reduced snowpack in the Rocky Mountains and Sierra Nevadas has turned forests into tinderboxes and fuelled wildfires (see Books & arts section). Joshua trees, though native to the desert, are parched and dying.

The West, a mountainous region where three deserts meet, is used to drought. Building cities in a place that can resemble Mars required deft engineering and lots of capital. However, the “Millennium Drought” is different from its predecessors. Drought refers to a dry period that eventually ends. But now two longer-term trends are at work: climate change, which is making the region hotter and drier, and population growth, as Americans move west. Most of the fastest-growing cities are in the south-west. Phoenix, which gets 18cm (7 inches) of rain a year, grew faster than any other big US city over the past decade.

What can be done? Proper pricing would help. Few things are more precious in the West than water, yet local governments and utilities provide it cheaply. That removes incentives to conserve, aside from neighbourly commitment to the public good. A system that charged people, farms and firms commensurate with their use, and was subject to the laws of supply and demand, would encourage conservation among the more profligate users and prevent costs rocketing for those who may not be able to afford the price of water on an open market—such as poor

rural towns or Native American tribes. Such a system would need better metering. If Americans could use an app to see how much water they used, they would find that they consumed more per person than the inhabitants of any other big country.

For pricing to work, the West's outdated system of water rights will need an overhaul. Agriculture slurps up 70% of the water that flows down the Colorado River, which serves 40m people across the south-west. But in many states, farmers or ranchers forfeit their water rights if they don't use them. Such “use it or lose it” clauses mean that the reward for conservation can be the loss of one's livelihood. A law passed recently in Arizona will let people leave water in rivers without jeopardising their rights. Similar schemes are cropping up around the region. Water trading also shows promise. Physically moving water is tricky, but trading within basins, as Australia does, could benefit farmers and cities.

The conservation needed to water the West will require more than just market fixes. Policy-makers must accept that a few wet seasons won't bail them out. One reason water-rationing for the Colorado River basin could be so painful is that rights were allocated based on overly optimistic assumptions about the river's flows (see United States section). Some officials would still rather plan for more dams or aqueducts than reckon with the reality of shrinking reservoirs. Instead they should focus on reducing water consumption. In Las Vegas each person uses 47% less water than in 2002, reducing overall usage even as the population increased.

America is rich enough to recycle water and to look after its watersheds. That will help mitigate the effects of climate change. But drought is not a problem unique to the American West. The World Health Organisation estimates that water scarcity afflicts 40% of the global population. The West can be either an exemplar of resilience or a warning to the rest of the drought-stricken world. The region has long been inhospitable. It doesn't have to become uninhabitable. ■





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Stop monkeying around

You urged Western countries to increase neurological experimentation on primates to keep pace with China and Japan, arguing that brain diseases are becoming a leading human killer and monkey brains closely resemble our own (“Monkey business”, July 24th). Non-human primates, from chimpanzees and gorillas to marmosets and macaques, all share many exquisite mental faculties with humans. Indeed, this is what makes non-human primates attractive to researchers. However, implanting machinery in their brains remains an undeniably brutal procedure that causes them to suffer immensely, as would humans.

You said that Western countries will inevitably have to choose between accepting therapies produced from non-human primate brain experiments or rejecting them on principle. This is not a new problem, and the argument shortchanges ethical alternative methods that show promise of being superior to animal experiments. Moreover, the scientific literature is replete with duplicate and non-reproducible primate-brain studies that suggest the value of these experiments is less than the animal-research community claims.

The important lesson will not be expressed in the firing neurons of tortured monkeys, but in finding ways to advance human health while also respecting the lives and rights of non-human primates.

KEVIN SCHNEIDER
Executive director
Nonhuman Rights Project
New York

The United States actually does have a large colony of free-ranging macaques on the small and uninhabited Morgan Island off the coast of South Carolina. Known as Monkey Island to locals, its furry residents can be seen playing on the beach and swinging through dense foliage. The 4,000 or so breeding macaques originally came from Puerto

Rico, where they arrived as stowaways from India.

Recognising the need for a reliable source of primate specimens, the federal government rounded them up and deposited them on an island offered by South Carolina. The secretive place is closely patrolled by the coast guard, but the monkeys have the run of the land, free from all but occasional human interference to deposit food, and the removal of some specimens to the mainland for testing.

MITCHELL JACKSON
Greenville, South Carolina

Race relations in Singapore

Readers of “Imperfect harmony” (July 31st) would not have guessed that Singapore was born as an independent country precisely because its leaders refused to countenance a political arrangement based on the dominance of one race. Having separated from Malay-majority Malaysia in 1965, the easiest path for Lee Kuan Yew and his colleagues would have been to base their political legitimacy on the Chinese majority in Singapore. Rather, against the odds and with great courage, they insisted on building a multiracial polity.

They chose English as the main language of government and education instead of Chinese. They gave every race, religion and language-group free scope to develop their heritages and cultures. Rather than enforce majority-Chinese dominance, they protected the rights of minorities. A Presidential Council of Minority Rights was empowered to veto any legislation that discriminated against any racial or religious community.

At present, seven out of 20 cabinet ministers are minorities, as are the chief justice and nine out of 33 judges on the Supreme Court. Malays, Indians and Eurasians have occupied senior positions in all three branches of government, including in the armed and security forces.

Our multiracial harmony remains a work in progress. As in many other multiracial

societies, it is harder to be a racial minority in Singapore than a member of the majority race, and there remain group differences in social and economic achievement between ethnic groups. But all have progressed substantially year after year.

By working unremittingly on our multiracial harmony, we have avoided the racial and religious strife that have troubled many other post-colonial nations, and for that matter, America and Britain too.

T.K. LIM
High commissioner for
Singapore
London

Meritocracy at work

As Bagehot showed (August 7th), fair university admissions and two decades of school reforms are pointing Britain in a meritocratic direction, but we have some way to go. By the time disadvantaged students apply to university, it is often too late. This is crucial in mathematics, where a proven high capability is essential for science, technology and engineering degrees.

Universities are taking matters into their own hands. Cambridge, Imperial, King’s, Durham and Exeter are among the universities founding mathematics schools, each educating hundreds of disadvantaged sixth-formers. But, as with Oxford’s foundation year, scalability is limited. We can lean harder on technology. Massive open online courses (MOOCs), like those from Imperial on EdX, provide resources for students aspiring to the highest A-level mathematics grades. They can see, and build towards, the standards of elite universities.

A happy by-product, consumer surplus, even, is that many outside Britain are taking these free courses, including in low- and middle-income countries. For students, it raises ambitions. For talent-hungry universities, it’s enlightened self-interest.

PROFESSOR ALICE GAST
President
Imperial College London

Demonyms

Surely the inhabitants of Kazakhstan are Kazakhs, rather than the clunky “Kazakhstanis” (“Get jabbed? Get stuffed!”, July 24th)? The “stan” suffix in the name of an Asian country is roughly equivalent to the “land” suffix in the name of a European country. Hence we refer to the Dutch, English, Finns, Irish, Polish and Swiss, and also to the Thais in Asia. We don’t call Icelanders the Iceish, but there is an exception to every rule.

ERIC RATNER
San Francisco

The fall of man

Your play on St John’s Gospel—“who can say what new flesh the designers’ words will eventually bring into being?” (“Proteinotopia”, July 31st)—was an unsettling commentary on how science now thinks it is divine. Jon Stewart had a point when, speculating on the origin of covid-19, said: “Here’s how I believe the world ends...The last words man utters are somewhere in a lab, a guy goes, ‘Huh, it worked!’”

DANIEL BRENDEL
Alexandria, Virginia

Can you feel the upbeat?

Reviewing quarterly earnings at Goldman Sachs, David Solomon, the chief executive, “sounded upbeat”, you reported (“Fat and happy”, July 17th). Was that because Goldman’s business is flourishing? Or was it that Mr Solomon was getting cued up for his other job, moonlighting as DJ D-Sol? With tracks like “Don’t Stop”, “Feel Alive”, and “Electric”, it is safe to assume Mr Solomon channels his inner crowd-pleaser in the boardroom as well as on the dance floor.

CHRIS CHROMIK
Edmonton, Canada

Letters are welcome and should be addressed to the Editor at The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N 6HT
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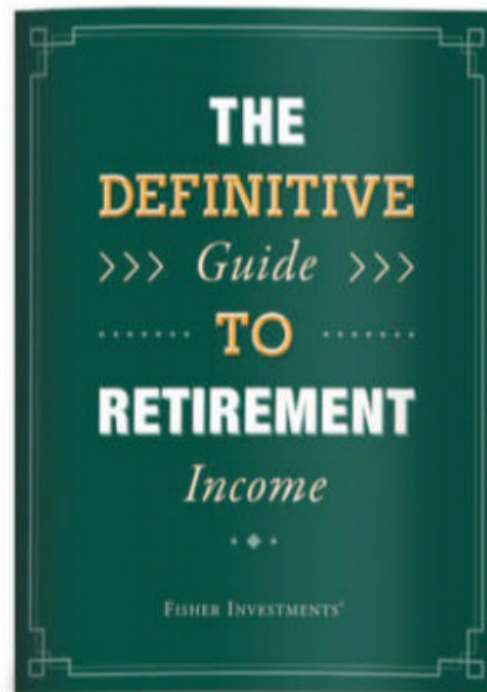
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The Taliban are back in town

ISLAMABAD AND WASHINGTON, DC

Their astonishingly quick victory marks a geopolitical turning-point. What will be the consequences of America's humiliation?

THE TALIBAN is not the North Vietnamese army," declared President Joe Biden on July 8th, days after America abandoned Bagram air base, the hub of its war in Afghanistan for 20 years, without telling its Afghan commander. "They're not remotely comparable in terms of capability. There's going to be no circumstance where you see people being lifted off the roof of the embassy of the United States from Afghanistan." By August 15th Chinooks were rattling windows in Kabul, shuttling American diplomats from their hulking embassy. At the city's airport, desperate Afghans swarmed the runway; some clung to the undercarriage of a C-17 transporter, falling to their deaths.

The chaos on the runway contrasted with the Taliban's nearly bloodless capture of Kabul a day earlier. The Taliban now control more of Afghanistan than they did in 2001, when America swept them from power in response to the September 11th attacks (see map, next page). At the presidential palace in Kabul, Taliban fighters in dusty sandals seemed surprised at their

victory as they posed around the desk abandoned by Ashraf Ghani, the country's president. "We have reached a victory that wasn't expected," admitted Mullah Abdul Ghani Baradar, the Taliban's deputy leader.

In the tense drama around the airport, the foes have treated each other warily. The Taliban have so far allowed America to run evacuation flights, but have forced back crowds trying to get onto them. With thousands of Americans left in Kabul the situation could grow more dangerous. The Taliban may grow impatient with thousands of American and British troops on Afghan



The future of American power

This week on Economist.com we begin a series of commentaries on how America's global standing is changing. The first is by Francis Fukuyama on the end of American hegemony. Others will include Niall Ferguson on why the decline of America's empire won't be peaceful, and Anne-Marie Slaughter on why America must go from global policeman to problem-solver. www.economist.com/by-invitation

soil, and angry at America's decision to block access to foreign reserves.

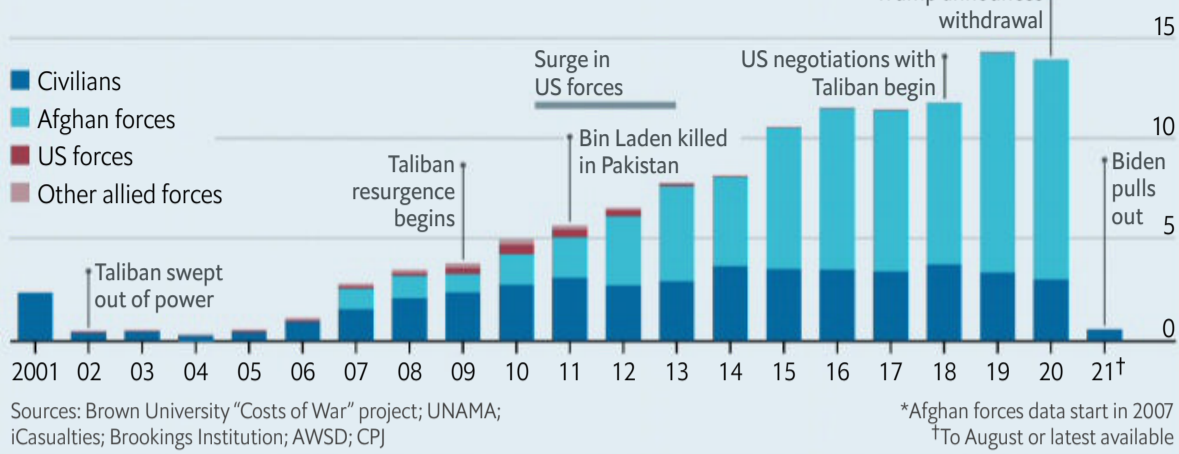
America's flight from Kabul, like its departure from Saigon in 1975, is a defining geopolitical moment: the world's mightiest country has again been defeated by a weaker enemy. In both cases—then as a senator, now as president—Joe Biden advocated a rapid exit. And then as now, fierce critics of America predicted that such a chaotic abandonment would alarm allies and embolden adversaries. Neighbouring states and rich countries farther away can expect an unsettling new influx of refugees. Global jihadists, thousands of whom are thought to be sheltered by the Taliban, will see a divine hand in the way holy warriors have defeated two superpowers in Afghanistan—first the Soviet Union in 1989 and now America.

The consequences will be felt, above all, in Afghanistan itself. It is too early to say whether the Taliban's triumph marks the final, or merely the latest, chapter in the country's 42-year-old war—with more than 117,000 Afghans killed since 2001 (see chart 1, next page). Afghanistan remains one of the world's poorest countries. If Western aid is cut off, it stands to lose even the modest economic and social gains—such as the education of girls—of the past two decades (see chart 2). Much will depend on how the Taliban govern.

When they last ruled in Kabul, from 1996 to 2001, they plunged a country long ravaged by war into a theocratic tyranny. ▶▶

A long war in the Hindu Kush

People killed in the war in Afghanistan, '000



▶ They halted female education and employment, banned most art and music, and massacred minorities. And they harboured militants of all stripes, notably al-Qaeda, which sought to export jihad around the world. The “emirate” was so repulsive that it was recognised only by Saudi Arabia, the United Arab Emirates and Pakistan, a long-time sponsor of the Taliban.

This time around, the Taliban want to show a gentler face. On August 17th one of their officials appeared on Afghanistan's main television network to be interviewed by a female presenter—an unimaginable scene during the first Taliban era. The group has also applied a light touch in the capital. “We were expecting a lot more brutality,” says Obaidullah Baheer, a lecturer at the American University in Kabul. Instead, he was “pleasantly surprised at their discipline and respectfulness”. Mr Baheer notes that the Taliban’s vehicles do not honk at civilian cars, forcing them off the road, as Afghan military ones used to.

Keeping the lights on

The Taliban’s priority is to keep the existing state going. Lacking technocrats or managers, they have declared a general amnesty for all government officials, urging them to return to work. The health minister and the mayor of Kabul remain in

their posts. Antonio Giustozzi of King’s College London notes that the Taliban have cut deals with Salahuddin Rabbani, a former foreign minister, and Hamid Karzai, the first president installed by America. They have recruited army specialists to operate captured equipment and are trying to woo military pilots.

The Taliban's strategy in rural provinces that they have held for some time may hold other clues. They often piggybacked on government services, allowing teachers and doctors to continue working as long as they abided by Taliban rules. “They are going to assume control of what already exists, at least in the short term, and I think they will try to go for stability, rather than a revolution of any sort,” says Ashley Jackson of the Overseas Development Institute (ODI), a think-tank in London.

As they take over the country, says Martine van Bijlert of the Afghanistan Analysts Network, a research group, the Taliban are debating how to strike the balance between what many of their fighters see as ideological purity, on the one hand, and the demand for education that exists even among many of the more conservative Afghans. Mustapha Ben Messaoud, the chief of field operations in Afghanistan for Unicef, says he is “cautiously optimistic”.

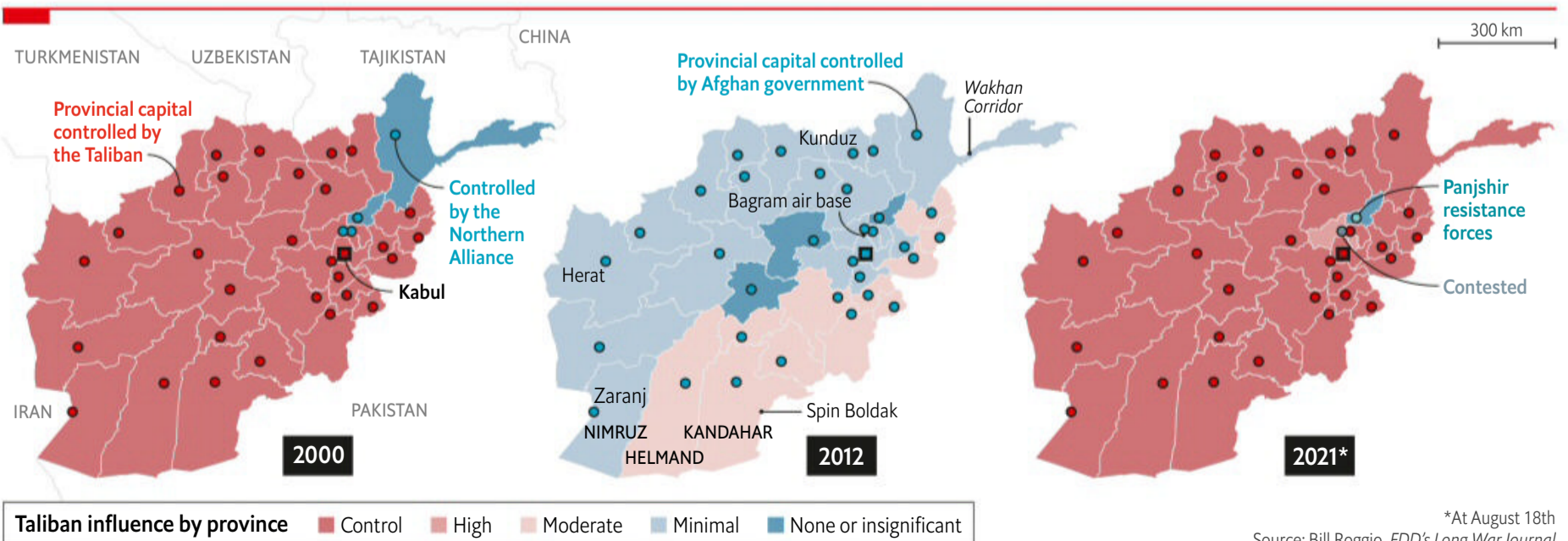
How long this pragmatism lasts is any-

one’s guess. The news out of some newly captured areas is worrying. In Herat, where 60% of the students at the university were women, female students have been ordered back to their homes. Women at work have been told to give up their jobs to male relatives. Zabihullah Mujahid, the Taliban’s spokesman, says that media outlets can remain open—as long as they do not “contradict Islamic values” or “broadcast anything that goes against our national interests”. That is hardly reassuring.

Nor will many Afghans be persuaded by the Taliban’s promise that there will be “no revenge on all those who are working with the Kabul administration or with the foreign forces”. After the Taliban took Spin Boldak, a town on the Pakistani border, dozens of government supporters were reportedly massacred. In Kandahar the Taliban kidnapped and murdered Nazar Mohammad, a popular comedian. Kabul is rife with reports that the Taliban are hunting former US army interpreters and Afghan commanders. One female judge in the city says she, and hundreds of her former colleagues, are terrified of reprisals. In Jalalabad on August 18th the Taliban reportedly killed several protesters waving the Afghan flag rather than the Taliban’s standard.

The hollow Afghan army

Even so, Taliban promises of “mercy” and safe passage for government soldiers who put down their arms goes some way to explaining how they swept away the Afghan army so easily. When the Soviet Union left Afghanistan in 1989, its client regime survived for three years before collapsing (in part because by then the Soviet Union itself had disappeared). The state built this time did not hold out long enough for America even to complete its departure. “We spent over a trillion dollars,” lamented Mr Biden on August 16th (see chart 3). “We trained and equipped an Afghan military force of some 300,000 strong...a force larger in size than the militaries of many of our NATO allies.” Why did it all dissolve in days? ▶▶



*At August 18th
Source: Bill Roggio, FDD's Long War Journal

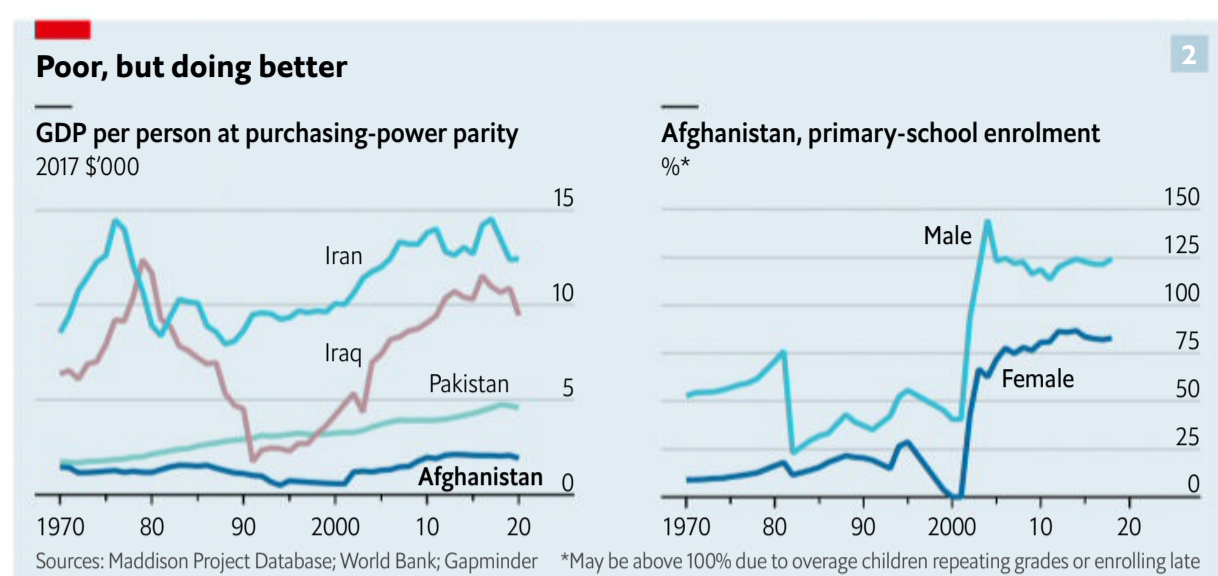
▶ In 20 years of America's presence, the Taliban had seized only one city, Kunduz, holding it for brief periods. Yet starting with Zaranj in the south-west on August 6th, they took one provincial capital after another, culminating in the seizure of Kabul on August 15th. They control virtually all the territory once held by the former Northern Alliance, an anti-Taliban amalgam that America relied on in 2001. Amrullah Saleh, Mr Ghani's vice-president, has fled to the Panjshir valley, declared himself the caretaker president and called for "resistance". But his cause looks forlorn.

The Taliban's success owes much to Pakistan's support, America's distraction in Iraq, drug money and the corruption of Afghan elites. But the militants also had agility. In the last stage of the war, they often embodied Sun Tzu's dictum that the supreme art of war is to subdue the enemy without fighting. "What just happened is probably one of the best conceived and planned guerrilla campaigns ever," says Mike Martin, a former British army officer in Helmand province, now at King's College London. "The Taliban went into every district and flipped all the local militias by doing deals along tribal lines." In Herat, for instance, the head of the provincial council cut a deal with the local Taliban commander (both were members of the Alizai tribe). "Once those local forces had flipped," says Mr Martin, "there wasn't enough weight on the government side, so the army had to surrender."

That the Taliban could strike such deals reflected a deeper problem. America and its allies acted as the midwives of a highly centralised state, whose constitution in 2004 echoed the monarchy of the 1960s. Mr Ghani, a former official in the World Bank and co-author of a book called "Fixing Failed States", wanted to build national institutions that would disenfranchise local power-brokers. That went down badly with important tribes and clans. "These tensions between Kabul and regional actors opened up vacuums the Taliban were able to exploit," observes Ibraheem Bahiss of the International Crisis Group, a think-tank. "They went from really limited appeal to virtually a national movement."

The Afghan army that America built was large, well armed and equipped with air power. It was also utterly unsuited to the war at hand. The formal chain of command clashed with family and tribal loyalties, says Jack Watling of the Royal United Services Institute, a think-tank. The result was endemic corruption. "Equipment was going into the military, into big warehouses and then getting siphoned off all over the place," he says.

Though the army was 352,000-strong on paper, the available force amounted to around 96,000 soldiers, according to CNA, a think-tank—not much larger than the Ta-



liban's 60,000 or so. American-supplied equipment was too complex to maintain, resulting in frequent breakdowns. That in turn confined much of the army to besieged bases. Many soldiers went unpaid and hungry, and casualties were high. A small cadre of Afghan special forces was left to do much of the fighting, but they were stretched thin.

America's decision to leave was the *coup de grâce*. As a study of Vietnam by the RAND Corporation, published in 1978, noted, "the physical side of it—the withdrawal of troops, the loss of us airpower, declining aid—was no more disastrous than the concomitant psychological effects of no longer being regarded by the United States as worth saving."

Gaining friends and seeking influence

Western countries are in a bind. Having failed calamitously, they now hope to exercise a "moderating influence" on the Taliban, as Dominic Raab, Britain's foreign secretary, put it, by using two levers: aid and diplomatic recognition of the new regime. Neither is likely to be effective. Iran and Russia, once hostile to the Taliban, are now friendlier to them; both relish America's humiliation in Afghanistan. Zamir Kabulov, Russia's presidential envoy to Afghanistan, all but applauded their victory: the Taliban, he said, are "much more able to reach agreements than the puppet government in Kabul." Pakistan, whose spooks nurtured the Taliban from birth, was even keener. "In Afghanistan they have broken the chains of slavery," gushed Imran Khan, the prime minister.

The biggest diplomatic prize for the Taliban, however, is China, which shares a border with Afghanistan through the slender Wakhan corridor. On July 28th, with the American withdrawal nearly complete, China made a show of hosting a delegation of Taliban leaders in Tianjin and called the group a "decisive military and political force". Shortly after it proved so, Chinese diplomats welcomed the prospect of "friendly and co-operative relations".

How the relations with neighbours ac-

tually turn out depends, in part, on the Taliban's links with international jihadist groups. China, for instance, worries about the presence of militant Uyghurs, whom it sees as a threat to stability in Xinjiang, where Uyghurs form a majority and are the subject of intense repression.

Islamist extremism has long been a concern to Western countries, too, even if the threat has abated since 2001. "We went to Afghanistan 20 years ago with one mission, and that mission was to deal with the folks who attacked us on 9/11," said Antony Blinken, America's secretary of state, on August 15th. "And we have succeeded in that mission." Al-Qaeda, the group which was responsible, is a shadow of its former self. But its ideology has spread far and wide; it has spawned the likes of Islamic State, an even more brutal group born in Iraq and Syria, as well as offshoots and lone-wolf terrorists.

Mr Mujahid has tried to assuage concerns that Afghanistan will again become a base for global terrorism, as it was on 9/11: "We want to reassure everyone, especially the United States, that Afghanistan won't be used to attack anybody." But last month a UN team which monitors jihadist groups reported that al-Qaeda remained present in no fewer than 15 of Afghanistan's 34 provinces, primarily along the country's eastern fringes. A local branch of Islamic State is also present in several places, with anywhere from several hundred to 10,000 members. Western intelligence agencies reckon that Ayman al-Zawahiri, al-Qaeda's leader since America's killing of Osama bin Laden in 2011, is in Afghanistan, though ailing. The Taliban's release of thousands of prisoners, many of them hardened jihadists, from Pul-e-Charkhi prison in Kabul compounds the problem.

American officials believe that they can keep the terrorists in check through a combination of watchful intelligence and targeted strikes. Mr Biden says that America has a robust "counterterrorism over-the-horizon capability". Yet this capacity has been greatly weakened. America will soon lack a military or diplomatic presence on ▶▶

▶ the ground. Afghanistan's own spy agency, the National Directorate of Security, is unlikely to survive; if it does it is unlikely to co-operate with the West. American spooks will become more reliant on agents recruited mostly outside Afghanistan, and on signals intelligence.

Without an air base to operate from in Afghanistan, the country's landlocked geography is another forbidding constraint. CIA drones once took off from next-door Pakistan but its relations with America are at rock-bottom. Missiles or warplanes could fly from bases in the Persian Gulf or an aircraft-carrier in the Arabian Sea, but they could not avoid passing over either Iran, an unlikely prospect, or Pakistan, with or without its permission.

Much as Mr Biden and his team reject comparisons to Vietnam, they are unavoidable. In both cases, civilian and military leaders misled Americans about a conflict with uncertain aims and unreliable partners, and on cultural terrain where they never found their footing. But there are many differences. The 2,452 American military deaths in Afghanistan are painful, but the war in Vietnam was far bloodier—with 25 times as many Americans killed—and more divisive. In other ways, the failure in Afghanistan is worse. The North Vietnamese army was a skilled and armoured force, notes Caitlin Talmadge of Georgetown University, perhaps twice the size of the Taliban and backed by a superpower. Yet the Taliban have taken a territory four times as large as South Vietnam.

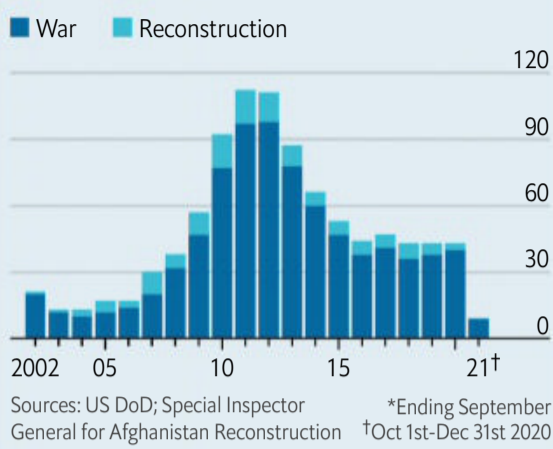
A shock that rings around the world

Many historians have concluded that the Soviet Union invaded Afghanistan and expanded support for proxies in Central America and Africa in part out of the belief that America had been weakened by Vietnam. China has already seized on the debacle in Afghanistan to celebrate America's retreat, if not decline. The *Global Times*, a jingoistic tabloid run by China's Communist Party, crowed on August 16th that the withdrawal was an "omen of Taiwan's future". If America was unwilling to absorb several thousand casualties in Afghanistan, it suggested, a war over Taiwan "would mean unthinkable costs". Andrew Yang, a former Taiwanese defence minister, agrees that the withdrawal from Afghanistan matters to Taiwan: "That is a lesson to learn...Taiwan should depend on its own self-defences instead of us support."

In India, many officials are troubled by a victory for Pakistan's proxy, and the prospect of energised jihadism. And having aligned the country more closely with America against China, they are taken aback by America's apparent unreliability. "The us withdrawal...showed utter disregard of what it would unleash in its wake," argues Nirupama Rao, formerly India's

The trillion-dollar war

United States, official spending on the war in Afghanistan, financial years*, \$bn



most senior diplomat. "It has devalued the worth and credibility of American power in the region," she says.

Europeans fume that America's withdrawal was presented to them as a *fait accompli*. For one diplomat, it "confirms a long-term trend of US disengagement". Europeans, he said, must "draw conclusions" about America's reliability when it comes to crises in places like the Middle East and the Sahel. British officials are apoplectic, too. Tom Tugendhat, a Conservative MP and chairman of Parliament's foreign-affairs committee, who served in Afghanistan as a soldier, said Britain should "set out a vision...for reinvigorating our European NATO partners to make sure we're not dependent on a single ally, on the decision of a single leader".

Yet complaints about American reliability are an old pastime. Europeans grumbled about Barack Obama's reluctance to intervene in Libya in 2011 and his cancellation of air strikes on Syria in 2013. Gulf states fretted over Mr Trump's failure to punish Iran for its attack on Saudi oil facilities in 2019. Taiwan already has experi-

ence of betrayal by America, when it switched formal diplomatic recognition to communist China in 1979, yet lives with it.

If the manner of Mr Biden's withdrawal demonstrates American capriciousness, it also shows its indispensability. Few allies have anywhere else to turn as Russia and China assert themselves. "This is a hard blow for America," acknowledges Michael Fullilove, director of the Lowy Institute, a think-tank in Sydney, "but it doesn't change the calculus for Australia." Asked whether Japan is worried, one senior official in Tokyo replies: "No, because Afghanistan is Afghanistan...Japan is different."

And just as European allies welcomed America's withdrawal from Vietnam, anxious that it was diverting resources and attention from the Soviet threat to Europe, many allies (and China hawks in Washington) spy an opportunity to refocus America on their concerns. As Mr Biden noted: "Our true strategic competitors—China and Russia—would love nothing more than the United States to continue to funnel billions of dollars in resources and attention into stabilising Afghanistan indefinitely."

The long view

The enduring lesson from Vietnam may be the importance of perspective. In the short term America's confidence was shaken and its adversaries cheered. Yet within 15 years of defeat in a war that was waged to hold back the communist tide, America had won the cold war and emerged as a power without peer. Its armed forces, shattered by the conflict, rebuilt themselves into an unrivalled, technologically advanced force. And four decades on, Vietnam is a close partner of the superpower it vanquished. That may be a consolation to America. It is of little solace to Afghans who trusted it to defend them, and must now face life under the Taliban. ■



The empty shell of Afghanistan, discarded



The West

Low and dry

LAKE MEAD

The effects of climate change are being exacerbated by a century of bad policy

LOCALS CALL it the “bathtub ring”. A white strip more than 150 feet tall encircles the turquoise surface of Lake Mead, America’s largest reservoir, showing visitors how high the water once was, and how low it has fallen. The shrinking of Lake Mead and Lake Powell, its sister reservoir upriver, is the most visible manifestation of the 22-year megadrought that has gripped the American West. The water levels of both have reached record lows. Dip a toe into Lake Mead and it feels shockingly warm for such a large body of water. The canyons that were drowned when Lake Powell was filled in the 1960s are slowly revealing themselves again.

The drought has become so severe that on August 16th the Bureau of Reclamation, an agency within the Interior Department, declared the first-ever water shortage for the Colorado River. The river is the lifeblood of the south-west, supplying 40m people across seven states with water and hydropower. A patchwork of water rights, laws and litigation means that farmers in central Arizona will bear the brunt of the initial cuts.

There are two main reasons water shortages loom. The first is climate change. Both reservoirs straddle the Colorado River as it meanders from its headwaters in the Rocky Mountains down through the desert south-west to northern Mexico. Warmer winters caused by rising greenhouse-gas emissions have diminished the snowpack that melts into the river each spring. In addition, parched soils have soaked up some of the runoff before it can reach Mead and Powell. Since 2000, when the so-called “Millennium Drought” began, the river’s annual flow has shrunk by nearly 20%. Multiple studies in the past five years have attributed up to half of that

decline to human-caused climate change.

Second, poor policy choices made 100 years ago all but guaranteed that the water available to westerners could never meet expectations. After laws such as the Homestead Act encouraged white settlers to move West in the second half of the 19th century, the federal government financed the dams and pipelines needed for cities and agriculture to thrive in the desert. “By moving water around from more water-rich areas to water-poor areas, we sort of enabled these people to migrate and settle,” says Newsha Ajami of Stanford University. “Regardless of the fact that it’s dry, or it’s hot—if the water is flowing, you think anything is possible.”

Boosterism for shiny new reclamation projects in the early 1900s led to dubious decision-making. The Colorado River Compact, which divvied up the river in 1922, used data from historically wet years to estimate average annual flows. John Fleck, the director of water resources at the University of New Mexico, says a government scientist was ignored when he testified in the 1920s that the river could not meet projected demand. The compact and its addendums, known as “the law of the river”, hold that the seven states and Mexico are to split 20.4bn cubic metres of water each year (or in American terms 16.5m acre-feet, where an acre-foot is the amount of water it takes to submerge one acre of land one foot deep). The river has not lived up to those aspirational figures, says Brad Udall, a climate scientist at Colorado State ▶▶

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► University. Between 1906 and 1999 annual flows averaged 15.2m acre-feet; since 2000 the river has mustered only 12.4m.

Drought almost seems too puny a word to describe the water scarcity that the south-west is experiencing. “In some ways drought implies that it’s ephemeral,” says Kristen Averyt, Nevada’s climate policy coordinator. But the region’s future could be hotter and drier still, according to the most recent report from the Intergovernmental Panel on Climate Change. Discussing the outlook for Las Vegas, John Entsminger, who runs the Southern Nevada Water Authority (SNWA), prefers to talk in terms of aridification, or the long-term drying of the region. “I’m past talking about droughts,” he says.

The region’s rich cities have been planning for this. Los Angeles, San Diego, Phoenix and Las Vegas all get water from the Colorado River—and all have diversified their water supplies. Investing in conservation, recycling programmes and desalination technology has allowed southwestern metros to save water even as their populations have soared.

Perhaps no place is more spooked by Lake Mead’s decline than the Las Vegas Valley, which gets 90% of its water from the nearby reservoir. That dependence has spurred innovation. All water that goes down a drain is recycled, according to SNWA, and the city has ripped out grass in favour of desert landscaping. These measures, along with water restrictions and incentives, helped the valley cut water use by 23% since 2002 while adding about 800,000 residents. “People always assume that population growth and water consumption is more or less a one-to-one correlation,” says Mr Entsminger. But “you can add more people to the equation and simultaneously use less water.”

But cities only account for a fraction of water use on the Colorado. Irrigated agriculture slurps about 70% of the river each year. Cuts to the water supply may push farmers to grow different crops, fallow fields or return to pumping groundwater to get by, which isn’t a sustainable option either. Years of overuse have depleted aquifers in parts of Arizona and California.

Meanwhile, some demands on the river are growing. Thanks to generations of neglect, many Native American households do not have access to clean drinking water. Tribes also lack the plumbing needed to take the water they already have rights to. The bipartisan infrastructure bill that passed the Senate last week includes \$6bn to help remedy that. As the river shrinks, will such attempts to right enduring wrongs go down the drain?

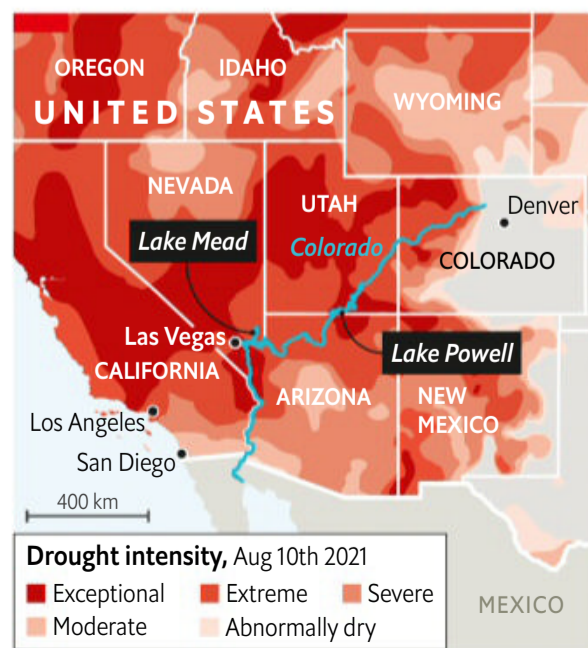
The steps policymakers and utilities can take to prepare for a drier West fall into two buckets. The first are relatively easy measures. Closely tracking water use in

homes, farms and businesses would help people understand just how much they are using—and root out the worst offenders. Cities can also further demand stricter compliance with local water restrictions. “Anybody that uses water in the West needs to pretend they work and they live in a desert—even if they don’t,” says Ms Averyt. “We need to make brown the new green.”

The second group of reforms requires more radical change. The rules governing the Colorado River expire in 2026. But if reservoir levels continue to decline, as projected, officials may be forced to begin negotiations early. Mr Udall argues the region needs to consider a worst-case scenario for the river. Such talk rattles lawmakers who know that asking their constituents—especially farmers and ranchers—to dramatically curtail their water use could be politically untenable. It also makes plans to take more water from the river, as Utah hopes to do, seem tone-deaf.

Making change more difficult is the West’s system of water rights, which gives precedence to whoever used the water first. In practice, that means water allocation is often based on who settled where in the late 1800s, rather than who needs the water most. “We have 19th-century laws, 20th-century infrastructure, and we have 21st-century problems,” says Ms Ajami.

The dwindling Colorado is just one example of how drought is plaguing the West. Elsewhere, right-wing extremists have threatened to take control of reclamation facilities on the border of California and Oregon to release water to farmers. The hot, dry weather that dramatically reduced snowpack in the Rockies and the Sierras has turned forests into tinderboxes. Smoke from wildfires in California is dirtying the air in Denver. Heat waves have baked the desert south-west and Pacific Northwest alike. America spent more than a century trying to reclaim the desert, turning brown landscapes green. Bolstered by climate change, the desert is clawing its territory back. ■



Libel law

Malice afterthought

NEW YORK

Two Supreme Court justices want to revisit a landmark free-press decision

IT HAS BEEN five years since then-candidate Donald Trump called for America’s libel laws to be “open[ed] up” to make it easier for public figures to sue press outlets and win “lots of money”. No such loosening has transpired. But some judges and scholars are raising doubts about the nearly 60-year-old precedent that sets a high bar for successful libel suits.

In July two Supreme Court justices, Neil Gorsuch and Clarence Thomas, took aim at *New York Times Co. v Sullivan*, the landmark ruling from 1964 that shielded newspapers from southern efforts to stifle coverage of brutality against civil-rights protesters. In their eyes, the “actual malice” standard—which requires public figures alleging libel to prove the publisher printed a statement knowing it was false or without caring whether it was true—may now be damaging. The standard has “evolved from a high bar to recovery into an effective immunity from liability”, Justice Gorsuch wrote, and has become an “ironclad subsidy for the publication of falsehoods by means and on a scale previously unimaginable.”

Justice Thomas agreed that *Sullivan* has contributed to a “proliferation of falsehoods” by “insulat[ing]...those who perpetrate lies” from libel suits. Both see the decision and follow-on rulings as unmoored from the First Amendment. Laurence Silberman, a judge on the federal appellate court for the District of Columbia, wrote in March that *Sullivan* has facilitated the rise of something “very close to one-party control” of the media. “Nearly all television—network and cable,” he reckoned, “is a Democratic Party trumpet.”

This conservative backlash to *Sullivan* is curious. The original decision was unanimous, as was its reaffirmation in *Hustler v Falwell*, a case in 1988 involving a parody suggesting that Jerry Falwell had engaged in drunken outhouse sex with his mother. In 2019, too, Justice Samuel Alito spoke up forcefully for press freedom when he defended conservative bloggers being sued for libel by a climate scientist whose views they had attacked.

Yet imposing a greater risk of costly defamation verdicts would make it “nearly impossible for most news organisations to continue to report on the government with the scrutiny we’ve come to expect,” says Sonja West of the University of Georgia. Ted Boutrous, who is defending MSNBC’s Rachel Maddow in a libel suit brought by ►►

▶ OAN, an entertainment network, thinks it would be “extraordinarily damaging” for the court to chip away at the decision. Several politicians have recently brought frivolous suits. Mr Boutrous worries that lowering the hurdle to proving libel could have a chilling effect on political speech.

David Logan of Roger Williams University, counters that *Sullivan* provides “little deterrence of liars and a systematic under-protection of the right to an unsullied reputation”. For Justice Thomas, the shooting in 2017 at a Washington, DC, pizza shop motivated by Hillary Clinton’s purported Satanic child sex-abuse ring is an example of what it has wrought. But there is little reason to think disinformation on social media, much of it from anonymous accounts, would dry up were *Sullivan* to go.

America’s libel regime may, however,

have room for improvement. Ordinary citizens have little hope of protecting their reputations. In 2014, for example, a woman had to prove actual malice when suing Bill Cosby for defamation, because she had thrust herself into a public dispute by accusing him of raping her 40 years earlier. As Justice Thomas has written, it makes little sense to impose this burden on plaintiffs with only brief notoriety.

Ms West says perhaps the level of protection against defamation suits should hinge on whether the speech is a matter of public concern, rather than whether the plaintiff counts as a public figure. In a book review 17 years before she became a justice, Elena Kagan toyed with that idea, too. But for now, *Sullivan*’s core seems safe: only two of the nine justices have expressed an appetite to abandon it. ■

Animal welfare

The bacon crunch

California’s new regulations may raise the price of pork

BRINGING HOME the bacon is about to get harder in California. Proposition 12, a ballot initiative passed in 2018, prevents the pork, veal and egg industries from raising animals within confined spaces for all products sold within the state. And while the egg and veal industries met new rules in 2020 (43 square feet, or 13 square metres, per calf raised for veal, one square foot per egg-laying hen), the pork industry may fail to meet the requirements for breeding pigs (24 square feet) by January 1st.

California’s new restrictions are part of a larger movement to release animals from cages. McDonald’s, Kellogg’s, Kroger’s and other businesses announced plans to use only cage-free eggs by 2025. Eight states, including Massachusetts and Utah, passed laws that in effect ban eggs produced by caged hens. California’s law is the most impactful on the pork industry. As the largest consumer of pig products, 116m kilos per year (about 15% of all produced in America), California’s standards have weight elsewhere.

The industry is, naturally, claiming that the law is unconstitutional. So far, challenges have been unsuccessful. The US Court of Appeals for the Ninth Circuit declined the National Pork Producers Council (NPPC) and American Farm Bureau Federation’s petition to strike down the law in July. And the Supreme Court denied a petition filed by the North American Meat Institute a month earlier.

Michael Formica, general counsel at the NPPC, says that the new law places an unreasonable burden on pork producers.



Driving down the 101

Currently breeding pigs, which typically weigh about 225 kilograms, are placed in 14-square-foot gestation crates. Less than 4% of all sow housing meets the new standards, according to Rabobank, which finances agriculture.

Activists blame the pork industry. “[They] had three years to change their housing systems. They instead chose to not comply,” says Chris Green of Harvard Law’s Animal Law and Policy Programme. Californians could pay the price. The Hatamiya Group, a consulting firm hired by opponents of the law, estimate that consumers could pay up to 60% more: a \$6 pack of bacon could now cost \$9.60. Bacon smugglers in Nevada are, presumably, licking their lips.

The census

Omni-Americans

NEW YORK

Demography, culture and Donald Trump have scrambled racial categories

IT WAS FOUR months late, delayed by covid-19, but on August 12th America’s Census Bureau released data from the decennial headcount conducted last year. The results shed light on the sluggish growth of America’s population. Since 2010 it has increased by 7.4% to 331.5m, the slowest growth since the 1930s. And for the first time in America’s history, the number of non-Hispanic white people declined, falling by 2.6% to 192m. They now make up 57.8% of the population.

The reasons for this decline are both demographic and sociological. Whites skew older, with a median age of 44, compared with 38 for Asians, 35 for African-Americans and 30 for Hispanics. Whites have fewer babies and get only a small boost from immigration, since most new arrivals come from Latin America and Asia. By contrast racial minorities are growing fast. They make up a majority of the under-18s.

Categories are also becoming less exclusive. The multiracial population more than tripled in the past decade: one in ten Americans now consider themselves to be racially mixed. There are three explanations for this. One is the rise in interracial marriages, whose share jumped fivefold in 50 years. Another is changes at the Census Bureau, which allowed respondents to write longer answers to the race questions last year compared with 2010.

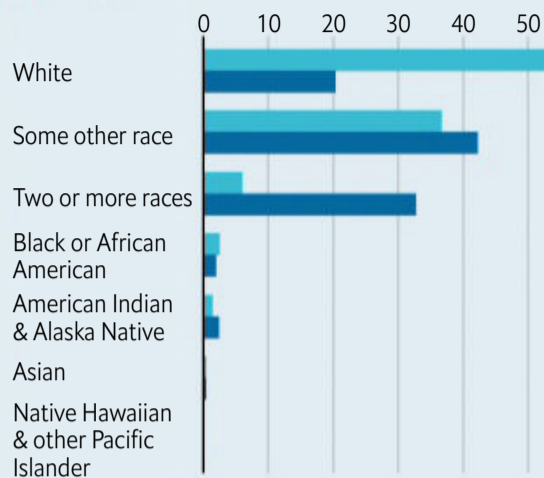
A third factor is that the way people see themselves is changing. Carolyn Liebler, a sociologist at the University of Minnesota, found that just over 6% of Americans changed their race on the census between 2000 and 2010. Many probably did so last year, too. The number of non-Hispanic whites declined by 5.1m, yet non-Hispanic people who identified as part-white rose by 7.2m. A lot of white people probably added another race that they didn’t declare before. It will take a few years and more data to determine how many.

A similar dynamic occurred among Hispanics. The census considers “Hispanic” an ethnicity rather than a race, and treats the two things separately: respondents are simply asked if they are Hispanic or not. The race question omits it. In 2010 a slight majority of Hispanics said they were white on the race question of the census. But that number fell by half last year. By contrast those who said they were “Some Other Race” or “Two or More Races” increased by 41.7% and 567.2% respectively. ▶▶

Melting pot

United States, Hispanic or Latino population
Identifying by race, % of total

2010 2020



Source: Census Bureau

▶ One possible explanation is that last year, for the first time, the bureau asked whites to specify their ethnic origins and gave examples—German, Irish and Lebanese, among others—as prompts. Hispanic labels like Mexican or Puerto Rican were not among them. This may have made some reluctant to select the white option. And, in the era of Donald Trump, argues Ann Morning of New York University, many Hispanics got the message that they are not considered “bona fide whites”.

“The question is very simplistic, but the reality is complicated,” says Ms Liebler. The census captures population change in fine detail. It also shows shifts in how Americans see themselves. ■

Guantánamo**No easy escape**

WASHINGTON, DC

The interminable trials at the uncloseable prison are about to resume

TWENTY YEARS after 9/11, the case of the alleged conspirators is set to resume in court over two weeks in September at the Guantánamo Bay detention facility. After a pandemic-induced pause, trials of several remaining detainees began last month. Another prisoner was released on July 19th, the first in over four years. With this new momentum, President Joe Biden aims finally to close the prison at Guantánamo, the site of torture and a legal quagmire that has long tainted America’s image during the “war on terror.” Closing Guantánamo would fulfil a campaign promise, the same promise left broken by Barack Obama.

But the infamous prison may yet frustrate Mr Biden, just as it did his former boss. At root is a broken legal process go-

verning the trials of detainees, the so-called “military commissions”, that has kept prisoners in legal limbo. Congress, however, has refused to reform the commissions and blocked attempts to circumvent them. Mr Obama made halting progress, and Mr Biden has yet to devote real attention to the process. Without change, Guantánamo will be a stain on America’s reputation for years to come.

Beset by delays and the turnover of lawyers, the military commissions have little to show for their efforts. The detainees brought to Guantánamo beginning in 2002 were deemed “unlawful combatants,” neither subject to American courts nor protected by the Geneva Conventions. The commissions were established in 2006 to give the prison a veneer of a judicial system. These courts, born without a body of precedent or procedures, have secured just eight convictions. Many cases today are still mired in pre-trial activity, because of the government’s insistent pursuit of the death penalty and repeated litigation over the admissibility of evidence taken under torture. The absence of constitutional protections has added to the confusion, requiring clarification by higher courts.

Nor have the commissions benefited from stability on the bench or among the prosecution. Changing judges is no simple thing, requiring them to catch up on years of documents. Karen Greenberg of Fordham University School of Law points out that judges at Guantánamo “are not experienced in taking a trial from beginning to end in a procedurally regular way.”

The pending retirement of Brigadier-General Mark Martins as chief prosecutor, after a decade in the job, is the latest setback to the commissions. This came after reports of clashes with the White House over the use of statements made under torture, with Mr Biden’s team opposed.

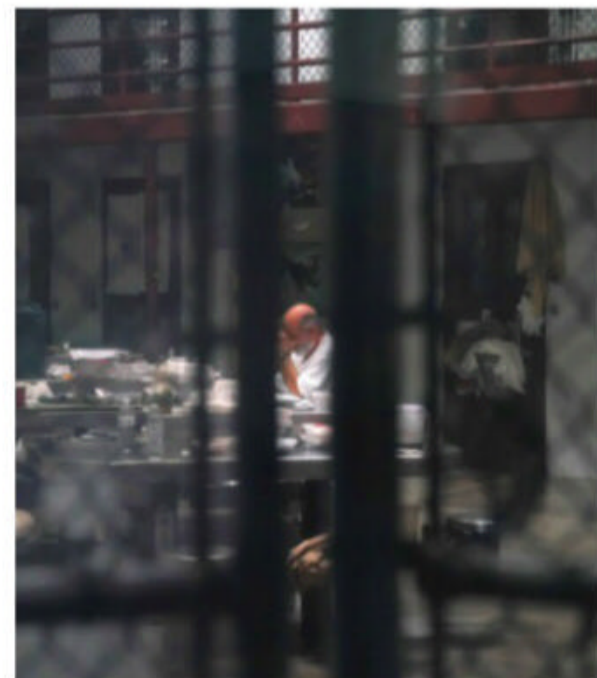
Over the years, 780 prisoners have passed through Guantánamo. Many of the remaining 39 are entering their second decade in detention having never stood trial. Among them, 12 have been convicted, charged, or await charges for terrorism. Another ten can be transferred to other countries. The rest are examined by the Periodic Review Board, an opaque panel tasked with recommending inmates for release. Yet finding countries willing to receive men who had been under suspicion of terrorism, albeit that no charges had been pressed or proven, is tricky, requiring tactful diplomacy. Meanwhile, detainees still languish behind bars. Abdul Latif Nasser, a prisoner released to Morocco in July, was never charged with a crime in 19 years at the prison.

Congress has refused to remedy the situation. Since 2010, Republicans and many Democrats have united in banning the president from transferring prisoners to

American soil. This has blocked prisoners from being tried in faster, standard American civilian courts. Unable to transfer detainees to an American supermax prison, Mr Obama, and now Mr Biden, were forced to find other governments to take the detainees not charged. Even so, some lawmakers have demonised the transfers abroad, warning that detainees will return to the battlefield. Indeed, the Office of the Director of National Intelligence estimates that over 17% of released detainees are confirmed to have re-engaged in terrorist activity. One such recidivist, Gholam Ruhani, has just addressed Al Jazeera from Afghanistan’s presidential palace in Kabul as a leader of the conquering Taliban.

Mr Biden has restarted the transfer process begun under Mr Obama, but he has not gone further. He is reported to be considering a special envoy, following Mr Obama’s example, as part of a policy review. Doing so would ensure that negotiating transfer cases was the responsibility of a single official, rather than sitting at the bottom of the agenda for any State Department official visiting the prisoner’s country of origin. Lee Wolosky, himself a former special envoy for Guantánamo under Mr Obama, says that the administration should also encourage other countries to prosecute detainees accused of crimes committed in their jurisdictions.

The president’s low-key approach, in contrast to Mr Obama’s bold declarations, may be the savvier strategy. With a slim Democratic majority in Congress and an ambitious agenda, Mr Biden may be reluctant to bring attention to so fraught an issue. Yet, as things stand, the administration must work through the sclerotic commissions. Far from America’s mainland and out of the headlines, Guantánamo’s legal machinery grinds forward, while defendants wait their turn. For many detainees, now old men with greying beards, death in prison is their probable fate. ■



Life without trial

The
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Lexington | Remnants of a policy

After fouling up the withdrawal, Joe Biden blames Afghans and his predecessor



IT WAS ONCE usual for America's leaders to take the rap for a policy catastrophe on their watch. Dwight Eisenhower drafted a provisional mea culpa on the eve of D-Day. John F. Kennedy accepted "sole responsibility" for the Bay of Pigs. "The buck stops here" read the woodcut that Harry Truman kept on his Oval Office desk. Joe Biden used the same phrase this week in reference to the fiasco in Afghanistan, but in a spirit of defiance, not contrition.

He claimed the collapse of Afghanistan's security forces was not an indictment of his decision to withdraw America's troops from the country, but a vindication of it. If the Afghans would not fight to protect their fledgling state, he could not ask Americans to. State-building was anyway not their mission in Afghanistan, he said; rooting out terrorists was. And to those who believe he should not have gone ahead with the withdrawal plan he inherited from Donald Trump, Mr Biden said he would in that case have been forced to escalate the war: "How many more lives, American lives, is it worth, how many endless rows of headstones at Arlington National Cemetery?"

He appears to have acquired some of Mr Trump's disingenuous method as well as his Afghanistan policy. In fact, around 70,000 Afghan soldiers and policemen have died fighting the Taliban. The country's forces folded only after Mr Trump cut a deal with their enemies then Mr Biden cut their air and logistical support. And the Democratic president was not always so sceptical of the effort to build an Afghan state; he was initially supportive of it.

Nor is it clear that staying on would have meant escalating the war, in which America has lost 24 soldiers in combat in the past two and a half years. Above all, the catastrophe that Mr Biden was required to answer for this week was not the decades-long failure in Afghanistan, or even his decision to draw a line under it. It was his administration's astonishing lack of preparedness for the Taliban's takeover. Aside from an implausible—and swiftly debunked—claim by Mr Biden that America had not previously evacuated many vulnerable Afghans because they had not wanted to leave, the president's lengthy self-justification seemed mostly intended to distract attention from that disaster.

It was depressing, but not all that surprising. None of Mr Biden's other recent predecessors owned up to their big screw-ups,

either. George W. Bush still defends the debacle in Iraq. Barack Obama has called his failure to enforce his injunction against Bashar al-Assad's chemical-weapon use one of his proudest moments. Partisan politics, to which foreign policy is now largely subject, does not reward admissions of error. And Mr Biden may be especially averse to them. The president's scrappy-kid-from-Scranton shtick is not entirely cosmetic. Chafing against the condescension that he has received throughout his long, error-strewn career—from journalists and pundits who have never won an election—he is hair-triggered to stick it to his critics.

There are a lot of them currently. Many Republicans had been reluctant to criticise Mr Biden's execution of a Trump policy in Afghanistan; they are now unloading on him with pent-up gusto. The party's leaders, having had all enthusiastic reference to Mr Trump's peace plan expunged from its websites, are seeking to blame 20 years of failure on the Democratic president. According to Mitch McConnell, "He owns it." Senator Rick Scott of Florida has suggested Mr Biden should be removed from office. And many Democrats, dismayed by a display of the sort of incompetence they associated with the Trump administration, are not rushing to his defence. Bob Menendez, the Democratic chairman of the Senate Foreign Relations Committee, has announced his intention to hold hearings into both the Trump deal and Biden withdrawal. The top brass and intelligence agencies are also unhappy. Mr Biden ignored their advice in pushing ahead with the withdrawal, and their reputations have now been tarnished by it.

Unless the Taliban or their terrorist allies start killing many Americans, history suggests most of this will pass. Just 18 months after the end of America's far bigger catastrophe in Vietnam, Bob Dole found no purchase, in a vice-presidential debate with Walter Mondale, for his caustic reference to "Democrat wars". Most Americans recognised that both parties had been culpable for Vietnam, just as they have been for Afghanistan; and they had anyway moved on to more pressing economic concerns. Given how few Americans have strong views on Afghanistan even now (though most say they are for leaving it) it is safe to assume it will not be a major issue in next year's mid-terms.

It could still influence them. Republican strategists believe their new attack-line on Mr Biden, that he is incompetent, will prove more effective than their old one, that he is a dodderly slave to the far-left. By blaming him for high rates of crime and inflation as well as, should any voter care to remember them, the terrible scenes at Kabul airport this week, they will hope to sustain that attack. It would be an appropriately measly political epitaph to America's Afghan venture, which for 20 years has been governed far more by political exigencies in Washington, DC—anti-terrorism, pro-development and so forth—than the situation in Afghanistan. It would also be a deserved knock to Mr Biden.

Losing his sheen

Reasonable people can disagree over whether the costs of the Afghanistan mission outweighed the costs of ending it. But it should be clear that the second are diverse and increasing and he is to blame. Having vowed to restore America's alliances, Mr Biden has strained them, while handing an advantage to Russia and China, the adversaries he swore to confront. He has made a farce of his pledge to restore human, especially women's and minority, rights to foreign policy. When challenged on those failures, he shirked responsibility and played to the gallery. It has been a wretched week for Afghanistan, America and both their presidents. ■



Haiti

The wretched of the earthquake

First a presidential assassination. Now a string of natural disasters

ALLEN JOSEPH was listening to a meditation recording when he felt his house in Paillant moving from side to side. “It was as if I were surfing a huge wave,” he says. Mr Joseph’s town (see map), home to about 20,000 people, was close to the epicentre of an earthquake with a magnitude of 7.2. It struck Haiti on the morning of August 14th. A tropical storm followed just days later, complicating rescue efforts as it brought floods and landslides. So far more than 2,000 people are confirmed dead—a number that is bound to rise. Thousands more are injured, missing or homeless.

Haiti, a Caribbean country of 11m people, has been plagued by political turmoil, poverty and natural disasters for years. But they have come in quick succession of late. The earthquake struck just over a month after the assassination of Jovenel Moïse, the president, on July 7th, which has created a political vacuum. Even before that, the country was unstable. Gangs had proliferated and the economy had been shrinking for the past two years.

The country still bears the scars from past natural disasters, too. A quake in 2010 devastated Port-au-Prince, the crowded

capital, killing 220,000 people. In 2016 the strongest hurricane in five decades hit.

Now Haiti will once again rely on the largesse of foreign donors. But aid is a mixed blessing. Although it has done much good, it has also weakened the government, since it flows largely through private networks. Worse, in the past decade UN peacekeepers accidentally intro-

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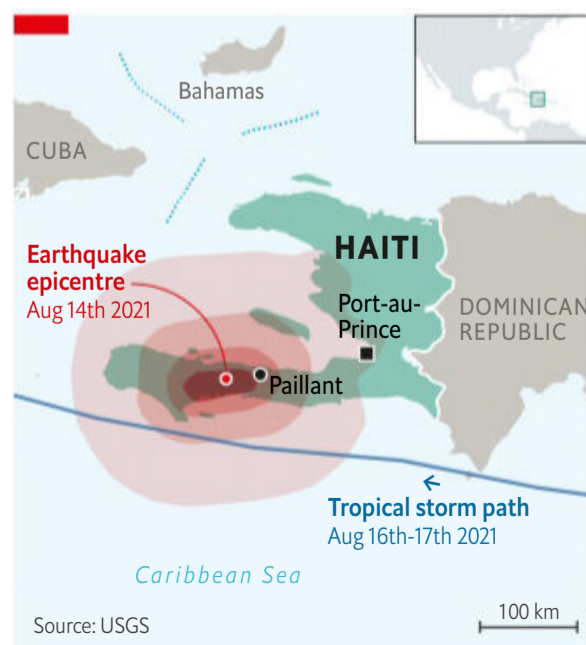
— Bello is away

duced cholera, which has killed around 10,000 people according to official statistics. They have also been accused of sexually abusing Haitian girls.

The government will struggle, as usual, to cope with the latest disaster. Thousands of people are huddled in parks, without shelter, food or water. Several medical facilities, already scarce in the worst-affected area, have been destroyed. As gangs control roads that connect Port-au-Prince with the rest of the country, aid supplies must be airlifted, which slows their distribution. Happily UN officials say they may have struck a deal for safe passage by land.

As the state deals with the earthquake’s aftermath, progress may stall in the investigation into Mr Moïse’s murder. Not that there has been much. Despite multiple arrests, including those of Colombian mercenaries accused of carrying out the operation, few think the authorities are close to finding the real culprits.

Before the quake, elections for a new president and legislature due in September had already been pushed back until November. They may be delayed further. Haiti desperately needs a legitimate government. Mr Moïse had ruled by decree since January 2020, having dismissed all but ten lawmakers from Parliament. Rebuilding the country, controlling gangs and curbing the pandemic are top of the agenda for any new leader. (Just 371 Haitians have been fully vaccinated against covid-19.) Many are voting with their feet: Haitians have fled the country in droves in the past two years. The exodus is likely to grow. ■



Canada

Sonny ways

The country does not need an election now. But the prime minister does

IN 1972 PIERRE TRUDEAU, Canada's Liberal prime minister, lost his parliamentary majority in an election and found himself in charge of a minority government. Two years later he went to the country again, regained his majority and remained in office (with a brief interruption) for another decade. His son Justin (pictured), Canada's prime minister since 2015, now hopes for a similar triumph. On August 15th he called a snap election, to be held on September 20th, with the aim of regaining the Liberal majority he lost nearly two years ago. He may hope to exceed his father's 15 years in office. After 17 months of pandemic, he said when he asked the governor-general to dissolve Parliament, "we're all wondering what the next 17 months, not to mention the next 17 years, will hold."

Mr Trudeau has reasons to be confident. Half of Canadians think his government has handled the pandemic well; less than a quarter think it has done badly. After a faltering start the country is among the leaders in administering vaccines: more than 70% of people aged 12 and older are fully inoculated. The IMF expects the economy to grow by 6.3% this year, well above the rich-country average of 5.6%. Mr Trudeau's main rival for the prime ministership is Erin O'Toole, the leader of the Conservative Party, who is new to the job and has made little impression on voters.

Yet Mr Trudeau is taking a risk. And it is not certain that success—should he secure it—would be as much of a boon for the country as it would be for the Liberal Party.

The prime minister insists that the stakes are high. Canada stands at a "pivotal" moment, "maybe the most important since 1945", he declares. But it is hard to see why. Mr Trudeau's lack of a parliamentary majority has little constrained his ability to govern. He has needed the support of just one of the other main parties—if not the Conservatives then the left-leaning New Democrats (NDP) or the separatist Bloc Québécois—to enact his programme.

Most of the time he has got it. His government had cross-party support for pandemic aid to households and businesses worth nearly 20% of GDP. The NDP voted in April for his budget, which proposes high levels of spending (but promises a gradual decline in the deficit). Among its pledges is making child care available to families for C\$10 (\$8) a day within five years. In June Parliament enshrined in law the goal of re-

ducing Canada's net emissions of greenhouse gases to zero by 2050.

If re-elected, Mr Trudeau promises more aid to cope with the effects of the pandemic, for example by offering subsidies for the wage and rent bills of tourism businesses. He says he would continue to "build back better" and greener. But he could probably find the votes to do that in the current Parliament.

The main reason for holding an election now, rather than waiting until the end of the parliamentary term in 2023, is probably that a later contest would be harder for the Liberals to win. Canadians might tire of their scandal-prone government, which would then be entering its ninth year in office. The political immunity conferred by the vaccine will have worn off. Mr O'Toole will be better known, and perhaps more appealing to voters. Better to act now, Mr Trudeau may reckon.

His opening gambit has been to put the Conservatives on the defensive for their lack of enthusiasm about vaccinations. The Liberals want to make the jab mandatory for federal workers and passengers on trains and aeroplanes. When calling the election Mr Trudeau chided a Conservative MP for calling such mandates "tyrannical". Mr O'Toole, whose supporters include anti-vaxxers, prefers frequent testing.

A record-setting heatwave this summer in British Columbia, a western province, also plays into Mr Trudeau's hands. His most important climate policy has been to set a national floor for the price of carbon.

The government intends to raise this from C\$40 a tonne to C\$170 by 2030. The Conservatives oppose the plan. That may be Mr Trudeau's most convincing argument for delaying their return to power.

But being green and pro-vaccine is no guarantee of victory. In an election on August 17th Nova Scotia's Progressive Conservative party defeated the Liberals, who had governed the province since 2013, because voters were angry about failures in health care, such as long waits for ambulances and doctors' appointments. That may not be an omen: the Progressive Conservatives are not the same party as Mr O'Toole's.

Perhaps a bigger worry for Mr Trudeau is the Conservatives' perceived weakness. Few left-leaning voters, who are a majority, fear that the Conservatives will win. That will tempt them to vote for parties to the left of the Liberals, especially the NDP, which has the support of around 20% of the electorate. If that rises to 23%, "it's an entirely different election," says Darrell Bricker of Ipsos Public Affairs, a pollster.

Another risk for the Liberals is low turnout. A fourth wave of covid-19, now gathering strength, the complexity of voting by post and doubts that the election is as pivotal as Mr Trudeau says will discourage lukewarm Liberal supporters more than backers of the other parties. The latter are eager for change. "For pollsters this is going to be an incredibly difficult campaign," says Mr Bricker.

The main risk is not that the Conservatives will beat the Liberals, but that Mr Trudeau will govern from a weaker position than he does currently. It is possible that in the new Parliament the Liberals will need the support of two parties rather than just one to enact legislation. According to 338 Canada, a politics website, gives the Liberals a 85% chance of winning the most seats, but just a 32% chance of winning an outright majority. Even so, Mr Trudeau seems to like those odds. ■



Will he pull it off?



Democracy in Indonesia

Jokowho?

SINGAPORE

Jokowi promised to change Indonesian politics. Instead, politics changed him

AGREE OR DISAGREE: “Homosexuals should be given corporal punishment.” That is one of the many odd questions posed in a civil-service exam taken by the 1,300 employees of Indonesia’s Corruption Eradication Commission (KPK) in April. The formerly independent anti-graft agency is to be folded into the civil service, thus requiring its staff to pass an entrance test. Yet the exam was not the standard one taken by all hopefuls. Instead, it was written specially for the KPK, with input from the armed forces and intelligence and counter-terrorism agencies. It included questions about workers’ sex lives and their views on various minorities. Seventy-five employees failed, among them some of the commission’s best investigators. Two-thirds were sacked.

Indonesia is awash with corruption. Last year, it scored 37 out of 100 on a corruption index produced by Transparency International, a global watchdog, lower even than Brazil (38) or India (40). The KPK was set up in 2003 to tackle the scourge. Its

investigations of company bosses, bureaucrats, politicians and senior police officers have resulted in the convictions of over 900 people, a clutch of cabinet ministers among them.

It was, perhaps, too effective. Since 2009, police have investigated and arrested top KPK officials, and lawmakers have repeatedly tried to curb its powers. In 2019 Parliament passed a law that stripped the commission of its independence and appointed a police general, himself dogged by allegations of corruption, to head the agency. The taming of the KPK will be complete next month, the deadline for integrating it into the civil service.

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That President Joko Widodo, known as Jokowi, put his signature on the bill fatally weakening the KPK surprised many Indonesians. When he was first elected in 2014, he was hailed as a reformer who would protect civil liberties and promote better governance. Yet he has empowered a cabal of politicians, party bosses, bureaucrats and tycoons who have conspired to erode the democracy’s checks and balances. A year after he took office, Indonesia slipped from “free” to “partly free”, on a ranking compiled by Freedom House, a think-tank. By the start of his second term, in 2019, “Indonesia’s democracy had sunk to its lowest point since the end of the New Order,” the name of the authoritarian regime which made way for democracy in 1998, write Thomas Power and Eve Warburton, editors of “Democracy in Indonesia: From Stagnation to Regression”.

The president’s assaults on democracy are manifold. Under Jokowi, the state has stepped up efforts to suppress views it dislikes. In 2017 the government gave itself the power to disband civil-society organisations on national-security grounds. It deals harshly with protesters. Ordinary citizens who criticise the government online are threatened with criminal charges or imprisoned. The information ministry regularly blocks websites it finds objectionable, among them gay-dating services.

Jokowi has also eroded checks on executive privilege. He has appointed toadies ▶▶

▶ to run the police, armed forces and the attorney-general's office. He has tried to do away with political opposition by manipulating the boards of two rival parties to ensure loyalist factions are in control and by coercing opposition politicians, via threats of prosecution, into supporting his reelection. His enormous coalition encompasses three-quarters of parliamentarians.

At the same time, Jokowi has surrounded himself with generals and relies ever more on the armed forces to help execute domestic policy, such as in increasing rice production. He is fond of centralising authority, reclaiming some powers that were devolved to regional governments after the fall of Suharto, the strongman who ruled Indonesia for three decades until 1998.

On occasion the president does remind voters of the candidate they elected. He visits far-flung regions, home to most ethnic minorities, more often than his predecessors. In 2015 he ordered the closure of a corrupt subsidiary of the state petroleum company. Earlier this year he asked for a review of a draconian internet law.

Such moves keep the Jokowi hype-machine running. Yet they do nothing to deal with the rot deep within the state. The era of reform after Suharto retained many of the old authoritarian's functionaries. That ensured stability at a delicate moment, but it meant that many officials steering the fledgling democracy were themselves not democrats. "Authoritarianism in Indonesia never truly went away," notes Ben Bland, Jokowi's biographer. Neither did corruption. Bureaucrats and politicians continue to treat the state as their own personal piggy bank. Oligarchs nurtured during the New Order clawed back their influence. Today they are the defining force in Indonesian politics, argues Vedi Hadiz of the University of Melbourne.

This was the system that Jokowi's supporters thought he would dismantle. But the president has proved to be a pragmatist rather than an idealist, riding roughshod over democratic institutions and principles in order to secure the political support necessary to execute his economic agenda. "If you are swimming with the sharks and dancing with the wolves, you have to make friends with some of them," says Sarwono Kusumaatmadja, a former minister. Enfeebling the KPK is one way to do that.

On the face of it, that would seem at odds with what Indonesians want. Some 82% of those surveyed in 2019 believed that democracy was the best system of government, while only 3% thought that authoritarianism was acceptable "under certain circumstances". Participation in elections is high. Yet if one asks the average Indonesian why she likes democracy, she will not praise it as a vessel for liberal values, but as a system for delivering prosperity. Jokowi will take comfort in that. ■

Malaysian politics

Sheraton removed

Muhyiddin Yassin's tottering government falls at last. Its replacement may not be that different

LIKE MOST Malaysians, Muhyiddin Yassin spent the past 17 months simply trying to survive. Buffeted by the twin crises of covid-19 and the economic devastation that followed in its wake, he had barely kept his head above water since the pandemic began. And just as ordinary people blame their woes on ineffectual leaders, Mr Muhyiddin attributed his troubles to the "kleptocrats" in power. On August 16th, as Malaysia's daily infection number hovered near its all-time peak, Mr Muhyiddin (pictured) resigned as prime minister.

The shortest-serving prime minister in the history of independent Malaysia, Mr Muhyiddin will not be remembered for much. He came to power via backdoor wheeling-and-dealing known as the "Sheraton move", after the hotel where some of it took place. He suspended Parliament on the flimsy grounds of a covid-related state of emergency. He will remain as caretaker while a new government is found.

The search is on. On August 17th Sultan Abdullah, the current king (a job that rotates between the country's nine sultans), met party leaders to discuss their positions. He asked MPs to submit the name of their preferred candidate for prime minister the next day, and invited a small majority of them to the palace on Thursday. He will consult the other sultans on August 20th before making an announcement. For the second time in this Parliament—the first being the appointment of Mr Muhyiddin—the king is playing kingmaker.



The long goodbye

The options have narrowed to two front-runners. The first is Anwar Ibrahim, for decades a prime-minister-in-waiting, whom insiders give a 30% chance of at last achieving his ambition. It does not help that Mahathir Mohamad, a former prime minister and power broker, despises him. The other, and more likely, candidate is Ismail Sabri Yaakob, who served as Mr Muhyiddin's deputy. He reportedly has the backing of most of the MPs who propped up the government that just collapsed, and would represent continuity.

Why, then, bother? Mr Ismail Sabri would be "more circumspect than Muhyiddin in handling and cultivating the top leaders of UMNO", the Malay party that ruled the country from independence until 2018, says Ariel Tan of the S. Rajaratnam School of International Studies in Singapore. UMNO was the junior partner in Mr Muhyiddin's coalition government, a role that made its leaders deeply uncomfortable. Besides, it deprived their members of the juiciest ministerial portfolios. Mr Ismail Sabri's government may also be able to devote more attention to the country's challenges, "provided that there is at least a brief pause" in the politicking that plagued the previous one, says Ms Tan.

Malaysia's political class may or may not have learned lessons from the past year and a half. But its monarch has. The king has decreed that the new prime minister must face a vote of confidence "as soon as possible". Moreover, he suggests, "MPs who win should extend the hand of co-operation to those who failed." In so doing, the king is hoping to prevent a repeat of the crisis of legitimacy that dogged Mr Muhyiddin. "We are now very far from a monarchy that is removed from the people," says Francis Hutchinson of the ISEAS-Yusof Ishak Institute, a think-tank in Singapore. "He can read Facebook, he can read people's comments. So he does have some idea of what people are thinking and is conscious of his own legacy."

That will bolster the incoming government, which, if it is led by Mr Ismail Sabri and backed by the same parties, risks being in many ways indistinguishable from the previous one. It will also boost the reputation of the king, who risked being seen as too close to Mr Muhyiddin. And a functional government, after 17 months of chaos, may even, if they are lucky, be good for ordinary Malaysians. ■

Japan's seasonal confectionery

The darling buds of Nestlé

TOKYO

If it's summer, it must be chocolate-mint

BRIGHT GREEN, chocolate-studded delights sprout on store shelves across Japan every year as temperatures rise. Chocolate-mint ice cream bars; chocolate-mint cookies; chocolate-mint candies, chocolate-mint bubble tea, even chocolate-mint bagels. On Instagram, fans post pictures of their favourite “chocominto” items, tagging posts “#chocomintou”, a play on words meaning the “chocolate-mint party” (as in political party). And then, as suddenly as they appear, the chocominto snacks are gone, wilting away at the end of Japan's hot summers.

Japanese cooking and traditional sweets have long placed a premium on seasonality. Contemporary candy and snack producers now tap into the seasonal mindset to great effect, peddling cherry-flavoured goods during cherry blossom season and sweet potato-flavoured snacks in the autumn. Chocominto is only the latest limited-edition snack fad to enthrall Japanese consumers. “The Japanese market moves with the season,” says Jérôme Chouchan, the boss of Godiva Japan, which uses ingredients and packaging to send seasonal signals, as with chestnut macarons and brown or red packaging in the autumn.

Yet the proliferation of seasonal, limited-edition items in Japan has as much to do with the structure of the modern market as with age-old traditions. Japan's ubiquitous convenience stores, or *conbini*, prize novelty. The selection in stores usually changes once a week, explains Phillip Sugai of Doshisha University in Kyoto: “Having the same exact chocolate bar on the shelves isn't appealing to the convenience stores; novelty is exciting.”

Where big international confectionery firms tend to manufacture the same items consistently at scale to minimise costs, “the Japanese model is completely opposite,” says Takaoka Kozo, the former head of Nestlé Japan, a big food and drink company. Under his watch, KitKat, a chocolate-covered wafer, began churning out seasonal and limited-edition flavours; the company has produced hundreds of flavours exclusive to Japan, including salt lychee, red-bean paste and wasabi. (The same approach flopped in Britain, where retailers charged higher fees to carry new items.)

Another factor may be the difficulty of competing on quality in the Japanese



Take you to the candy shop

market. “Every product tastes good,” says Okayama Takuya of Dataspring, a market-research firm. Instead manufacturers have to find other ways to stand out. “It's very difficult for us to differentiate from our competitors by improving just taste, we have to have some special edition to do so,” says Yokoi Satoshi, head of the Japanese branch of Papabubble, a high-end Spanish sweet-maker.

The confectioner produces a sweet shaped like a chicken wing for stores in Nagoya, which is known for its fried chicken, and one for Osaka resembling a steamed pork bun, a local speciality. In May, it opened a chocominto pop-up shop in Tokyo's trendy Aoyama district. Pumping out new flavours every few months can present challenges, especially for foreign companies used to producing high volumes of fewer products. But buzzy items make up for the additional costs in sales, says Mr Takaoka.

Few flavours have as devoted a fan base these days as chocominto, which has developed a cult following on social media. “People who like it really like it,” says Ushikubo Shintaro, an influencer who runs a suite of chocominto-themed social-media accounts and published a guidebook to chocominto offerings in Tokyo. The only downside is its fleeting nature. “It is a little bit sad when the chocominto period ends,” Mr Ushikubo admits. He soothes his sorrow with the strawberry-flavoured sweets that grow on shelves in the winter.

Human rights in Bangladesh

They just disappeared

Critics of Bangladesh's government are liable to vanish

“**B**ABA KOBE ashbe?” (“When will Daddy come?”), asks the youngest daughter of Sajedul Islam Sumon. No one has an answer, but she keeps asking anyway. Her family's life—and hers—revolves around his absence. Now eight, she was just one when security forces came to their suburb of Dhaka, Bangladesh's capital, and bundled her father, a local leader for an opposition party, into the back of a van. That was the last time he was seen or heard from.

Mr Sumon's tale, in a new report on enforced disappearances in Bangladesh, is a chilling example of what can happen to those who oppose or criticise the government of Sheikh Hasina Wajed. Under her 12-year tenure at least 600 Bangladeshis are reckoned to have been “disappeared”.

Many have eventually re-emerged. Some have been implausibly “found” and produced in court—like Shafiqul Islam Kajol, a photojournalist who, 53 days after he went missing in March last year, turned up blindfolded, his legs and arms bound, in a no-man's land between Bangladesh and India. Police took him into custody, slapping a trespassing charge on to his original crime of posting on Facebook about a sex scandal involving a politician in the ruling party. Others, like Aminul Islam, have returned in body bags. He was a labour activist whose tortured remains were found dumped on the edge of Dhaka, days after his abduction in 2012. Eighty-six victims, including Mr Sumon, are still missing.

While these numbers may seem small in a country of 170m, fear of being *goom* (disappeared) muzzles millions of voices. Disappearances, along with an array of other human-rights abuses, are not new in Bangladesh. Under previous governments, including those led by the opposition Bangladesh Nationalist Party and the ruling Awami League, dissidents vanished and were killed. But since 2009, the year Sheikh Hasina took office for a second time, state-sponsored abductions have become a systematic tool of oppression, says Meenakshi Ganguly, South Asia director of Human Rights Watch, the advocacy group behind the report.

Bangladesh's is not the only South Asian state that covertly kidnaps its citizens. Yet, says Ms Ganguly, such actions elsewhere are usually linked to civil strife or insurgencies. Bangladesh is alone in “so blatantly” targeting political opponents and critics for secret detentions. Disap- ▶▶

▶pearances have shot up most in the run-up to elections, with over 130 before the 2014 vote and 98 in the year leading up to the ballot in 2018.

Despite such brazenness, ruling-party politicians deny or play down the abductions. In 2017 Sheikh Hasina claimed that Bangladesh's enforced disappearances paled in comparison with Britain's, bogusly citing data for missing persons. Her son, Sajeeb Wazed, recently penned an article for the *Diplomat*, an online news site, calling the "disappearances" comical. Many of the vanished were fugitives who, he joked,

had gone into hiding to escape arrest.

Such mocking attitudes percolate down through the state apparatus. When Marufa Islam Ruma sought answers about her missing husband, Mofizul Islam Rashed, security-force officers jeered that he had probably run off with another woman. Years after Mr Sumon's disappearance, a senior officer came to his family's home and theatrically walked around the house shouting "Where is Sumon? Let him out, I need to speak to him!", recalls his niece.

The families interviewed for the report named the Rapid Action Battalion, an elite

police squad, as being behind the abductions. But other security units are guilty too, say various rights groups. And they all operate with impunity.

Some families give up or do not try in the first place, says Afroja Islam Akhi, Mr Sumon's sister, who runs Mayer Dak, an organisation for the families of vanished Bangladeshis. They know their questions may bring punitive repercussions rather than helpful answers. She reckons the number of disappeared is far higher than the 600 known about. "Only God knows the accurate tally." ■

Banyan Tea time in the Great Game

India's humiliation in Afghanistan is a victory for Pakistan, but a costly one

IT WAS ONLY a question of time before Kabul fell, says A.S. Dulat, a former head of India's top spy agency, the Research and Analysis Wing, speaking from Delhi. The only surprise was the speed of the Taliban's advance, concurs the ex-boss of Pakistan's Inter-Service Intelligence, or ISI, Asad Durrani, speaking from Islamabad. The two old warriors nod in unison. Despite lifetimes spent jousting in the shadow war between India and Pakistan, the former foes seem happy to agree on the inevitability of the Taliban's return to power in Afghanistan. What they do not tell their Indian interviewer is how sharply different the implications of the change are for each of the South Asian rivals.

For India, the house-of-cards collapse of the 20-year-old Afghan democracy represents a strategic setback and a stinging humiliation. Since 2001 India has spent a non-trivial \$3bn or so to bolster the American-installed regime. It built roads, dams, power lines, clinics and schools across the country. It trained Afghan officers, including women, in its military academies. It gave scholarships to thousands. India even presented a fancy new parliament, complete with fountains and a giant bronze dome. Narendra Modi, India's prime minister, himself inaugurated it in 2015.

Besides losing all its investment in a secular, democratic Afghanistan, India has also lost strategic leverage. There were never Indian troops in Afghanistan, but its aid projects and four consulates certainly spooked the generals running the show in Pakistan. India's close ties with the Afghan government gave its own security establishment a whiff of "over-the-horizon" influence that felt appropriate to an emerging superpower. When Pakistan-backed Islamists mount-

ed terrorist attacks on India and stirred violence in its restive region of Kashmir, India could threaten to use its Afghan assets to stir trouble in Pakistan's restive region of Balochistan. Now, with Mr Modi's Hindu-nationalist government having stirred its own troubles in Kashmir, by stripping the region of autonomy in 2019, it must face the prospect of a new generation of Muslim Kashmiris inspired by the Taliban's fanaticism.

Perhaps because its spies read the writing on the wall, or perhaps because its teachers and engineers increasingly risked being kidnapped, India had wound down its Afghan presence in recent years. Yet it was only in June that Indian envoys took the first tentative steps to engage with the Taliban. The reckoning with what an abrupt American departure from its backyard means for India has also been slow to settle. The *Times of India*, the country's biggest-circulation English daily, voiced one common perception in a sour editorial on August 16th: "At a time when India has strategically hitched its wagon to the US, the Afghan situation should make



New Delhi think twice about putting all its eggs in Washington's basket."

This is a conclusion that Pakistan, as well as its "all-weather friend" China, will be happy for India to draw. With a stagnant economy and stymied politics, India's nuclear-armed neighbour has not had much to cheer about of late. So it is that even if urban Pakistanis have little affinity with the Taliban, many are crowing at the Islamists' success. Imran Khan, Pakistan's prime minister, went so far as to proclaim that Afghans had "broken the chains of slavery" with the West.

Mr Durrani says that Pakistan itself deserves no credit for the Taliban victory, except for having resisted pressure from America and its allies to crack down on the group. He is too modest. The original Taliban, or "students", of the 1990s, were students in Pakistani madrassas. Certainly, after America's invasion in 2001, the Taliban would never have survived their years in the wilderness without the haven provided by Pakistan.

That Pakistan has stood by the Taliban is especially striking, considering that an ideological affiliate based in Afghanistan, the Tehreek-e-Taliban Pakistan (TTP), has terrorised Pakistan itself, for example by slaughtering more than 145 children and adults at an army-run school in 2014. Questioned about reports that the Taliban have released TTP leaders from the Afghan prisons, the Pakistani interior minister says airily that he hopes for an agreement between the two countries not to allow their soil to be used to attack the other. Luckily for Pakistan's generals they are rarely held accountable for any violent "blowback" from the ISI's nastier associates. Aside from the occasional diversion of a television interview, Mr Durrani can continue to enjoy his retirement in peace.





Trade unions

Teaching them a lesson

HONG KONG

The government is crushing Hong Kong's pro-democracy labour movement

ONCE CHINESE state media labelled the group a “poisonous tumour”, it was clear that its time was running out. Within hours of that slur, in late July, the Hong Kong Professional Teachers’ Union was disowned by the city’s education bureau. For ten days the union, which represents about 80% of the city’s teachers, sought a reprieve. It cut ties with pro-democracy groups and with Education International, a global umbrella group. It promised to dream up new ways for schools to promote Chinese culture. But in mid-August it said it would disband. The Communist Party had warned, through intermediaries, that its assets could be frozen and its leaders arrested if it did not, say local reports.

The organisation was the largest single-profession union in Hong Kong and a stalwart of the city’s pro-democracy movement. Its dissolution is a landmark in the party’s relentless dismantling of civil society. On August 15th the Civil Human Rights Front, a group that has organised many of the city’s biggest pro-democracy marches, also said it could no longer soldier on. In recent years fury at Hong Kong’s govern-

ment had led to a surge of enthusiasm for organised labour. But one veteran activist says optimism has given way to “a sense of hopelessness, helplessness and fear”.

For years most unions in Hong Kong were affiliated with either the Communist Party or the Kuomintang, which fled mainland China for Taiwan in 1949. New ones loyal to neither party began to form in the 1970s. The teachers’ union was among the first of these. But organisations sympathetic to the Communist Party, such as the Hong Kong Federation of Trade Unions, an umbrella group for pro-government unions, have continued to dominate. They have done a poor job of fighting to improve workers’ rights in a city that has exceptionally powerful business lobbies.

Anti-government protests in 2019 brought hope of a fresh start. In August of that year workers took part in Hong Kong’s

first general strike in half a century. Accountants, civil servants, engineers and IT workers started new unions. Bartenders, bus drivers and make-up artists did as well. The founders of these new groups were generally younger and better educated than those who had previously led the labour movement.

Their organisations were set up in solidarity with the pro-democracy movement and with the aim of helping stage further strikes. Some gained prominence during the pandemic. In February 2020 members of the Hospital Authority Employee Alliance, a newly founded union of medical workers, voted to stop work for a week in protest against the government’s decision to keep the borders with mainland China open, despite the spread of covid-19. Most Hong Kongers supported them.

The idea was also that new unions would come to influence politics directly. A share of seats in Hong Kong’s Legislative Council, known as Legco, are reserved for “functional” constituencies, namely business, professional and civil-society groups with a pro-government bias. Three of these seats are returned by a vote among the unions. In theory registering lots of new organisations gives the pro-democracy camp a bigger say.

In May 2021 Hong Kong’s labour minister said there had been a “tsunami-like” surge in applications to register new labour groups. He said there had been more than 4,000 such requests in 2020—at least 20 times more than in any of the previous

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four years—and that his department had so far processed only about a fifth of them. A few hundred of these unions are being founded to improve workers' rights, say labour activists. Many of the rest result from campaigns run by both the pro-democracy and pro-government blocs of the labour movement to increase their voter base.

The party is hitting back. Winnie Yu, a nurse who led the strike by medical staff, was arrested in January (she had participated in a primary ballot to choose pro-democracy candidates for legislative elections, which the authorities claimed was illegal). Carole Ng of the Hong Kong Confederation of Trade Unions, which encompasses some 90 independent unions, faces the same charge. Her colleague Lee Cheuk-yan is serving 20 months in jail for participating in protests in 2019. Many think their confederation will become the party's next target, now that the teachers' union has put down its chalk.

In July police rounded up five members of a union for speech therapists, saying that children's books they had published, which featured sheep defending their village from wolves, were "seditious". Leaders of some other unions have resigned their posts, fearful of arrest. Members are drifting away. Meanwhile new rules prevent unions from having a vote in Legco elections for three years after they are founded (it used to be 12 months). In any case, an overhaul of the electoral system that was made final in May has in effect barred critics of the Communist Party from seeking election.

Activists think trade unions will increasingly resemble the hollow ones in mainland China, which exist primarily to help the party keep a lid on dissent. Workers will suffer. Hong Kong is one of the most unequal places in the world. The minimum wage is about \$4.80 an hour. The poor earn more than in mainland China but Oxfam, an anti-poverty charity, says a "living wage" in Hong Kong would be \$7. Hong Kongers endure some of the world's longest working hours, and also have to pay its highest rents.

Many observers think teachers will now be encouraged to join the Federation of Education Workers, a pro-Beijing organisation that is not formally registered as a union. Educators could certainly use support. A survey in May found one-fifth of school teachers planned to retire or find a new career. Over 70% of them complained of "increased political pressure". The education bureau has lately expelled several teachers from the profession, reportedly because of their involvement in protest movements. Many more have received formal warnings. The Federation of Education Workers says it may be able to help teachers accused of misconduct—but only if they first admit their mistakes. ■

The Belt and Road Initiative

Hook, line and sinker?

BLACK JOHNSON, SIERRA LEONE

Plans for a port in Sierra Leone show the limits of China's soft power

TITO GBANDEWA sweeps a hand across a beach in Sierra Leone that many call one of the most beautiful in west Africa. The bark of nearby trees can cure a child's cough, locals say. The nectar of its palms comes "from God to man". In the distance, a boy fishes for grouper; children play in the surf. If the government has its way, all this will be gone, says Mr Gbandewa, who runs a small resort on the beach. In its place will be a Chinese-funded fishing harbour covering 100 hectares.

The project at Black Johnson beach (pictured) is officially described as part of China's Belt and Road Initiative, a global infrastructure scheme. Sierra Leone is one of the world's poorest countries and has long needed a harbour for deep-sea fishing boats. China has agreed to give it \$55m to help build the port. But when details leaked out in May they were not well received. Many Sierra Leoneans fret that the project may threaten the surrounding rainforest and the country's fledgling tourism industry. Some fear the development will include a fishmeal plant, which could make the environmental impact all the worse. The government says this is untrue.

Even some fisherfolk were alarmed. Around the world, including along the west African coast, China is buying fleets and building ports to help satisfy its own demand for fish. "They are creating a closed loop for their own supply chains," says Whitley Saumweber of the Centre for Strategic and International Studies, an



Swing time

American think-tank. The impact is evident in west African waters, which are among the most overfished in the world. Chinese boats account for three-quarters of Sierra Leone's modern fishing fleet. Reports abound that they catch more fish than they are legally allowed to. Locals who depend on fish for protein cannot compete. A single high-tech trawler can catch five times as much in a day as a small village fleet can in a year. Controlling ports, or having preferential access to them, makes it easier to bypass international restrictions on overfishing.

Belt and Road projects are often murky. For the one in Black Johnson, no environmental assessment has been carried out. Landowners have not been consulted. Tourism is crucial to Sierra Leone's long-term plan for achieving middle-income status, known as "the Agenda for Prosperity". But a tourism official says her ministry was not informed of the plan either. The fisheries ministry says bidding for the construction contract will be open and transparent. Chinese media suggest that two Chinese firms have already secured the deal.

It may smell fishy, but "there is no Chinese conspiracy," says Jinghan Zeng, who follows China-Africa relations at Lancaster University in Britain. Chinese investors are still relatively new to Africa, so they make mistakes, he suggests. China's state-owned firms often act like Western companies: pursuing profit without much regard for their home country's diplomatic interests. In asking China for the grant to build the port, Sierra Leone was not necessarily making itself subservient: the country had previously axed plans to build an airport with \$318m of Chinese loans.

Many Sierra Leoneans would disagree. They believe that China is hoovering up their country's rich natural resources (timber, minerals and fish) with no regard for locals—and with the complicity of corrupt officials. In a survey last year, only 41% of respondents said China's influence on their country was positive. That was down from 55% in 2015, and was a lower share than in all but one of the 18 African countries covered by the study. The mood in Sierra Leone has also soured since June, when a video published on social media showed a Chinese worker attacking a Sierra Leonean miner.

China is also trying other ways of winning public support. Since the pandemic hit, it has doled out 240,000 vaccines to Sierra Leone—more than the 192,000 provided by COVAX, a global vaccine-sharing scheme. In July the two countries celebrated 50 years of diplomatic relations; ahead of the anniversary, China's ambassador said his country was keen to help boost tourism. If that involves attracting big-spending Chinese visitors, Black Johnson's stunning sands may not be on offer. ■

Chaguan | Preparing to work with the Taliban

The big win for China in Afghanistan is seeing America humbled



ON THE AFTERNOON of August 17th, as scenes of horror unfolded around Kabul, China's envoy to Afghanistan recorded the tranquil mood at his own embassy. The ambassador's smartphone images, proudly shared on social media by Hu Xijin, the editor of a Communist Party tabloid, show the Chinese flag snapping crisply against a summer sky, and front doors guarded by nothing more menacing than a tall porcelain vase.

China's propaganda machine is enjoying the fall of Afghanistan, at least for now. Chinese diplomats and state media have missed no chance to contrast the chaotic retreat of America and its allies with their own country's continued welcome. For China, this is a chance to advance a model of foreign relations based on coldly weighed security and economic interests, rather than on lofty talk of building a better Afghanistan where girls may go to school. No bonds of affection or trust bind China and the Taliban. Instead, China has pursued a few narrowly defined goals during years of intensifying contacts with Taliban delegations. China's list is headed by its desire for a stable Afghanistan, especially near that country's short, mountainous border with China. Above all, China has made clear that in return for the international recognition that the Taliban crave, and (probably rather limited) investments in roads, mines and other infrastructure, they must deny any haven to exiles from China's north-western region of Xinjiang, especially Uyghurs. China's fear is that Uyghur militants, including some with combat experience in Syria or training in Iran, may hope to enter Xinjiang through Afghanistan. Though China's iron-fisted rule in Xinjiang—featuring the demolition of mosques and the detention of Muslims to “cure” them of excessive piety—offends all that the Taliban purport to believe, the group needs China's backing. Its political leader, Mullah Abdul Ghani Baradar, duly told China's foreign minister on July 28th that the Taliban will never allow any force to use Afghan territory “to engage in acts detrimental to China”.

For months China has been calling on the Taliban to join a government of national unity and embrace a moderate version of Islam. In briefings with foreign diplomats in Beijing, Chinese officials now concede that they cannot know whether the Taliban's promises to shun extremism will stick. But those same officials

apply a favourite Chinese argument to Afghanistan's rapid regime change: namely, that rulers can earn a mandate through material success and shows of broad public support, even if they never hold elections that impress snooty Westerners. Afghanistan fell without much of a fight, Chinese diplomats say in private. That suggests the Taliban enjoy a measure of legitimacy.

Praising the Taliban to the Chinese public carries risks. For a few hours a social media post by the *People's Daily*, the party's flagship newspaper, tested the line that the Taliban are former students from refugee camps who gained power with the support of the poor. The post went viral, but not in a good way, promoting complaints from netizens at warm words for a group known for brutalising women and beheading people in public. First the post was deleted, then online references to it censored.

Scolding America is more popular. In a telephone call, the foreign minister, Wang Yi, advised the secretary of state, Anthony Blinken, to reflect on the lesson of Afghanistan: that a foreign model cannot be “arbitrarily” applied to a country with a very different history and culture. Though America and China share an interest in Afghan stability, Mr Wang hinted that Chinese help might not come free. He grumbled that the Biden administration cannot seek to “contain and suppress China” then turn round and “hope for China's co-operation”. The foreign ministry's spokeswoman was still more scornful, calling America a destructive force that leaves “turbulence, division, broken families, deaths and other scars” wherever its troops tread.

State media boast that America is exposed as an unreliable ally. Special glee is reserved for the panic presumed to grip Taiwan, the democratic island that China claims as its own and that mainland leaders are sworn to invade, should it declare formal independence. Strikingly, when Taiwan's prime minister, Su Tseng-chang, was asked whether his government, if attacked, might collapse like Afghanistan's, he did not offer bluster about America showing up for sure. Instead, Mr Su drew another lesson from Afghanistan: that outsiders cannot save a country in internal disarray. Taiwan must believe it can defend itself, he told reporters in Taipei.

China, a reliably self-interested power

Zhu Yongbiao, director of the Centre for Afghanistan Studies at Lanzhou University, calls the blow to America's global reputation the big upside for China. Against that, Mr Zhu concedes that China dislikes uncertainty. What is more, some Chinese scholars worry that by leaving Afghanistan, America has freed resources to focus on the Asia-Pacific region. Overall, he argues against exaggerating his country's Afghan interests. Afghan chaos would be troublesome, but the Chinese border is not hard to lock down, and the West is the main target of Islamists, not China, he says. Mr Zhu scoffs at talk from Western analysts about Chinese ambitions to bind Afghanistan into its Belt and Road Initiative, a globe-spanning infrastructure scheme. “The economic gain would be small,” he ventures, noting that the BRI currently bypasses Afghanistan.

Chinese officials used to be defensive about their focus on economic development and stability. They asked others to respect China's version of universal values, adapted to the conditions of a large, poor country. Now, they challenge the very notion of values-based foreign policies. Those may sound benign, it is argued, but are really cover for Westernisation, a disastrous folly. China is ready for a post-American age, guided by cold realism. That is a polarising moral to draw from Afghanistan's agonies, that many in the West will find hard to welcome. These are polarising times. ■



Africa and the rich world

Heading towards a dilemma

KAMPALA

Some in Africa fear that trade talks with the West could undermine regional integration

“WE WILL BE the guinea pig,” said Uhuru Kenyatta, Kenya’s president, before trade talks with America opened last year. A deal would make Kenya only the second African country after Morocco to sign a free-trade agreement with the United States. Officials in the Trump administration called the proposed deal “a model” for future ones. But such bilateral talks jar with Africa’s push for regional integration and with President Joe Biden’s emphasis on multilateralism. Negotiations are now on hold while America works out what to do next.

The pause reflects a sense of drift in Africa’s trade relations with the West, as both America and Europe rethink how they do business with the continent. In the past they granted concessions, such as lower tariffs on African exports, without requiring African countries to reciprocate. Now they are increasingly looking to negotiate two-way agreements which will open up African markets, too. The old approach was paternalistic and gave Africans little say. But

the new one, handled badly, could put Africa’s own integration at risk.

Since 2000 American policy has been built around the African Growth and Opportunity Act (AGOA), which grants duty-free access to thousands of products exported from around 40 eligible countries. It was a law passed by Congress, not a treaty negotiated between governments, so African countries have no control over the eligibility criteria. That creates friction. Rwanda, for example, was partially suspended in 2018 because its ban on imported second-hand clothes, intended to boost local production, irked the American firms that export them.

Now African countries must wait anx-

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iously to see if Congress will extend AGOA beyond its current expiry date in 2025. The uncertainty makes business “too unpredictable”, sighs a Ugandan technocrat. Kenya’s push for a fully fledged trade deal with America is an attempt to seize the initiative. It also draws on the promise of AGOA itself, which was always envisaged as a stepping stone towards negotiated pacts.

But there is a snag. Kenya is part of the East African Community, which is, on paper, a customs union. If Kenya were to lower barriers to American products, then the other five countries in the bloc would either have to let those products leak into their own markets or tighten border checks to keep them out. Negotiating with countries as a group, rather than individually, would be a less divisive way forward.

Whoever is at the table, many American businesses now favour moving away from AGOA-like trade concessions and towards reciprocal agreements. They do not want to “lose out” while other countries strike deals, says Witney Schneidman, a former deputy assistant secretary of state for African affairs. For instance, a refrigerator made in America enters South Africa with a far higher tariff than one made in the EU, notes Mr Schneidman.

Meanwhile European countries are stuck in a quagmire of their own. They once gave preferential access to exports from their former colonies in Africa, the Caribbean and the Pacific. That clashed ▶▶

with World Trade Organisation rules. So in 2000 the EU started touting reciprocal deals called “economic partnership agreements”, negotiated with regional blocs. Britain is adopting a similar model in its post-Brexit trade with Africa.

A southern African pact with the EU came into force in 2016. But countries such as Nigeria (in the west African bloc) and Tanzania (in the east) have refused to sign deals in their respective regions. They worry, with some justification, that dropping tariffs would expose nascent industries to a flood of European competition.

The incentive to cut a deal with Europe is also undermined by existing systems of trade preferences, which overlap like onion skins. Peel off one layer, as the EU is doing, and countries like Kenya lose access to European markets—unless they sign up for an economic partnership agreement. But poorer countries such as Tanzania can export duty-free without a deal, thanks to a different layer of benefits. Unsurprisingly the two neighbours in the same east African bloc find themselves at odds.

Yet the whole continent is supposed to be pursuing its own ambitious agenda for integration. This year 37 countries started the gradual process of trading under an African Continental Free Trade Area (AfCFTA). They want to kick-start Africa’s stalled industrialisation by selling manufactured goods to each other, rather than raw materials to distant continents. Kenya’s solo negotiations with America “may undermine the AfCFTA”, says Prudence Sebahizi, the African Union’s chief technical adviser on the pact. He fears that American goods may displace African ones in Kenya’s market.

Influential voices urge a rethink. “Rich countries should not be picking African integration apart,” says David Luke of the London School of Economics. Carlos Lopes, the African Union’s representative on future relations with Europe, suggests trade talks with the rest of the world could wait until the AfCFTA is embedded and Africa is ready to negotiate as a single bloc.

Others think that strategy unrealistic. An EU official says Europe shares the vision of an Africa that “can speak with one voice”. But the best way to get there, he says, is to build on existing deals. The AfCFTA is still being assembled. “It’s only when we get an African customs union that Africa can negotiate as a bloc,” says Trudi Hartzenberg of the Trade Law Centre, a South African think-tank, “and that’s a long way off.” Free-trade areas can, and do, overlap.

African countries are caught in a contradiction. Politically they demand to be treated as equal partners, but the economic order remains profoundly unequal. “A Goliath is negotiating with a David,” says Africa Kiiza of SEATINI, a Uganda-based campaign group. “Reciprocity between unequals can’t work.” ■



Zambia

Sixth time lucky

JOHANNESBURG

Hakainde Hichilema has won the presidency. Can he fix the economy?

OVER THE past four years new presidents in southern Africa have taken office amid masses of hype. Emmerson Mnangagwa said Zimbabwe would be open for business. João Lourenço vowed to diversify Angola’s oil-dependent economy. Cyril Ramaphosa pledged a “new dawn” in South Africa after years of graft. They have all disappointed.

So there are grounds for caution about the triumph of Hakainde Hichilema (pictured), who on August 16th was declared the winner of Zambia’s presidential election. But there are also reasons to be optimistic about the former businessman, who failed in five previous attempts at winning the presidency. This time he gained 58% of the vote, enough to render moot efforts to rig the poll by the outgoing president, Edgar Lungu. Unlike most presidents in southern Africa, Mr Hichilema is not a product of a decadent post-colonial ruling party. He is more a liberal than a liberationist. And he has a plan.

“At the core of my politics”, says Mr Hichilema, “is a belief that Zambia has the potential to become a successful middle-income country.” Today the country has a GDP per person of less than \$1,000, or one-eighth that of next-door Botswana. Under Mr Lungu corruption exploded while living standards fell.

Improving them first requires getting Zambia out of a macroeconomic hole. Public debt as a share of GDP rose from 66% to

113% while Mr Lungu was in charge. The government stopped paying many foreign creditors. Fiscal incontinence meant less money was spent on services for the poor. It also contributed to a weakening of the currency. Since most food is imported, the decline in the kwacha led to higher prices.

Mr Hichilema’s government will turn to the IMF for help. It will pledge reforms as part of a formal programme which will bring with it a cheap loan. An agreement with the fund should also pave the way for a deal on restructuring Zambia’s external debts under a scheme known as the Common Framework introduced in April by the G20 group of countries.

The framework is a response to changing times. When African countries had debts forgiven in the 2000s, these were mostly to rich countries or multilateral institutions. Today African countries owe more money to Chinese state banks and private bondholders in the West. Before the creditors accept new terms, they need to be convinced that they will be treated equally; that the hard-up government will not rob Peter to pay Pang, or vice versa.

Zambia may therefore be a test of whether the framework can help poor countries. (It is also being used in Chad and Ethiopia.) During the Lungu era, Western-based investment funds, which hold about 40% of Zambia’s external debt, felt that they were being treated badly compared with Chinese lenders, which account for about 30%. Though an agreement will depend on China’s willingness to co-operate, Western bondholders are optimistic that Mr Hichilema will strike a deal which treats everyone equally.

The president-elect also wants to revive mining. Zambia is Africa’s second-largest copper producer. Prices for the metal are high, hovering around levels last seen during the commodities boom of the 2000s and early 2010s. But previous governments’ policies of expropriation and high taxes meant there have been no new large mining projects for a decade. Mr Hichilema wants to change that by lowering taxes and protecting property rights.

The danger, as ever when a pragmatist replaces a populist, is that cleaning up the mess takes time and can cause short-term hardship. Zambians are cheered by Mr Hichilema’s promise to respect human rights after Mr Lungu’s abuses. But they cannot eat civil liberties. So there is a role for rich countries to play in offering aid and nudging debt talks along. Otherwise Western diplomats celebrating Mr Hichilema’s victory may find that his popularity swoons.

Zambia has long been a pioneer for African democracy. In 1991 and 2011 it voted out an incumbent president. In doing so again, it has given the continent another lesson in democracy. It now falls to Mr Hichilema to show how to run a country. ■

Israel and covid-19

A wave of criticism

JERUSALEM

The prime minister gets a hard lesson in pandemic politics

JUST TWO months ago, in early June, cases of covid-19 were waning in Israel. With one of the highest vaccination rates in the world, the country seemed to be nearly done with the virus. Masks were discarded and restrictions lifted. But the end was illusory. The spread of the Delta variant has caused a spike in new cases. More than 8,000 were logged on August 17th.

The Delta variant may have entered Israel before Naftali Bennett became prime minister on June 13th, but he has taken a beating over his handling of the outbreak. The government “received the country in the best state in the world in regard to coronavirus”, says Binyamin Netanyahu, who preceded Mr Bennett and is now leader of the opposition. The prime minister, says Mr Netanyahu, has spoiled that success.

Mr Netanyahu’s criticism is self-serving, but for much of July he did call on the government to give Israelis a third dose of the vaccine. On July 29th the government said it would do just that, jabbing those over 60 for a third time—the first country to do so. It has since broadened the policy to those over 50. Some restrictions have also been renewed, such as limits on the size of indoor and outdoor gatherings.

Early data suggest the new jabs do indeed offer more protection from infection. Officials hope they will reduce pressure on hospitals. Mr Bennett is desperate to avoid another lockdown, claiming that the three previous ones, under Mr Netanyahu, had “a direct price in human lives”. The prime minister also fears that Israelis may not abide by a fourth lockdown.

Israelis are already souring on Mr Bennett. According to a recent poll, 43% of them think Mr Netanyahu did a better job of handling the pandemic. Only 21% favoured Mr Bennett. His party, Yamina, was never all that popular. It won just seven seats (out of 120) in the last election. But the coalition opposed to Mr Netanyahu needed Yamina to form a government, so Mr Bennett was offered the top job for two years in order to gain his support.

As part of the coalition agreement, Mr Bennett cannot remove or discipline ministers of other parties. That includes nearly all senior cabinet ministers, most of whom have left Mr Bennett to fend for himself when it comes to the pandemic. Erstwhile rivals, such as Yair Lapid, the foreign minister, and Avigdor Lieberman, the finance minister, rarely attend meetings of the “co-

Iraq

Caliph hanger

BAGHDAD

Zealots try to cancel a statue of Baghdad’s founder

THEY WERE inspired by activists in America and Britain who toppled statues of Confederate soldiers and 18th-century slave-traders. Their target was 1,000 years older, however. Shia radicals in Iraq want to tear down a bust of Abu Jaafar al-Mansur, which sits on a pedestal in Baghdad (pictured). Mansur, the second Abbasid caliph, who ruled from 754 to 775AD, created a vast empire and founded Baghdad itself, which he called the “City of Peace”. For a while it was the greatest city in the world.

But Mansur is remembered by some as a Sunni tyrant who treated Shias more brutally than Saddam Hussein or the jihadists of Islamic State. He is said to have ordered the poisoning of Imam Jaafar al-Sadiq, the sixth of 12 imams revered by Shias. This recently led to small protests at the statue and calls for its destruction. “The continued existence

of this statue in Baghdad is a disgrace, and we can only regain some honour when it is demolished,” reads a statement by Yasser al-Habib, an influential Shia cleric based in England.

Historians are aghast. “To reduce Mansur to a base sectarian figure is a travesty,” says Justin Marozzi, author of a fine history of Baghdad. Mansur did fill crypts with Shia skulls in an effort to eliminate competition to Abbasid rule. Both the Abbasids and the Shias claimed legitimacy by tracing their lineage back to the Prophet Muhammad. But Mansur also turned Baghdad into a hub of science, culture and religion, leading to Islam’s “golden age”.

In 2005 Mansur’s bust was knocked off its perch by a bomb, raising sectarian tension. To avoid a repeat, security forces dispersed the recent protests around the monument. Social-media posts about Mr Habib’s statement were banned and bystanders photographing the statue detained. President Barham Salih tried to mollify Sunni imams at the tomb of Abu Hanifa, an important place of worship for Sunnis that the radicals also threatened to destroy.

Most Iraqis seem to be fed up with attempts to divide them along sectarian lines, often by politicians trying to shift attention from their own failures. The call to destroy the statue was not taken up by Shia militias. Youth groups from the Shias’ holy city of Najaf even offered to defend it as “a symbol of Iraqi heritage”. And this ecumenical spirit may be spreading. Iraq’s prime minister, Mustafa al-Kadhimi, a Shia, has called on leaders from countries spanning the Sunni-Shia divide, such as Saudi Arabia and Iran, to gather for a summit at the end of the month. The venue, of course, would be Baghdad, Mansur’s city of peace.

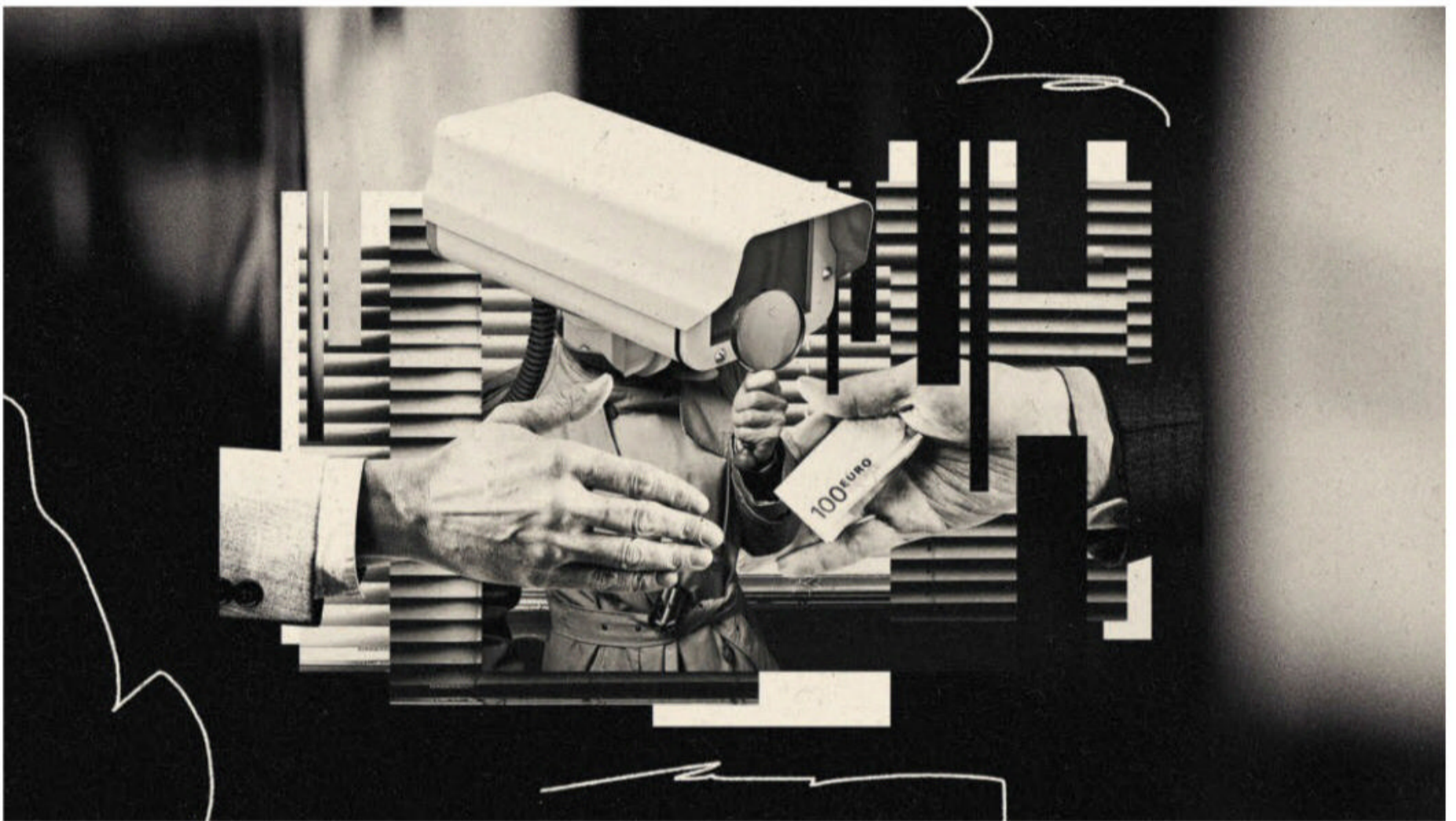


The bust at the heart of the bust-up

ronavirus cabinet”.

Mr Bennett is largely to blame for the pressure he is under. In 2020 he positioned himself as Mr Netanyahu’s chief critic, even writing a book, “How to Beat Covid-19”, in which he confidently explained how Israel could adopt a “zero infections” policy. In July he promised to rid the country of the virus in five weeks. Now, though, he is resorting to word games. He has largely stopped saying “coronavirus” in public, preferring “the Delta virus”, in order to convince voters that he is facing an entirely new challenge.

Mr Bennett says, “The pandemic is teaching the whole world a lesson in humility.” Yet he hasn’t stopped personalising the fight against covid-19, much as Mr Netanyahu did. On August 17th he celebrated the fact that a million Israelis had got a third jab, calling it “an expression of trust” in himself. If this wave begins to dwindle soon, Mr Bennett can claim that, unlike Mr Netanyahu, he succeeded without resorting to a lockdown. But if cases continue to rise, he may find himself even more isolated. Health experts are watching the outbreak closely. Politicians are, too. ■



Fighting fraud

Enter the cleaner

LUXEMBOURG

The EU gets a prosecutor to protect taxpayers' money

MANY THINGS are simple for national governments but hard for the EU. That includes punishing people who steal from it, since the EU's member states have mostly been wary of giving it the power to prosecute their citizens. The bloc's main treaty requires its members to punish chicanery involving EU funds, and the European Commission has a detective agency—the European Anti-Fraud Office, or OLAF—to investigate. But until this year it was up to national authorities to take the culprits to court. If a country declined, there was no European body that could do so.

The new European Public Prosecutors' Office (EPPO), which was launched on June 1st, aims to fix that. The EPPO can bring criminal charges for misuse of EU funds and for a number of other offences, such as VAT and customs fraud. It is headed by Laura Codruta Kovesi, a redoubtable prosecutor who from 2013 to 2018 ran Romania's vigorous national anti-corruption agency, convicting thousands of bent officials and business people.

The EPPO's significance goes beyond the criminals it can punish or the money it

can recover. Corruption creates deep splits in the EU. Countries like Germany and the Netherlands fear that money they contribute to the EU budget will subsidise fraud in countries like Italy that are plagued by organised crime, or in those like Hungary where the courts are controlled by the very politicians who are on the take. Donor countries are reluctant to grant the EU bigger budgets unless they are confident the money will be spent honestly.

Yet five of the EU's 27 members have not joined the EPPO. The holdouts include Denmark, which has opted out of all EU justice affairs, and Sweden, which says it will join soon. More worrying, they include Hungary and Poland. Both are big takers of EU aid, with governments that

have made their justice systems subservient to politicians. Hungary has the highest fraud rate of any EU member.

The EPPO is based in Luxembourg, in one of the steel and glass towers that make many EU agencies feel like robotic limbs grafted onto Europe's medieval bones. The European Court of Justice is next door. The agency seems far removed from the skulduggery it expects to prosecute. But the headquarters house only the EPPO's central apparatus, including Ms Kovesi's office and the college of 22 prosecutors, one from each participating country, who oversee the agency. Grouped into permanent chambers of three prosecutors each, they make the pivotal decisions on each case: whether to file charges or dismiss them. The investigation and prosecution itself are handled by teams of prosecutors in each country, nominated by their national governments but approved by the EPPO.

One benefit of the EPPO is centralisation, says Andrés Ritter, the German member of the college. Fraud tends to cross borders. In his former job as a prosecutor in Germany, Mr Ritter supervised a case in which €18m (\$21m) of diesel was falsely imported as cleaning products to evade EU energy taxes, then re-exported and sold as fuel in the Czech Republic, Italy and Poland. Such cases used to require joint investigation teams from the countries concerned and Eurojust, the EU's agency for judicial co-operation. Requests for information and European warrants for searches and arrests added time and complexity. ▶

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▶ Many of the EPPO's cases will be similar to those handled by OLAF and national prosecutors. These can be quite concrete, as with the Italian-Romanian consortium that won a contract to produce hovercraft but made no effort to do so, or the multinational Mafia ring that used EU agricultural funds to buy second-hand farm equipment instead of new kit.

Others are abstract financial crimes. Danilo Ceccarelli, the Italian member of the college, notes that on paper the EU runs a huge trade surplus with itself—over €300bn in 2018, according to one study. This is logically impossible, and probably an artefact of tax fraud: exporters overstate the value of goods in order to recover higher VAT rebates. The study estimates the total could run to over €60bn a year.

The most sensitive cases are those involving politicians. Anti-corruption advocates hope the EPPO's independence from national governments will make it easier to prosecute elected officials. Czech authorities have reportedly forwarded to the EPPO their case against Andrej Babis, the prime minister. Mr Babis, one of the Czech Republic's richest citizens, is accused of illegally profiting from EU subsidies to an agriculture company he formerly owned. He denies these charges.

But keeping clear of political influence is difficult. Janez Jansa, Slovenia's prime minister, has refused to approve the prosecutors his country must delegate to the EPPO. Opponents claim that he fears his party will be unable to control them. In Bulgaria Boyko Borisov, the prime minister for most of the past decade, gained control of the body that appoints public prosecutors, who repeatedly exonerated government officials in scandals.

Furthermore, prosecutors must bring their cases in national courts. "It would be useful to have a European court of criminal procedure, no question," says Mr Ritter, but that is a project for the distant future.

Yet the EPPO does not have to accept whomever national governments send it. Ms Kovesi rejected six of Bulgaria's original ten proposed delegated prosecutors. And the body's statutes are set up to protect independence. The 22 prosecutors in the college are barred from supervising cases involving their own country. The delegated prosecutors serve an initial five-year term that can be renewed indefinitely at the EPPO's discretion. They cannot be recalled by their home countries.

Hundreds of cases have already been forwarded to the EPPO. Mr Ritter expects charges will be filed in some cases before the end of the year. To establish credibility it should seek to score some high-profile convictions quickly, says Laurent Pech, an expert on EU law at Middlesex University: "It's a new, unelected body, so its legitimacy depends on output." ■

German-Russian relations

From "flawless" to lawless

BERLIN

Angela Merkel's glum trip to Moscow and Kyiv

WHEN ANGELA MERKEL took over as Germany's chancellor in 2005 Western leaders had high hopes that Russia would progress from semi-authoritarian regime to liberal democracy. Four years earlier Vladimir Putin had declared in a speech in German to the Bundestag, "Russia is a friendly-minded European country." The then chancellor, Gerhard Schröder, Mrs Merkel's predecessor, became so chummy with Mr Putin that shortly before leaving office he approved the construction of a gas pipeline from Russia to Germany crossing the Baltic Sea. Russia provided 40% of Germany's gas. Germany was about to become Russia's largest trading partner.

Sixteen years later, each country's expectation of the other has failed to materialise. Germany had imagined a more liberal Russia; Russia had hoped that Germany would help convince Europe to treat Russia as an equal, and to create a free-trade zone from Lisbon to Vladivostok. On August 20th Mrs Merkel will travel to Moscow during the last weeks of her chancellorship to say goodbye to a leader whom she has come to distrust deeply. Mr Putin will bid farewell to his most important interlocutor among Western leaders.

The debacle in Afghanistan will be high on their list, as well as the nearly finished gas pipeline, which America's Congress fiercely opposes. Now known as Nord Stream 2, it has become a stain on Mrs Merkel's legacy. The chancellor is normally adept at balancing competing interests,

but she utterly underestimated how much the pipeline, which she supported mainly to appease the business lobby and her Social Democratic coalition partners, would upset America and Ukraine. They fear it will isolate Ukraine (which also stands to lose lucrative transit fees) and make Europe even more dependent on Russian gas. After her stop in Moscow Mrs Merkel will travel to Kyiv for talks with Volodymyr Zelensky, the Ukrainian president.

Pundits differ on whether the turning-point in German-Russian relations was Mr Putin's annexation of Crimea in 2014, the Kremlin-directed hacking of the Bundestag's computer systems in 2015 or the killing in 2019 of a Chechen dissident in a Berlin park. Yet all agree that the poisoning last year of Alexei Navalny, the Kremlin's leading opponent, was the last straw. "German-Russian relations are at the lowest point since the end of the cold war, and they will deteriorate further still," says Stefan Meister of the DGAP, a think-tank in Berlin. Mr Putin uses the conflict with the West to drum up nationalist support for his regime. He will become even more authoritarian, predicts Mr Meister, by increasing pressure on Russian media and nongovernmental organisations.

According to Andrey Kortunov, the head of the Russian International Affairs Council, a foreign-affairs think-tank in Moscow, the Russian government has no desire to increase tensions with Germany. It expects continuity with Mrs Merkel's policies if Armin Laschet, her party's candidate, becomes the next chancellor. If, however, the next chancellor is the Greens' Annalena Baerbock, who opposes Nord Stream 2, Germany looks likely to get tougher with Russia. Either way, long gone are the too-cosy days of Mr Schröder, who once called Mr Putin a "flawless democrat", and who is now the chairman of both Rosneft, Russia's state-controlled oil company, and Nord Stream 2. ■



Why did it all go wrong?

Catania

The would-be Milan of the south

CATANIA

As part of an occasional series, we visit Italy's tenth-largest city

IN THE VAST street market that tumbles out of Piazza Stesicoro you can find amulets and antiques, pirated CDs, trousers, tuna and horsemeat. Immigrant tailors bend over sewing machines fixed to little tables so that people who buy clothes can get them altered on the spot. Half a young sheep dangles from a hook.

Italy's tenth-largest city pulsates with life, yet sits beneath a looming reminder of mortality: Mount Etna, which has been spewing fire, smoke and lava since February. Europe's largest volcano is evidence that Catania is in one of Italy's most seismically unpredictable areas. In 1693 an earthquake virtually destroyed the city, killing two-thirds of its inhabitants.

That showed *catanesi* that disaster can lead to rebirth, says Marella Ferrera, a fashion designer. Catania's broad avenues, its stately piazzas and magnificent, noble residences all date from the years following the earthquake.

This understanding is acutely relevant today. Italy is poised to be the single biggest recipient of the EU's €750bn (\$884bn) covid-19 recovery plan, Next Generation EU (NGEU). A hefty share of the cash is destined for the south, in an effort to close the gap with Italy's richer north. NGEU will help finance infrastructure projects, including an extension of Catania's metro to the airport. That should encourage tourists to spend more time sightseeing in the vibrant but down-at-heel city before or after visiting the beaches of eastern Sicily. Catania's mayor, Salvo Pogliese of the hard-right Brothers of Italy, says the number of apartments used to accommodate tourists shot up in the three years before the pandemic, from 200 to 1,390.

Catania also stands to benefit if the pandemic encourages more remote working. Now that location matters less, people will be freer to enjoy the pleasures and relatively low cost of living in cities such as Catania. That at least is the conviction behind Isola (Island), a privately funded project to create 1,000 square metres of co-working space in part of the sprawling Palazzo Biscari.

The city is building on better foundations than exist in other parts of the *mezzo-*



Under the volcano

giorno. Catania has an ancient university, founded in 1434, and an entrepreneurial middle class. In the economic boom of the 1950s and 1960s it became known as the "Milan of the South". Few call it that nowadays. But the city turns out antibiotics for Pfizer, microchips for ST Microelectronics, an Italo-French multinational, and solar panels for Enel Green Power. And Catania has reportedly been chosen as the site of a new microchip-production facility for which €750m has been earmarked in Italy's national-recovery plan.

Mr Pogliese is eager to promote enterprise. He has introduced a scheme whereby companies seeking construction permits can pay €2,000 to guarantee a response within 48 hours. That mirrors what is happening at the national level, where Mario Draghi's government has introduced legislation to reduce the bureaucratic delays that stifle Italy's economic growth.

Yet clearing away red tape raises an issue as menacing as Etna. On Sicily, much of the delay is caused by checks to ascertain whether, for example, tender bids are from companies linked to the Mafia. A lot of Italians who hold no brief for organised crime feel development can no longer be held hostage to fears of Mafia infiltration.

Claudio Fava, a left-wing politician, takes a different view. His father was killed by the Mafia. Mr Fava says organised crime remains deeply rooted in poor areas of Catania such as San Cristoforo, a decrepit inner-city quarter, and Librino, a suburb of soulless tower blocks. These places are not as violent as they used to be. But that, he says, is because the Mafia is increasingly focused on white-collar crime, including the securing of public tenders. It is particularly active in renewable energy—on which a lot of the NGEU money will be spent. "Anyone who thinks that the Mafia has lost its ability to penetrate the legitimate economy is either being ingenuous or devious," he says. ■

Sink or swim

Rusty relic of the Habsburg navy

CRES

Do Croatian islanders give a damn about their maritime history?

TOURISTS IN CRES, a pretty town on the rock-strewn Croatian island of the same name, have no idea what they are looking at. In the distance is a wall of steel, painted white and blue. Many locals hate it. They think this relic of their ship-repairing past is a piece of junk that spoils the view and should be scrapped. But wait! Is it not the last maritime object afloat from the Austro-Hungarian Imperial and Royal Navy, which vanished with its empire in 1918? Preserve it, say some historians. Sink it, say less romantic islanders.

Built in 1913, the floating dry dock repaired submarines in the first world war. After 1918 Italy's navy used it, since a chunk of territory along the north-east strip of the Adriatic had become Italian. After the second world war, when Cres became part of Yugoslavia, the dock repaired naval vessels until it was sold as a commercial asset in 1984. In 1991 the island became part of independent Croatia. Its dry dock closed down last year.

Bojana Vuksanovic, a local architect, thinks it an extraordinary piece of maritime history. In a nearby palace she has an exhibition, showing how it could become a museum and performance space. Fancy new marinas, she says, are wiping out local history. But many locals say Cres has more pressing needs than restoring the dock. "I'm a fisherman," says a shipyard worker. "We should tow it out to sea and sink it—to attract the fish."

Elsewhere in Croatia royalty bows before the more recent communist past. The *Galeb*, a ship on which Yugoslavia's Marshal Tito cruised the world, is being restored to its former glory. But the Habsburgs' yacht, which took Franz Ferdinand, heir to the throne, on his last naval voyage en route to his assassination in Sarajevo in 1914, lay forlorn near Split. Officials in left-leaning Rijeka, the *Galeb's* home port, secured €5m (\$5.8m) of EU funds topped up with Croatian money to preserve the boat. No such luck for Franz Ferdinand's vessel. It has sunk.

Correction In an article on Sardinia last week ("The megayachts are back") we referred to a party in a luxury hotel in Poltu Quatu. It in fact took place in a public space in the town. We regret the error.

Charlemagne | The EU: 1713 edition

How the ideas of an 18th-century French abbot still dominate the EU today



THE “Project for Bringing About Perpetual Peace in Europe” did not receive rave reviews when published in 1713. Voltaire thought the author, the Abbot of Saint-Pierre, was deluded. “The peace...will no more be realised than among elephants, rhinoceroses, wolves, or dogs,” he wrote. Showing less understanding of nature than of politics, he added: “Carnivorous animals will always tear one another to pieces at the first opportunity.”

Over the years, European intellectuals queued up to give the work a kicking. Immanuel Kant poked holes in it. Rousseau labelled it naive. Frederick II of Prussia declared the plan “very practicable: all it lacks to be successful is the consent of all Europe and a few other such small details.” Yet skip forward three centuries and the plan is, more or less, in place as the European Union.

To understand the EU today, one could usefully turn to the works of the abbot, now largely forgotten outside academia. Glance between Saint-Pierre’s 18th-century blueprint and the EU as it stands, and they are strikingly similar. In both cases, European countries agree to club together, submit themselves to the rulings of a court and devise rules by means of a continental parliament. Both have a rotating presidency. Contributions to the budget are based on wealth. Saint-Pierre even called his scheme a “European union”. Only Saint-Pierre’s inclusion of long-defunct countries such as Venice and Savoy gives the game away.

At the heart of both schemes is a radical idea. Under Saint-Pierre’s plan, sovereigns would submit to a superior law, enforced by independent supranational institutions. Coming more than half a century before Americans kicked out the British and the French started decapitating kings, this was radical. Without such a principle, argued Saint-Pierre, sovereigns would be stuck in a Hobbesian nightmare of constant struggle. Judging by the intervening three centuries of on-and-off wars and failed attempts to unify the continent spelled out in Shane Weller’s recent “The idea of Europe: A Critical History”, Saint-Pierre was on to something.

The rule of law has made the latest crack at European integration a success. Whether mighty Germany or tiny Malta, all members of the modern EU agree to subject themselves to the rulings of the European Court of Justice and laws put forward by the European Commission. Fundamentally, it is down to trust, or rather

the lack of it. One country does not always believe another will abide by the rules, so other institutions must enforce them. This makes recent challenges to the supremacy of EU law from judges in Germany and Poland, who have questioned the authority of the ECJ, so dangerous. What was true in 1713 is even more true now. Without a clear legal basis, things can fall apart.

Saint-Pierre had a subtle understanding of sovereignty, which still applies today. From one perspective, most enthusiastically put forward by Brexiters, pooling sovereignty weakens it. For Saint-Pierre, true sovereignty involved no longer fearing one’s neighbours, since insecurity makes independence an illusion. The same logic is at work in the EU. Small countries appreciate the EU because it protects them from the excesses of big countries. Take the euro. Rather than suffer monetary whiplash from a decision by the Bundesbank, small countries can give up their monetary independence in exchange for a modest say in a bigger project. Saint-Pierre knew that sacrificing sovereignty is sometimes the only way of saving it.

Likewise, criticism of the abbot’s plan holds true for the EU today. Rousseau was almost right when he argued that Saint-Pierre’s idea could come about only through violent means. It took two world wars for European leaders to abandon their objections to such a scheme. In the EU, things still go forward when things go wrong. A pandemic and the biggest recession in the club’s history were needed for Germany and other holdouts to agree to the club issuing common debt.

Even Saint-Pierre’s failings feel appropriate for an ancestor of the EU. The abbot was a clunky writer, on a par with Brussels’s best bloviators. Where Americans have “life, liberty and the pursuit of happiness”, the EU has “concrete achievements which first create a de facto solidarity”. In an age when Europe’s fiercest intellects were forging the Enlightenment, Saint-Pierre was decidedly second-rate, littering his argument with factual errors. One academic labelled him a “genius of European idiocy”.

But the abbot fits squarely into the EU’s long tradition of grey men and women who ultimately succeed despite having first been written off. Jacques Delors was initially seen as a patsy of Paris and Bonn, yet managed to become the commission’s most illustrious leader, leaving behind the single market, a path to monetary union and a natty flag. Ursula von der Leyen, the current German chief of the commission, ended up in Brussels only after her domestic career had gone off track. Yet the commission has quietly become more powerful on her watch. Second-tier types have a way of succeeding in the EU.

Forgotten forebears

Given Saint-Pierre’s foresight, it is at first odd that he is so little known. Unfortunately, there is a tendency in Brussels to trace the history of European integration no further back than the bloodless, legal approach that took hold after 1945, points out Luuk van Middelaar, a Dutch historian. Attempts before that—whether in the shape of Napoleon or Hitler charging across Europe or more diplomatic efforts—are played down. This makes the history neater, but less honest. For a club that is obsessed with notions of “European values” this is disappointing. The EU is always keen to claim such noble ideals as democracy and the rule of law as distinctly European traits. But imperialism and totalitarianism have just as long a pedigree on the continent. Rather than deal with that history, the EU overlooks it. Forgetting about Saint-Pierre’s efforts is one consequence of that tendency to brush over a messy past. ■



Covid-19

Ready for the next one?

Policymakers weigh up the future of Britain's pandemic state

AS THE BODY COUNT grew, Sharon Peacock, a microbiologist at the University of Cambridge, gathered a team to bid for state funding. Sir Patrick Vallance, Britain's chief scientific adviser, quickly saw the potential of a new genetic-sequencing network, run by academics, and handed her £20m (\$27m) in March 2020. Others did not. Some thought it "a massive stamp-collecting exercise," which would prove of little real-world use, says Professor Peacock. Yet by the year's end, Britain was doing more sequencing of the covid-19 genome than the rest of the world combined, allowing it to track mutations and work out their impact on transmission. Few people today call it a stamp-collecting exercise.

The British government believed its pandemic preparations were among the world's best. That turned out to be nonsense, but the country's scientists and officials have since built a virus-fighting infra-

structure that is in many respects world-leading, including genetic sequencing, randomised trials, population surveys, vaccine purchasing and delivery. Even the much criticised test-and-trace system has improved. With vaccination sharply cutting deaths—the weekly average has so far peaked at around 90 during the current wave, compared with 1,200 in the previous one—policymakers are working out how to adapt these successes to a new era.

Some elements of the state's response will be mothballed, no longer worth the cost. On August 16th the government reduced the bite of the test-and-trace app. Although it is believed to have prevented hundreds of thousands of cases, it infuriated businesses whose workers were told to isolate. Vaccinated Britons who are "pinged" will no longer be told to quarantine, only to take a PCR test. Lateral-flow tests, which are available free of charge,

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

may not remain so. Elsewhere, though, it will be important not to dismantle the country's new capabilities, says Jeremy Hunt, a former Tory health secretary.

Many of the best innovations are being sucked into the machinery of the state. The vaccine taskforce, set up beyond the civil service after early procurement failures, now sits within it. Genetic sequencing and test-and-trace will be part of a new health-protection outfit, the UK Health Security Agency (UKHSA). So, too, will the Joint Biosecurity Centre, set up to provide real-time analysis of the virus's spread, and lauded by Sir Jeremy Farrar of the Wellcome Trust, a medical-research charity, as having "genuinely transformed" the pandemic response. Britain is also working with America to set up the Centre for Pandemic Preparedness, to oversee an international early-warning system.

The government has grand ambitions for the UKHSA, which starts work in October. Whereas its unloved predecessor, Public Health England (PHE), combined pandemic prevention with anti-obesity campaigns and the like, it will focus solely on external threats. Next time there is a pandemic—or a biological, chemical or nuclear attack—the agency will be at the heart of the response. Jenny Harries, its chief executive, wants to establish a routine geno-▶▶

► mic-sequencing system to target other infectious diseases, such as flu, and correctly diagnose people “who turn up with sniffles at the GP”, avoiding antibiotics where possible and thus reducing the risk of antimicrobial resistance.

Ministers also hope to replicate the conditions that boosted innovation during the pandemic. The RECOVERY trial, which uncovered two covid-19 treatments, saving millions of lives worldwide, would not have been viable without relaxing rules on signing up hospitals, says Sir Martin Landray, who ran it. Some 185 sites are now enrolled, and Sir Martin wants to use the study to look for influenza and respiratory-syncytial-virus treatments: “It would be a real shame if someone said, ‘Oh, wait a minute. You’re studying a slightly different virus, you’ve got to set it all up again.’”

The government’s life-sciences plan promises to make it simpler to run trials in the health service and to pare back regulation. Although Sir Martin approves, “it’s very hard shifting an entire system that’s been stuck in one particular way,” he warns. Others are less optimistic. Dominic Cummings, the prime minister’s erstwhile adviser, has written that he fears Downing Street’s attention is slipping. He argues that not enough is being done to accelerate vaccine development—which the government used its G7 presidency to advocate.

Attention will inevitably slip in the future. “It’s a bit of a golden opportunity for health protection,” says Dr Harries, “because the world can see what happens when there’s a health-protection incident. That will fade.” An earlier network of microbiology laboratories was wound down in 2003, when the public-health system was restructured. Then, when the covid-19 pandemic hit, such capacity had to be built from the ground up. Although the cost of genomic sequencing has fallen, permanent capacity will not come cheap. An early sign of the government’s commitment will arrive when it sets the UKHSA’s budget, which it is expected to do this autumn.

But money cannot solve all problems. The new agency will include outfits ranging from the excellent (the Joint Biosecurity Centre) to the less so (test-and-trace). At its heart, though, is the health-protection part of PHE. It struggled to co-ordinate local authorities, which are responsible for many public-health services, but over which it has little power. The new agency has beefed up the size of the teams responsible for liaising with councils, but the system is not being rewired. Meanwhile, both genetic sequencing and the vaccine task-force benefited from being outside the remit of the state. Whether their excellence continues inside remains to be seen.

This is not the complete overhaul of the pandemic-prevention system for which some called in response to failures soon

Nauseous nurseries

Oh noro!

With lockdown lifted, Britons are discovering other viruses still exist

THIS JUNE was the first time Ruby Bone, a 35-year-old who owns a design studio in south London, could let her son mix freely with other children. Born in May 2020, Raife had spent most of his life in lockdown. One afternoon, as they were heading to Ms Bone’s parents, he seemed a little unwell. Soon, “he was really, really sick”. Within a few days, Ms Bone’s husband was also throwing up. And then she was, too, and so were her parents. “It was really brutal,” she says. A doctor told her it was probably norovirus. After covid-19, “I didn’t even think about there being another virus out there,” says Ms Bone. It was just luck, she adds, that her 100-year-old grandmother did not catch it.

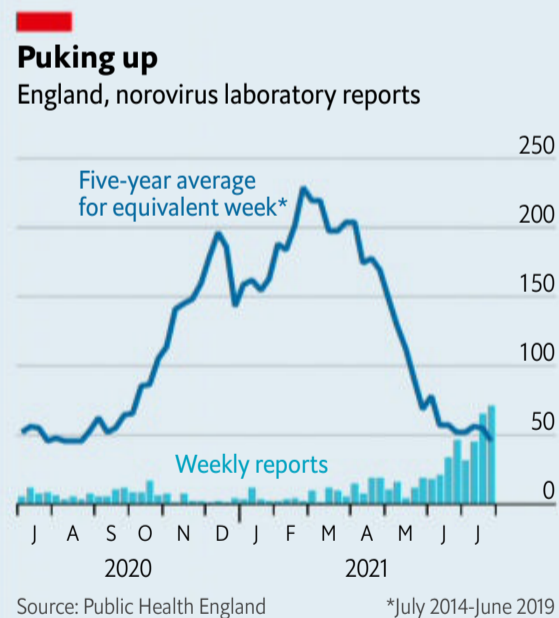
Raife’s was among the first cases of a wave of sickness that is now spreading across the country. According to data gathered by Public Health England, laboratory-confirmed cases of norovirus, which causes a sharp spell of illness including vomiting and diarrhoea, have been spiking since late May. Having been suppressed almost the entire way through the covid-19 pandemic, in the

last week of July the number overtook the average for the previous five years (see chart).

The surge is causing particular problems in schools and nurseries, where most cases have so far originated. Unlike covid-19, which spreads through the air, norovirus is thought to spread via infected fluids on surfaces. Small children, who like to touch anything and everything, are therefore especially likely to pick it up and to spread it to family members. Though deeply unpleasant, as Ms Bone can attest, it is not deadly for most. But it can be to elderly or vulnerable people, and it can also force hospitals to shut wards in the case of an outbreak.

According to a recent study by researchers at the London School of Hygiene and Tropical Medicine and colleagues, the rapid spread is probably a result of lowered immunity, after a year in which most viruses were unable to leap easily from person to person. They estimate that if the amount of social contact increases to its pre-pandemic norm, then Britain could be in for a wave of norovirus this winter of twice the normal size. Other viruses that have been suppressed, such as flu, may also surge.

It is a worrying prospect. Despite the success of the country’s vaccination programme, Britain’s hospitals are already stretched, with more than 6,000 covid-19 patients and an unseasonal spike in other illnesses leaving precious little space for people with upset stomachs. Belatedly, government advice to stop the spread of covid-19 has switched from encouraging people to wash their hands to encouraging them to meet outdoors and to improve ventilation by opening windows. That is all well and good but if the norovirus trend continues, keeping some soap around may also prove smart.



after covid-19 arrived. Dr Harries has experience responding to Ebola and a Novichok attack, but as deputy chief medical officer downplayed the importance of testing and argued against masks early on. She will now play a big part in drawing up a future pandemic playbook, and will need to get ahead of future crises. “They’re meant to be leading this global pathogen surveillance system,” sighs a scientist advising the government. “Well, as far as I can tell, they’re not doing anything.”

Even if the next disaster cannot be pre-

dicted, having good infrastructure can make all the difference. Ebola did not spread in Britain, but startled ministers established the UK Vaccines Research and Development Network in 2015 to identify worrying diseases and pay for work to render them less dangerous. Among its projects was the ChAdOx1 MERS vaccine by Oxford’s Jenner Institute. It was later adapted, becoming the ChAdOx1 nCoV-19 vaccine, or the Oxford-AstraZeneca jab. Tens of millions of Britons, and many more worldwide, have reason to be thankful. ■

Bagehot | The sun also sets

For some politicians the debacle in Afghanistan is personal as well as political



THE FIRST two decades of this century saw the rise of a new type of politician, or perhaps a new version of an old type of politician: young MPs shaped by one of the most difficult environments in the world, Afghanistan. Johnny Mercer, a former commando, gave his maiden speech about a friend who had died in his arms. Several of his new colleagues—Tom Tugendhat and James Heapey on the Conservative benches and Dan Jarvis and Clive Lewis on the Labour ones—had also fought on the ground.

Others were involved in different ways. Rory Stewart spent a month-and-a-half walking across Afghanistan in 2002 and later established a charity that works there, the Turquoise Mountain Foundation, which seeks to create arts-and-crafts jobs. Tobias Ellwood visited the country repeatedly after his brother was killed by an offshoot of al-Qaeda. The Russians, who had their own problems in the region in the 1980s, call such survivors “Afgantsy”.

A special parliamentary debate on August 18th saw the veterans loud in their condemnation of the West’s “humiliation”, “shame” and “betrayal”. In a riveting speech, met with rare applause, Mr Tugendhat talked about struggling with “anger, grief and rage”. Messrs Mercer and Jarvis emphasised the country’s obligations both to the Afghan people and British veterans. The only member of the group with a good word for Joe Biden is the one who works for the government. As armed-forces minister, Mr Heapey tweeted that “we either had to leave or fully re-engage to fight again. A decision had to be made.”

Most of these Afgantsy entered into politics because of their experiences in the country. Mr Tugendhat says his politics are “an extension of his military experience”. Mr Stewart explains that everything he has “tried to do is about bringing the lessons of Afghanistan into politics”. Mr Mercer gravitated to politics because he was searching for what he had found in the army: a chance to serve something greater than himself. He had never taken any interest before, but within a few months of leaving the army he was fighting a long-shot election in the previously safe Labour seat of Plymouth Moor View. The first vote he ever cast was for himself.

Mr Mercer’s move from firefights to parliamentary skirmishes is the most straightforward: he has devoted his energies to arguing for a better deal for veterans. Other stories are more subtle. Mr

Stewart says he was converted to a “Burkean” conservatism in Afghanistan. He recoiled from policymaking abstractions, trying instead to work from the ground up. All of his political campaigns have involved long walks during which he collars passers-by to find out what they think. Mr Tugendhat’s commitment to fighting tyranny in Afghanistan has converted him into one of the Conservative Party’s leading China hawks; his experience of fighting alongside people from poorer backgrounds has turned him into one of the party’s most committed communitarians. “The reason I wanted to have a voice in our national debates”, he once told the Social Market Foundation, a think-tank, “was not because of what fighting taught me about other countries, but what serving alongside men and women from across our community taught me about our own country.”

Yet this reforming zeal has become bogged down in the quagmire of politics. On the Labour side, Mr Jarvis flirted with the idea of running for the leadership, only to see the job go to a veteran pacifist, Jeremy Corbyn. Mr Mercer has found politics frustrating and disappointing. He saw his dreams briefly come true—Boris Johnson created a new office for veterans’ affairs in 2019 and gave him a job helping to run it—only to then resign over the government’s refusal to rule out prosecuting British soldiers over historical allegations of abuse. Mr Stewart ran unsuccessfully against Mr Johnson for the leadership of the Conservatives; then, on failing to win, resigned from both the party and the House of Commons. He later launched an independent campaign for London mayor, only to withdraw because of the covid-19 pandemic. He is now preparing to move with his family to Jordan for two years to resume work with his charity. Mr Tugendhat has been elected by his fellow MPs to run the foreign-affairs select committee, but has been passed over for government jobs, having to wait on the backbenches while mediocrities such as Gavin Williamson, the education secretary, are given seats in the cabinet. The two Afghan veterans currently in the government (Mr Heapey and Leo Docherty, another defence minister) have not made much of a mark.

The graveyard of careers

Three years ago, Bagehot wrote a column expressing hope that a new generation of soldier-statespeople would bring seriousness and reconciliation to British politics. Patriotism was being cheapened by the Brexiteers and smeared by the Corbynistas. Britain had a surfeit of professional politicians whose experience of the world was limited to Oxbridge and think-tanks. But there were 50 or so MPs with military backgrounds, including the Afgantsy, now in the House of Commons. The soldier-statespeople had experienced life at its sharpest, and embodied the spirit of national service. Was it too much to hope that they would improve British political life?

Alas, it was. Westminster continues to be dominated by people who see politics as a game, rather than something that can make the difference between life and death. The sort of people who have always had a buffer to prevent them from failing (like Mr Johnson) or are more interested in day-to-day manoeuvring than policy outcomes (like Mr Williamson). Patriotism continues to be cheapened by flag-wavers who have never seen military action. And Britain continues to be the victim of a surreal gap between rhetoric and reality—basing its foreign policy on a proud boast about “global Britain”, only to then see 20 years of hard work in Afghanistan destroyed by the president of an increasingly self-obsessed and mercurial United States. ■



The origins of covid-19

Putting it all together

There has not yet been a proper investigation into the origins of covid-19. Better late than never

THE VIRUS MYSTERY”, broadcast on August 12th, drew uncommonly wide attention for a Danish television documentary. That was because it featured Peter Ben Embarek, an expert on food security and zoonotic diseases, casting doubt on the conclusions of a “joint study” on the origins of the covid-19 pandemic carried out earlier this year under the auspices of the World Health Organisation (WHO). Dr Ben Embarek was the senior WHO figure who went to China as part of that study.

In March the joint study reported that it was “extremely unlikely” that the virus had been released in a laboratory accident. Dr Ben Embarek revealed that this conclusion did not come from a balanced assessment of all the relevant evidence but from a steadfast refusal by the Chinese members of the joint study to support anything stronger. Indeed they only allowed even that minimal assessment on the condition that the report did not call for further investigation into the question. He also pointed out that the idea that the point of

spillover was someone collecting bat samples for research purposes belongs in the “likely” basket, along with other human interactions with wild bats.

Problems in the joint study had long been clear. Within the WHO one source describes it as “riddled with compromises and sloppiness”. Tedros Adhanom Ghebreyesus, the WHO’s director-general, was uneasy about the way it was carried out. He pushed back at the marginalisation of the lab-leak hypothesis, particularly when the final report was released in March. He has since called for further investigations into it, as well as into other possibilities.

The further unravelling of the joint study matters because, more than a year and a half after the covid-19 outbreak in Wuhan, a city in Hubei, was first recognised as the work of a new pathogen, there has been nothing like a thorough international investigation of how that pathogen, SARS-cov-2, got into humans and spread round the world. The pandemic’s death toll stands at 9m-18m, according to a model

which *The Economist* has built on the basis of excess-mortality reports and other indicators. The question of how it started matters both for the relatives of the dead and for those who wish to prevent such an outbreak happening again. China’s efforts to stop the world from answering it are both shabby and, to an extent, self-defeating. The more the truth seems hidden, the more it seems suspicious.

Earnest calls for an international investigation into the origins of covid-19 began in April 2020, voiced most clearly by Scott Morrison, the prime minister of Australia. The next month the World Health Assembly, the gathering of government representatives which serves as the WHO’s decision-making body, passed a motion calling for a study into the origins of the pandemic. But in order to be acceptable to China—which had reacted furiously to Mr Morrison’s original suggestion—the work was set up as a joint research project between two teams of scientists, one Chinese, one international. And it was to be based on “scientific and collaborative field missions”, rather than a targeted and forensic inquiry into all the relevant circumstances.

The terms of reference, which were subsequently negotiated behind closed doors, allowed the Chinese hosts to frame the joint study’s work in the way which best suited them. The study was set up to build on pre-existing Chinese research, not to delve into unvetted data. Investigat-▶▶

ing the laboratories that had been working with coronaviruses like SARS-COV-2 in Wuhan was not part of its terms of reference.

After a lot of wrangling, the international team got to China in January this year. Data about the first reported covid-19 cases, those from December 2019, were one subject of friction with their hosts. The Chinese had reported 174 such cases, but would not share the underlying data on which those reports were based. Hearing that these vital data were not being made available worried Dr Tedros enough that he lobbied the Chinese government for access. The authorities declined, citing concerns over citizens' privacy. It could have been anonymised.

Elsewhere the team appears to have been knowingly misled. Take, for example, the live-animal trade at the Huanan seafood and wildlife market, a site associated with a number of Wuhan's earliest recorded cases of covid-19. In its final report, the study group took at face value claims there was no credible evidence that live mammals were sold there in 2019. A lot of eyewitness accounts gainsay that; so does a study published in *Scientific Reports*, a journal, this summer.

One report and no more

The *Scientific Reports* paper found that 18 species of mammal had been for sale in Wuhan between May 2017 and November 2019; gunshot wounds and trapping injuries suggested that almost a third of them were taken from the wild. Although the paper was published only recently, it was submitted to the journal in October 2020. Chinese law requires that all covid-19 research be reviewed by the government before it is sent to a journal. Some Chinese authorities would have known of its contents before the team arrived.

The market is not the only way for animals and the pathogens they carry to get into Wuhan. The horseshoe bats in which the closest wild relatives to SARS-COV-2 have been found do not live anywhere near the city, but the two laboratories there that

were known to have engaged in coronavirus research received samples from bat caves around the country. The joint-study team was not allowed to investigate the procedures around, or documentation of, this research; when it visited the laboratories the team was shown presentations on safety procedures but no more.

When the researchers left Wuhan the WHO's Geneva headquarters told them that their report needed to be laid out scientifically and could express dissenting opinions; the international members and the Chinese members did not have to reach a consensus. However, according to sources within the WHO, the team felt committed to producing a joint report with their Chinese counterparts. Dr Tedros was so unhappy with what finally emerged from the processes that he nobbled the report as it left the starting blocks, rejecting its contention that the possibility of a lab leak needed no further investigation.

On May 26th President Joe Biden ordered America's intelligence services to report on the pandemic's origins in 90 days (time will be up on August 24th). When he and his fellow G7 leaders met in June they joined in calling for a timely, transparent and science-based follow-up study. On July 16th Dr Tedros laid out the next steps which the WHO wants to see taken. They include further work on the Wuhan animal markets, studies of early cases and audits of local laboratories.

The Chinese government has reacted angrily to the idea of further studies on its territory. Zeng Yixin, the vice-minister of China's National Health Commission, said he was "shocked" by the plan to investigate a lab leak, saying it was "impossible" to accept. According to the *Global Times*, a tub-thumping tabloid run by the Communist Party, 55 countries have sent written complaints about the proposal for further investigations to the WHO. Dr Tedros, elected director-general with China's support in 2017 and derided by President Donald Trump as China's puppet, may now face a Chinese-backed candidate when he looks

for reappointment later this year.

In the absence of any hope that China will co-operate, sources of data beyond its control have become increasingly important. One area of interest is genetic sequence data. Another is early cases exported from China.

See what you did there

An online open-source-intelligence group which calls itself DRASTIC has been scouring sequencing data to get insight into activities at the Wuhan Institute of Virology (WIV). When researchers publish sequences they typically post the raw data from which those sequences are assembled to public databases such as the sequence-read archive at America's National Centre for Biotechnology Information. Contamination events in the laboratory, or within sequencing machines themselves, mean these data sometimes contain sequences not meant to be there. In theory such evidence could reveal nefarious goings-on.

Such work, while promising, takes a lot of resources. If you have the sort of supercomputers available to America's national labs it gets easier. Gilles Demaneuf, a data scientist who works with DRASTIC, says he has a hunch the American intelligence community's 90-day study is working the same angle. It is conceivable that the intelligence services might have been able to filch raw sequence reads directly from Chinese sequencing machines, thus picking up even more data.

Sequencing data only offers a way forward if the virus did indeed leak out of a lab, something which remains a possibility but which is far from proven. The study of early cases should be useful whatever route it took; the closer you get to understanding the when and where of the crossing-over from animal to human, the easier it should be to learn something of the how.

On the basis of information provided by China the joint study concluded it was unlikely for there to have been any substantial transmission in Wuhan before December 2019. That is unlikely to be true. For one

Cause for concern

Covid-19, confirmed daily cases, seven-day moving average, '000



Sources: Our World in Data; WHO; Kumar et al.; DRASTIC; White House; House Foreign Affairs Committee GOP; press reports



► thing the *South China Morning Post*, a newspaper based in Hong Kong, obtained government documents in 2020 which showed one to five new cases a day in Wuhan from November 17th 2019 onwards. Further evidence has strengthened the possibility that the virus could have been in circulation much earlier than the official story allows.

That circulation need not have been limited to China. There is increasing evidence suggesting early infections elsewhere. These cases would have been exported from China; no virologists doubt that Hubei was where the virus got going within humans. But if circulation in Hubei goes back further than thought and cannot be directly assessed through studies there, the presence of cases elsewhere offers an alternative way to get an idea of the timing. If a specific travel link were identified, that might help identify a group in Hubei which was infected early on.

A recent study of blood samples from 9,144 adults in 12 different regions of France found seven which contained antibodies against SARS-COV-2, all of them taken in November 2019. An Italian lung-cancer screening trial has found samples taken in September 2019 which seem to contain anti-SARS-COV-2 antibodies. Another antibody study suggests the virus was circulating at a low level in northern Italy at the same time, notably in Lombardy, a region which has close connections to Wuhan through the garment trade, and saw Europe's first major outbreak of covid-19 in March 2020.

Antibody tests can give false positives. In a preprint published on August 6th by the *Lancet*, researchers in Lombardy reported on looking instead for SARS-COV-2 gene sequences. Examining 289 swabs and urine tests taken from people who had presented with a rash as far back as the second half of 2019, they found SARS-COV-2 sequences in 13, the earliest of which was tak-

en on September 12th.

Sudhir Kumar of Temple University in Philadelphia says the *Lancet* preprint is likely to inspire other investigators to go back and look at retrospective hospital samples. That should help his own research into the origins of the virus. A family tree Dr Kumar and his colleagues have built from vast numbers of published SARS-COV-2 genomes allows them to predict the sequence of the progenitor virus from which they are all descended. This sequence differs in three places from that found in the earliest samples taken from patients in Wuhan, meaning there had been enough spread for a certain amount of viral mutation to take place before December. Dr Kumar says that an analysis of the Lombardy sequences suggests that the timeline for the origin of the virus in China might now extend back to the late summer.

More systematic international research into these early infections and their circumstances is needed. Maria Van Kerkhove, head of emerging diseases and zoonoses at the WHO, suggests it may be possible to prioritise work in areas which saw the earliest outbreaks in America, France, Italy and Spain. "I think the floodgates will open one day," says Dr Kumar.

A last line of light

An early origin would fit with the timeline that lab-leak proponents tend to favour. Early this August, the minority Republican staff on the House foreign-affairs committee released an 84-page report arguing this case. It makes much of a small but deadly disease outbreak which took place at an abandoned copper mine in Yunnan in 2012. As DRASTIC showed last year, a virus studied at WIV which had been taken from that mine is the closest known relative to SARS-COV-2.

The report sees importance in the removal, on September 12th 2019, of a database containing details of sequences and samples from the WIV. This is read as the beginning of a cover-up, and thus as the point when the authorities first knew something had gone amiss, arguing for a leak in late August or early September. The WIV says it was a response to cyber-attacks.

A leak is not the only research-related possibility. The first person infected could have been someone employed by the WIV or another lab to collect bats and samples—the prospect to which Dr Ben Embarek pointed in his television interview. And it is important to remember that some other form of spillover outside the lab, either directly from a bat or by way of some other species, may well be to blame.

China clearly does not want lab-leaks investigated; but that does not mean it knows one happened. It is also being misleading about Huanan market, denying access to early-case data and obfuscating in

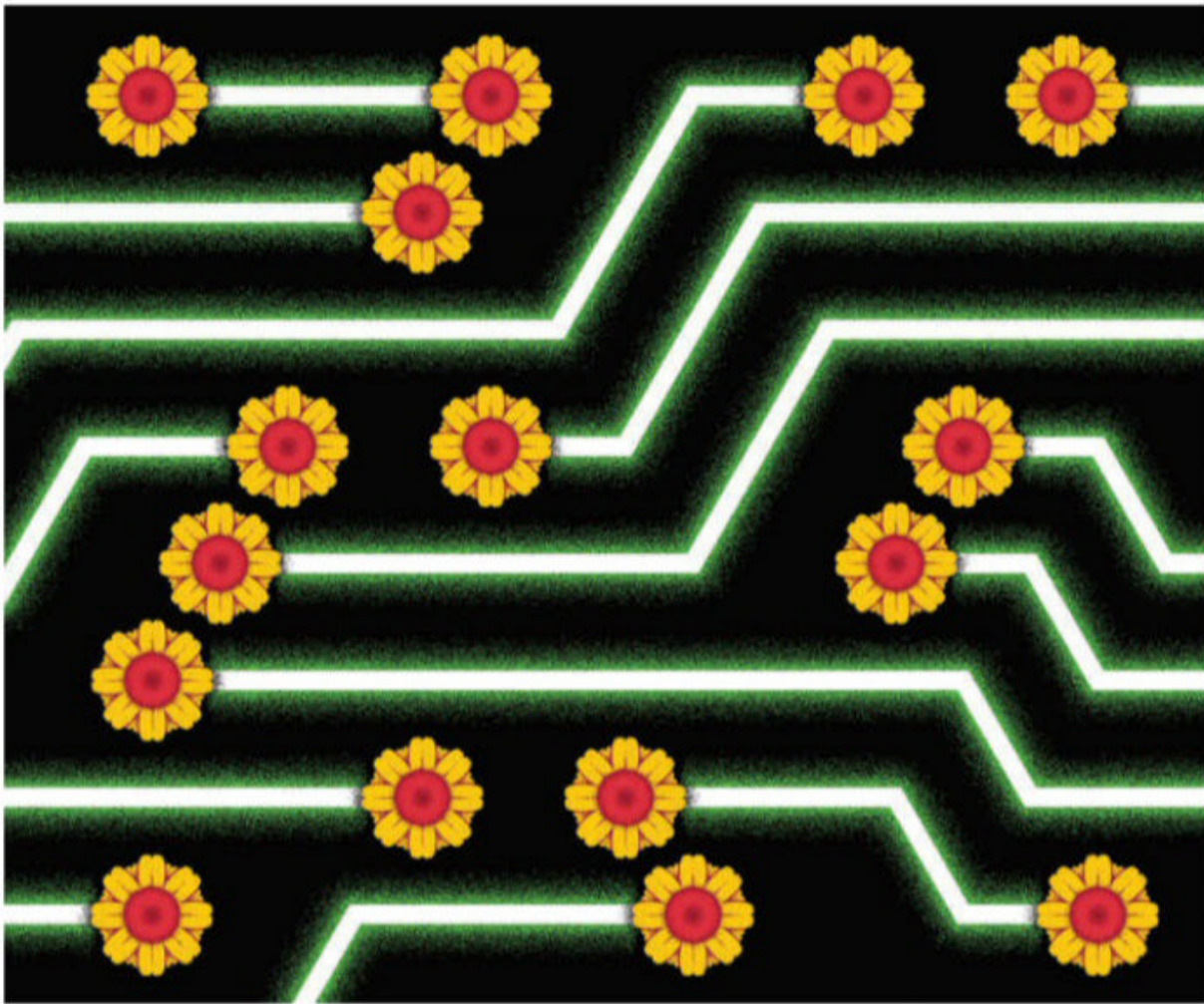
various other non-lab-leak-specific ways. The most obvious explanation is that it does not really want any definitive answer to the question. An unsanitary market, a reckless bat-catcher or a hapless spelunker would not be as bad in terms of blame as a source in a government laboratory. But any definite answer to the origin question probably leaves China looking bad, unless it can find a way to blame someone else. To that end China has called for an investigation of Fort Detrick in Maryland, historically the home of American bioweapons research; state media regularly publish speculations about its involvement.

The possibility of spillover from wild bats does not have to be studied in China. Yunnan abuts onto Laos, Myanmar and Vietnam, and bats are not sticklers in matters of territory. Samples taken outside China could provide a good idea of viral diversity the other side of the border. A thorough evaluation of the existing farm-animal and wildlife trade in the region would also be useful.

Yet there is an inherent risk in such work that needs to be considered. Efforts to uncover the roots of covid-19 by seeking out a natural reservoir of something very like SARS-COV-2 would, by definition, expose people to the sort of risks that can seed pandemics. Ironically, the very possibility of a lab leak raises questions about how most safely to pursue investigations into other possibilities.

When he called for further inquiries in July, Dr Tedros also announced the formation of a new permanent group of pathogen hunters, the International Scientific Advisory Group for Origins of Novel Pathogens (SAGO). He wants it to organise further studies of SARS-COV-2. But it will also need to look at more general questions for the future—such as how to be sure that, come what may, studies of pathogens involved in past disease outbreaks never create further outbreaks of their own. ■





The business of decarbonisation

Climate tech's Netscape moment

NEW YORK

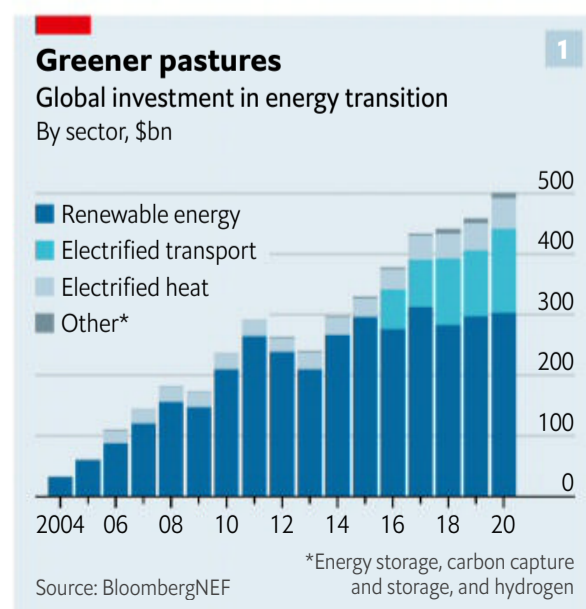
A decade after the previous green-investment boom fizzled, another is under way

“NERDS WILL invent the future,” declared Vinod Khosla in 2010. The venture capitalist was not talking about the sorts responsible for e-commerce sites, games apps or social-media platforms. Rather, his speech at the California Institute of Technology was intended to inspire brilliant engineers and scientists to pursue climate-related innovation. The “clean tech” investment bubble had just popped, so it seemed an unsexy career option. But if top talent took on the hard engineering challenges involved, he argued, commercial successes and rising public awareness would produce a “Netscape-like” moment, referring to the web browser that ushered in the consumer internet in the mid-1990s. “Ten years from now,” he predicted, “the level of invention will explode.”

The billionaire investor, who has since backed Impossible Foods (which makes low-carbon alternative protein and is valued at \$10bn) and QuantumScape (which develops batteries and last year raised \$680m via a special-purpose acquisition company or SPAC), got the timing about right. The International Energy Agency, an intergovernmental group, calculates that

new patents related to core technologies like batteries, hydrogen, smart grids and carbon capture are far outpacing those in other technologies, including fossil fuels.

Money has followed innovation. BloombergNEF, a research firm, reckons that last year investors poured more than \$500bn into the “energy transition” (shorthand for decarbonising everything from energy and transport to industry and farm-



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ing), twice as much as in 2010 (see chart 1). A slug of that has come in the form of risk-tolerant venture capital (vc) flooding into many fields (see chart 2 on next page). PwC, a consultancy, estimates that between 2013 and 2020 vc investments in climate tech grew at five times the rate of global startup funding overall. In 2021 these investments may near \$60bn in America alone (see chart 3), up from \$36bn last year. Can this boom avoid the fate of the previous one and give rise to a blockbuster industry?

The short answer is: quite possibly. The modern climate-tech business looks fitter and more financially sustainable than a decade ago, when vc firms lost over half the \$25bn invested in clean-tech startups between 2006 and 2011. Abe Yokell of Congruent Ventures, an investment firm, recalls that in those dark years, “If you walked into a vc boardroom and said you are working on clean tech, the senior partners left the room.”

Now they are all ears, encouraged by success stories such as Beyond Meat, a rival to Impossible Foods that made its early backers a tidy sum when it went public in 2019 at a valuation of \$1.5bn and is now worth nearly \$8bn, and especially Tesla, the electric-car pioneer whose market capitalisation has ballooned from \$1.7bn when it went public in 2010 to around \$700bn. The S&P Global Clean Tech Index has generated annualised total returns of more than 40% over the past three years, more than double those of the benchmark S&P 500 index of big American firms.

Climate tech now makes up about a ▶▶

▶ tenth of new investments made by Sequoia Capital, a legendary Silicon Valley vc firm. This month Chris Sacca of Lowercase Capital, a high-flying internet investor known for early bets on Uber, Instagram and Twitter, said he would launch climate-tech vc funds worth \$800m. Nancy Pfund of DBL Partners, another vc veteran, reports that whereas in 2004 she barely scraped together \$75m for a clean-tech fund, her new climate-tech vehicle raised \$600m—and was oversubscribed.

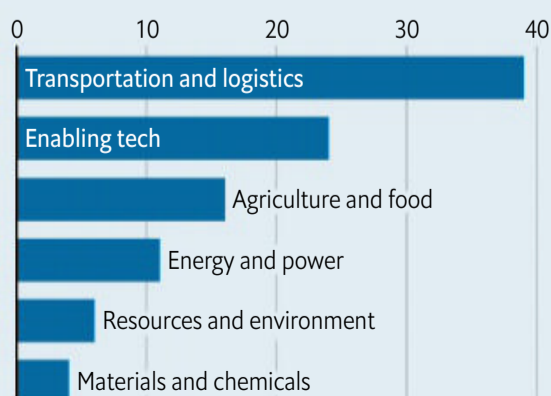
Just as significant, Mr Yokell's listeners have grown more diverse. Besides vcs they include states, philanthropists, Wall Street and big business. And the newcomers are investing in new ways.

Take governments first. On August 12th America's Department of Energy (DOE) announced a \$1.5bn partnership with Breakthrough Energy Catalyst, part of a network founded by Bill Gates (which includes Breakthrough Energy Ventures, a \$2bn-plus blue-sky investment fund the billionaire has set up with a few chums, including Mr Khosla). It aims to accelerate development of novel technologies in sustainable aviation fuel, green hydrogen, direct air capture and long-term energy storage. This augments the \$20bn-plus loan programme that the DOE has available to boost clean energy and transport. If Joe Biden's infrastructure and climate proposals win final congressional approval, more funding for deployment and scale-up of projects may be on the way.

Europe's governments are splashing out, too. The European Commission, the EU's executive arm, has teamed up with Breakthrough Energy Catalyst on a \$1bn initiative to build large-scale demonstration projects for clean technologies. Britain has unveiled plans to invest \$235m in climate-related technologies. Climate is a sensitive issue in China. Nonetheless, says Peggy Liu of JUCCE, a clean-energy NGO, it is the world leader in climate tech. Much of its official spending on "smart" technologies for more efficient factories, better batteries and motors is green-tinted.

Shades of green

United States, venture-capital investment in climate tech, by sector, 2020, % of total



Source: Silicon Valley Bank

Less carbon, more cash

United States, investment in climate tech*



*Data from Cleantech Group's i3 database, includes enabling technologies that serve more than the climate-tech sector

†Forecast

Source: Cleantech Group, PitchBook and Silicon Valley Bank

States are not the only converts to climate investing. Charities and family investment firms are channelling capital into early-stage firms and offering patient capital willing to stick with "tough tech" for longer than a typical vc. By one estimate, family offices of the super-rich account for roughly 10% of total climate-tech vc deals, up from perhaps 5% a decade ago.

Elemental Excelerator, a Hawaii-based outfit part-funded by the Emerson Collective, a philanthropically minded firm set up by Laurene Powell Jobs, the widow of Apple's co-founder, Steve Jobs, looks to fund "first of a kind, transformational projects". Elemental's early-stage investments of \$43m have garnered \$3.8bn in follow-on funding, says Dawn Lippert, its CEO; 20 of its 117 portfolio firms have gone public or found private buyers. Ampaire, which develops hybrid-electric aircraft, was acquired in February for \$100m. Stem, an energy-storage firm, went public via a \$1.3bn SPAC deal in April.

Wall Street wants a look-in. Early this year JPMorgan Chase, America's biggest bank, said it would commit \$2.5trn to sustainable investing over ten years. Of that, \$1trn, which includes the bank's own capital and money raised from bond issues and flotations, is aimed explicitly at clean technologies. "Five years ago, we didn't have the capability to invest in such firms or their vc sponsors," says Brian Lehman of JPMorgan. Now the bank has dedicated employees like him who focus solely on climate and green issues. It is making smallish loans to pre-revenue firms in the sector and will expand into bridge financing between vc rounds and project finance for capital-intensive initiatives like indoor farms and solar-power plants.

Recent weeks have also seen the emergence of a few huge private-equity (PE) funds with a similar remit. In April BlackRock, one of the world's biggest asset managers, teamed up with Temasek, a Singaporean sovereign-wealth fund, to create a \$1bn decarbonisation vehicle. And in July alone PE firms committed over \$16bn to

climate tech. TPG, a Texan PE titan, said it had raised \$5.4bn for its Rise Climate fund. Canada's Brookfield Asset Management announced its own \$7.5bn climate-focused fund, led by Mark Carney, former governor of the Bank of England. General Atlantic, another American PE giant, plans to raise \$4bn for BeyondNetZero (BNZ), a fund focused on climate that will be led by John Browne, a former boss of BP, a British oil supermajor.

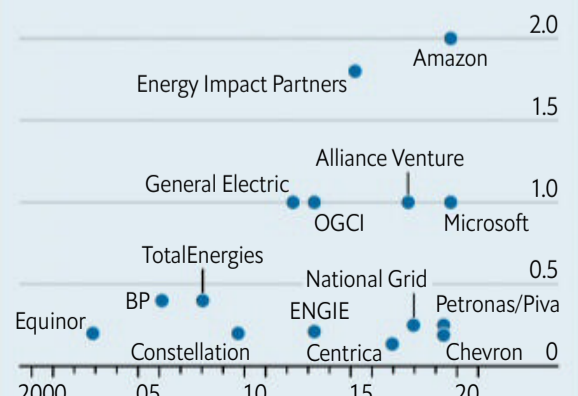
The final group of new climate investors comprises big companies. Many corporate giants are going beyond hollow commitments of greenery and "net zero" carbon pledges by investing directly in climate tech (see chart 4). According to Energy Monitor, a clean-tech web portal, between 2017 and 2020 such corporate venture investment surpassed \$58bn in all.

It looks set to grow. Microsoft, the software giant founded by Mr Gates which last year vowed to remove all the greenhouse gases it has ever emitted—and more—by 2050, has set up a \$1bn climate-tech fund. Its fellow Seattle tech titan, Amazon, has launched one worth \$2bn, financed entirely from its balance-sheet. As such, says Matt Peterson of Amazon, investments need not meet any internal rates of return. "The focus is on decarbonisation, which is a strategic need for Amazon," he explains. Success will be measured by how much investments reduce Amazon's carbon footprint. The fund has backed startups such as CarbonCure, which injects captured carbon into cement, Redwood Materials, a battery-recycling firm started by J.B. Straubel, formerly Tesla's chief technology officer, and Zero Avia, a hydrogen-fuel-cell aviation firm. Amazon has also given money to Elemental Excelerator.

Even carbon-cuddlers are getting in on the action. Koch Industries, America's biggest private firm and a fossil-fuel powerhouse reviled by environmentalists, is putting around \$350m of what it calls "long-term, patient capital" into the energy transformation. Early investments include EVBox Group, which develops the charging ▶▶

Clean in-house

Funds established to support energy-transition targets, selected companies, \$bn



Source: Imperial College London

► infrastructure for electric cars, and Freyr, a Norwegian firm that wants to build car-battery giga-factories in the Arctic.

On August 10th Reliance, an Indian power-to-phones conglomerate, led a \$144m fundraising round for Ambri, an energy-storage startup founded by Donald Sadoway, a professor at the Massachusetts Institute of Technology with a few other clean-tech firms to his name. Reliance is in talks with Ambri (which also counts Mr Khosla among its backers) to build a big battery factory in India. And on August 17th Glencore, a Swiss mining giant with a big coal business, said it had bought a stake in Britishvolt, which is building a \$3.6bn giga-factory in Northumberland.

Big businesses, startups and their vc backers have also learned from past mistakes, as well as recent successes. Their approaches to climate investments have become more sophisticated as a result. One lesson is to go after a large industry that lets people break the carbon habit without sacrificing their lifestyles, says Ms Pfund of DBL Partners. Tesla, on whose board Ms Pfund sat when it was a private company, is a perfect example. Another is Apeel Sciences, which uses plant-based lipids to limit food waste, responsible for more greenhouse-gas emissions than notoriously carbon-intensive cement-making, by extending the shelf-life of produce. On August 18th the company, which DBL has backed, unveiled a new funding round that lifted its valuation to more than \$2bn.

Another novelty is the arrival of late-stage capital. BNZ will back companies from \$50m to \$500m or more in revenues. Lord Browne insists that, thanks both to supportive policy and growing public awareness of global warming, there is no longer a trade-off between tackling greenhouse gases and making a profit. On the contrary, he says, firms can reduce emissions while earning bigger returns. He is on the lookout for companies that could become “the Amazon of electricity”, and has no doubts that “some are going to grow to that size”.

The rise of late-stage vc and participation of PE firms is a healthy development for the climate-tech ecosystem, thinks Shaun Maguire of Sequoia. The industry needs innovative debt financing, so PE “can be quite useful”, he says. It could help the 95% of entrepreneurs who have historically failed to secure follow-on funding, agrees Laura-Marie Töpfer of Extantia, a Berlin-based climate-vc fund.

Plenty of late-stage and growth capital may give earlier-stage vcs more confidence with startups working on hard tech.

And the strong environmental, social and governance (ESG) commitments of PE funds will dramatically change founders’ incentives. To be an attractive investment, Ms Töpfer says, founders and their backers must ensure that ESG “is baked into firms from day one”.

The final lesson is the importance of collaboration. Where in the past vc firms backed startups chasing similar approaches to making thin-film solar panels, new climate-tech investors are open to working together to spread risk and speed up development. Glencore will provide Britishvolt with cobalt for its car batteries. Reliance would be a customer of the new giga-factory, not just its sponsor. Besides forking over \$1bn to Rivian, which makes electric vehicles, Amazon has also ordered 100,000 vans to help decarbonise its e-commerce

delivery fleet. No vc has that sort of purchasing power.

Brookfield wants to use the low-carbon know-how from its many investments in big renewable-energy projects to help big companies meet ambitious decarbonisation targets. Connor Teskey of Brookfield says the sort of partner his firm has in mind is ArcelorMittal. In July the giant steelmaker unveiled a strategy to cut its global carbon emissions by 25% by 2030 at a cost of \$10bn. “A tech vc fund with just \$100m can’t do this,” says Mr Teskey. Large firms want “a partner who can write you a \$1bn cheque”.

This new spirit of co-operation matters because, in the words of Carmichael Roberts of Breakthrough Energy Ventures, “in climate tech, everything is hard.” Everything, that is, except raising capital. ■

Low-cost airlines

Long-haul sally

More carriers try to go the distance with no frills

PERHAPS JETBLUE believes that the sky is darkest before dawn. On August 11th America’s sixth-biggest airline, known for its no-frills domestic services, launched its first transatlantic flights, between New York and London. The timing seems plucky. America has yet to follow European countries in lifting tough pandemic-era cross-border travel restrictions. Industry insiders think that long-haul travel will be the last sort to rebound. And low-cost intercontinental travel has historically been a tough business. Can JetBlue crack it?



Business coach

The flight path of failure can be tracked from Freddie Laker’s Skytrain in the 1970s, via People Express, Tower Air and Air Berlin, to the more recent hard landings for Denmark’s Primera Air in 2018 and Iceland’s wow in 2019. Norwegian Air Shuttle, which had captured a third of the worldwide low-cost-long-haul market, gave up on it in January, a victim of reckless expansion as much as of covid-19. Even survivors have little to shout about. Malaysia’s AirAsia x has made an annual pre-tax profit only twice since it went public in 2013.

Budget airlines have transformed short-haul flying by running simple point-to-point operations that eschew the hassle of connecting passengers across a complex network. They keep aeroplanes in the air for longer each day than full-service rivals do, fly from less popular airports at ungodly hours when charges are lower, cram punters into minimal legroom, charge extra for every tiny comfort and keep labour costs down by employing fewer and cheaper staff.

These tricks do not translate well to long-haul travel. Sweating costly assets is harder on a ten-hour journey crossing several time zones than when darting around a region with fast turnaround times. That makes it difficult to schedule flights to take off and land at those odder, cheaper times. And exhausted crew must be accommodated in hotels rather than being immediately rostered back to their own beds at the end of the day.

▶ JetBlue thinks it can overcome these obstacles. In contrast to Norse Atlantic, a new carrier that thinks it can make better use of the wide-body Boeing 787 Dreamliner, 15 of which it is now leasing, the American airline is using a new breed of aircraft, the Airbus A321LR. This is a long-range version of the European planemaker's single-aisle short-haul workhorse. These are cheaper than wide-body jets. They are also smaller, and so easier to fill.

And JetBlue has another card to play. The standard business of long-haul flying makes competing on price difficult. Full-

service airlines rely on selling lucrative business-class seats at the front of the plane for the bulk of their revenues and profits. As a result, they can afford to sell economy seats relatively cheaply. Unlike most earlier low-cost efforts, JetBlue's planes will include 24 business seats which should plump up margins. To attract business passengers it has steered clear of remote airports that executives dislike and picked up slots at Heathrow freed up by pandemic flight cuts.

JetBlue plans a further service to London Gatwick starting in September and

from Boston to London next summer. Norse intends to fly between several European and American destinations. But full-service carriers will not take the challenge on their most lucrative routes lying down. American carriers succeeded in lobbying their domestic regulators to slow Norwegian's expansion. Incumbents including IAG, owner of British Airways, have launched their own low-cost-long-haul subsidiaries. Laker offers a sobering lesson. He successfully sued several legacy airlines for predatory pricing—but only after he had been forced out of business. ■

Bartleby Nearly out of office

Is it worth working (a little) while on holiday?

AMERICAN OFFICE workers of an envious disposition must avoid emailing colleagues in Europe this month. The inevitable "try me again in September" automatic rejoinder is unlikely to improve the mood of those spending most of their summer toiling. Perhaps one consolation is the knowledge that holidays are not what they used to be. Rare is the employee who leaves all their work behind these days. Plenty of people will at least furtively scroll through emails while on the beach. Everyone has occasionally shirked work. Now many workers are shirking holidays, too.

In the olden days, office life used to be binary. Establishing whether Bob from accounting was on annual leave was as simple as checking whether he was at his desk. Then BlackBerrys—the executive status symbol of the early 2000s—were granted to those who implicitly agreed to use them outside office hours.

Now everyone has smartphones tethering them to their inbox, and the pandemic means Bob has probably not visited the corporate headquarters for several months or more. Whether he is on holiday or not might be immediately clear only to him, his line manager and the buggy HR computer system logging his days off.

Bosses are mostly mindful not to demand that their underlings do anything while on statutory leave. In Europe policymakers talk of a "right to disconnect", which allows employees to leave their day jobs behind during holidays (as well as evenings and weekends). But the right is not an obligation. And some individuals might find a small dollop of work a respite from their time off. Even the most petulant colleagues can be more relaxing to deal with than one's own children.

A few workers find ways to delete the work email app from their phones. And there are arguments for being a holiday hardliner. Time away from work serves to clear the mind. Plenty of jobs now require a measure of inspiration. A stretch away from the office helps, all the more so if it is an actual break, complete with a change of scenery away from home. French workers, many of whom live up to the stereotype of taking much of August off, are expected to fizz with ideas come September.

Severing all links to your quotidian tasks can be salutary for employers too. Refreshed workers are less likely to burn out. Fraudsters inside companies are known to be reluctant to take vacation days, lest colleagues covering for them unveil the mischief. After Jérôme Kerviel, a holiday-dodging French trader, blew a €5bn (\$7.4bn) hole in the balance-sheet of Société Générale, a big lender, in 2008, regulators insisted that some bankers be forced to be away for two consecutive weeks so as to make future fraud harder. Even if no one is cooking the books, enforcing a more complete cut-off lets tasks

be passed to someone else in the organisation. That builds resilience.

What is the right balance? Nobody suggests toiling on leave at the same pace as in the (home) office. But most people will conclude that if a few minutes spent answering emails can save a stranded colleague hours of work, it would seem churlish not to step in. If nothing else, keeping even a distant eye on things can make a return to the job—whether after a week off or even a month—less daunting. Who wants to deal with thousands of unread emails on their return?

And plenty of professionals quite like what they do for a living, even when they aren't meant to be doing it. Staying loosely connected might encourage people to take their full entitlement of holidays: in America, more than half of workers reported not taking their share even before the pandemic roiled their working lives.

An intriguing possibility is that the rise of remote work will spawn a new type of holiday. Among his European contacts Bartleby has glimpsed some exotic Zoom backgrounds of late. Some people are "working from home" in what look to be pretty swish holiday destinations. One executive admitted that, having decamped to a Greek island for a couple of weeks in the past, he is now spending most of the summer there. He is toiling a touch less than full whack during the weeks he is meant to be working—but putting in a few hours a day during what is meant to be time off.

Thus the binary nature of holidays—either you are working or you aren't—may yet become another casualty of covid-19. Plenty of thought has been given to how the pandemic has changed how people work. It may end up altering how they don't work, too.



China Inc abroad

SEA change

Tech titans eye South-East Asia

CHINA'S TECHNOLOGY giants are having a torrid time. At home, a regulatory crackdown is intensifying. In the latest move, on August 17th the authorities released draft antitrust rules that would hurt the business models of titans like Alibaba and Tencent. In the West, meanwhile, governments want to make it harder for Chinese companies to do business in their countries and, in America's case, to list shares. Some global asset managers are calling Chinese tech stocks "uninvestable".

The firms are thus casting around for friendlier climes. Foreign markets account for a relatively small share of the Chinese groups' sales. Tencent made around \$5bn in revenues outside mainland China last year, less than 8% of the total. So little of Alibaba's income is derived from abroad that the company doesn't bother publishing a geographical breakdown. If it were to start, however, no place would feature more prominently than South-East Asia.

The region is home to nearly 700m people, fast-digitising economies and, crucially, no hardened geopolitical persuasion. Having taken an interest in South-East Asian online darlings such as Lazada (an e-commerce venture majority-owned by Alibaba) or Sea Group (in which Tencent holds a 23% stake), China's giants are expanding more directly in the region. Last year Alibaba bought half of a 50-storey skyscraper in Singapore, the regional commercial hub. Tencent and ByteDance, the unlisted owner of TikTok, a hit short-video app, have also opened beachhead offices there and set out on local hiring sprees.

Cloud computing presents a particular opportunity. Although the cloud market's total size in South-East Asia is still relatively small, at less than \$2bn a year, it grew by more than 50% in 2020, and shows no signs of slowing. And the Chinese firms are winning an ever greater share of this ever larger pie, mostly from Amazon Web Services (AWS), the American e-commerce empire's cloud division.

According to Gartner, a research firm, in 2020 Tencent, Alibaba and Huawei, a privately held telecoms colossus, had 22% of the cloud market in South-East Asia and the smaller Asia-Pacific economies, up from 18% in 2019. This year Tencent opened its first data centre in Indonesia and its second in Thailand. In June Alibaba said it would build its first in the Philippines.

Unlike AWS and its American cloud ri-

vals, Google Cloud and Microsoft's Azure, Chinese firms are comfortable with the principle of data localisation. Many South-East Asian governments mandate that data about their citizens be processed and stored in their territory. Whereas Microsoft and AWS publish reports on the data requests made to them by governments and law-enforcement agencies, Chinese firms do not. This makes the Chinese services attractive to authorities unwilling to compromise on localised data. It also complicates embryonic efforts by America to negotiate a digital trade pact with Asian countries, which would almost certainly try to limit data localisation.

Even before it contributes a big slug of revenues, business activity in South-East Asia is a way to learn what works outside China, notes Tan Bin Ru, the regional boss of OneConnect Financial Technology, a subsidiary of Ping An, a huge Chinese insurer. The environment is both familiar (with millions of Chinese-speakers, who often dominate commerce) and diverse (with different legal jurisdictions and a wide range of income levels). Asian companies have used the region as a staging post to global conquest in the past, notably Toyota, which began its international expansion in Thailand in 1957. China's giants would love to follow in its tyre tracks. ■

Online weddings

Updating vows

MUMBAI

The pandemic is shaking up India's love business

INDIAN NUPTIALS can be garish affairs. The groom often rides to the venue on a horse, or a Royal Enfield motorcycle. Portable DJ sets, fired up by car batteries, blare out Bollywood hits. Traffic on busy streets is routinely blocked to accommodate wedding processions. Matrimony in India is also big business. KPMG, a consultancy, estimates the wedding industry's revenues at roughly \$50bn. Before the pandemic these were growing by 25% a year.

As elsewhere, covid-19 has forced many Indian couples to postpone tying the knot. It may also have changed the way they go about it. With big weddings on hold because of their superspreader potential, many informal caterers, coconut-water sellers, ice-cream shops, wedding-card printers and flower vendors are struggling as weddings are put off. Online services, by contrast, are thriving. Matrimony.com, one of the biggest, has reported a rise in revenues of at least 20%, year on year, in each of its past four quarters. Shaadi.com,



Trotting into cyberspace

among the oldest such sites in India, has seen a jump in subscribers. And wedding platforms that help families to organise and even conduct weddings online are popping up.

Digitisation even extends to courtship. Prospective brides and grooms can no longer introduce themselves in person, sometimes perform on stage, and sit for interviews with their pick's parents across a desk, speed-dating style. But in India, where arranged marriages remain common, parents and matchmakers still have to be involved. And so now does Zoom.

Murugavel Janakiraman, boss of Matrimony.com, expects its new video-calling feature for introductions to persist—not least because it deals with the common grouse from customers that their chosen one's profile picture embellishes reality. During nationwide lockdowns last year video calls also allowed couples to continue their wooing virtually. Jeevansathi.com, another big matchmaker, saw its number of video meetings rise more than 11-fold. Call duration rose by a factor of ten.

Pre-wedding functions are also increasingly online. Couples seek the blessing of elders by touching the laptop screen in lieu of their feet, says Kanika Subbiah, founder of WeddingWishList.com, a wedding platform. WedMeGood, an app, hosts vendors like makeup artists, photographers, caterers and priests (along with their vaccination status).

Some cautious families have arranged visits by health-care workers to guests' homes to have them tested before they attend a wedding in person. Alternatively, you can celebrate remotely. WeddingWishList has hosted more than 100 weddings in its virtual rooms. And the business opportunity does not end when the last reveller runs out of steam. Ms Subbiah has extended her services to online baby showers. ■

Schumpeter | Primark's slow fashionistas

How to sell a T-shirt for \$3.50 and still turn a profit



SET OUT for a shopping trip with \$100 and you can snap up a pair of Levi's jeans or half an Hermès necktie. Or you could pop into Primark and fill a wardrobe. The discount purveyor of fast fashion, which is expanding in America from its base in Europe, will flog you a T-shirt for \$3.50 and trousers for a tenner. Such prices seem too good to be true to campaigners, who assume they can only be the result of corner-cutting in a sector rife with dodgy labour practices. Rivals such as Zara of Spain and H&M of Sweden, which used to be considered cheap before Primark came along, already run tight ships and squeeze suppliers hard. What is Primark doing so differently that it can sell wares for less and still make money?

A lot, it turns out. Though Primark looks as if it is in the same trade as its budget rivals, beneath the seams its business model could not be more different. On strategic decisions the firm has zigged when much of the apparel industry has zagged. As other firms try new approaches, such as rejigging their business for the internet age, Primark has doggedly stuck to a stack-it-high-sell-it-cheap approach to retailing that would feel familiar to the manager of its first store, opened in Ireland in 1969. The strategy has limitations, particularly when it comes to new growth. But for now—and notwithstanding the odd pandemic—it is proving its worth.

The giants of fast fashion have grown by embracing speed. Starting in the 2000s Inditex, which owns Zara, made a name for itself by raising the metabolism of the apparel sector. Previously shoppers had to wait entire seasons for high-street brands to replicate the catwalk's new looks. It took at least that long to get fresh frocks made and shipped from distant Asian factories with long lead times. Zara stole a march on the industry by manufacturing some of its collection in Europe, allowing it to get designs in shops in just a few weeks. Like a hot pair of heels, the business model was soon aped across the industry. When impatient consumers moved online, Zara, H&M and others hurriedly followed them there—never mind the iffy economics of home delivery.

Primark, which is part of Associated British Foods, a conglomerate worth £16bn (\$22bn) that also sells bread and Twinings tea, has stayed in the slower lane. Its bet is, broadly, that shoppers will accept being a little less cutting-edge in return for big savings. Designs are simple to keep stitching costs down. Where fancier rivals

boast that every shop has a unique assortment of regularly updated goods, Primark orders millions of the same frocks months before they arrive on the shelves. That is a lifetime in the age of Instagram influencers. But it lets Primark charge frock-bottom prices.

This strategy allows it to concentrate manufacturing in lower-cost countries, notably Bangladesh, where monthly wages in the garment sector start at around \$100. These are often the same factories used by other global retailers, which ought to blunt criticism that Primark is an outlier when it comes to labour practices. The firm does sensible things like limit subcontracting and conducts lots of audits to ensure working conditions are adequate. And its slower approach means orders can be placed in fashion's off-peak periods, when factories are grateful for the work. Manufacturers know they can keep staff busy stitching Primark dresses during lean weeks, while slotting in more lucrative short-turnaround runs for less patient brands. Clothes are shipped to end markets by the slow boat.

The cost savings are passed on to consumers, with some left over for shareholders. Before the pandemic jumbled up everyone's books Primark reported a gross margin—sales minus the cost of stuff sold—of 41%. That is well short of Inditex's 57% or H&M's 53%. But Primark's parsimonious nature extends to operating expenses. It has relentlessly squeezed the costs of marketing and selling goods. Factor this in and it ends up with an "EBIT" margin of around 12%—in line with the industry standard.

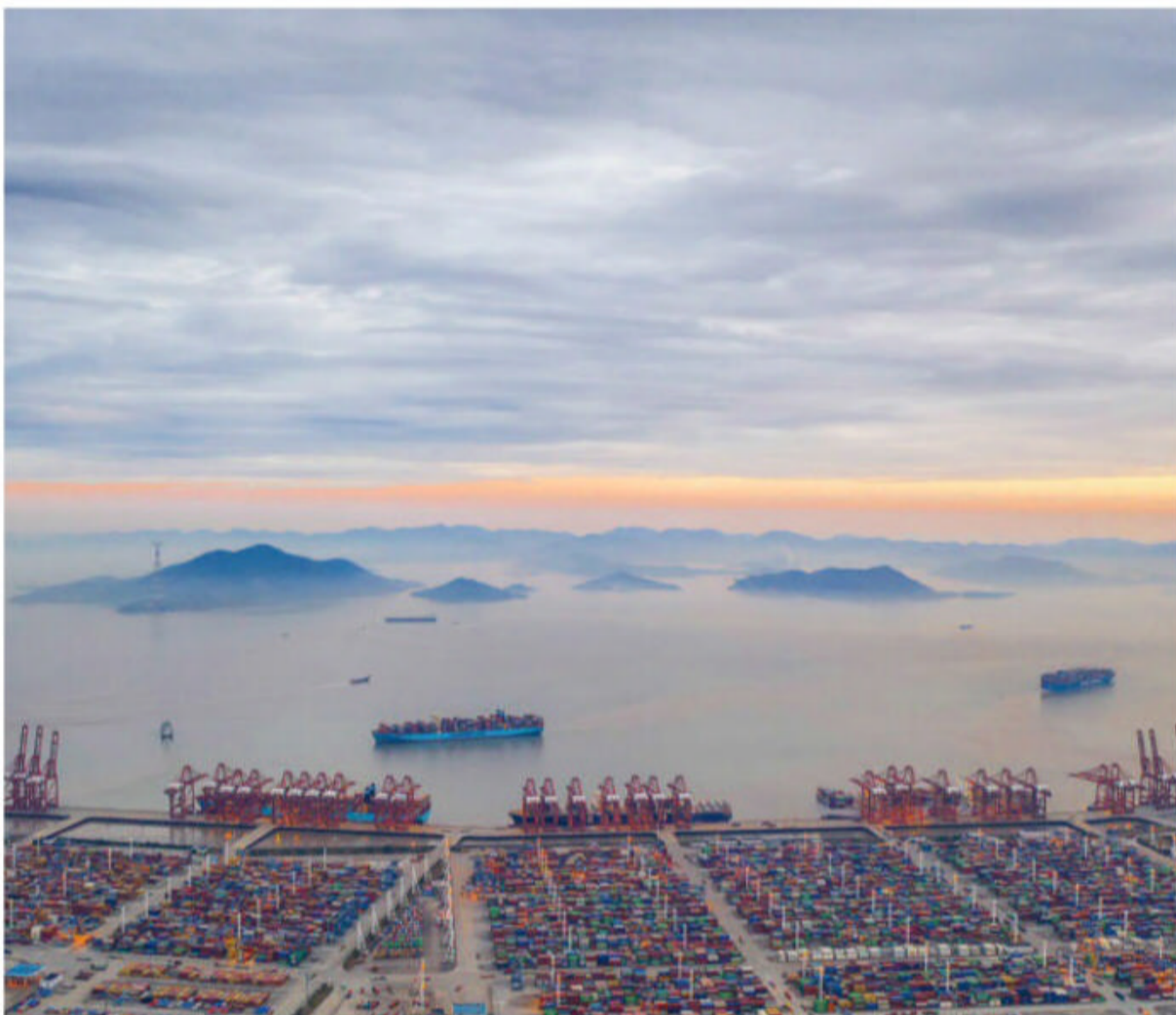
Some of this is down to common-or-garden penny-pinching. While H&M spends 4% of total sales on marketing, Primark runs almost no ads. In an industry that often discounts, which crimps margins, Primark assumes its prices are already low enough. Outside Britain its outlets are enormous—on average, nearly six times the size of those run by Inditex—and often in out-of-town malls where rents are cheap. The jumble-emporium vibe they exude works: Primark sells about ten times as many items as H&M per square metre of shop, according to Aneesha Sherman of Bernstein, a broker. On a recent visit, a young shopper in front of Schumpeter in the queue to the fitting rooms took in 14 items.

Where Primark has strayed furthest from the fashion pack is in its refusal to sell anything online, which it sees as unfeasible at its price points. That has kept margins plump as the company avoided a wedge of spending on developing apps and fulfilment capabilities. The lack of an online presence meant that Primark lost up to 100% of sales as the pandemic shut shops around the world. Extended closures, especially in Britain, home to about half of its 380 outlets, cost it £3bn in sales and perhaps £1bn in profit.

Hare-brained or smart as a tortoise?

Primark's cost-slashing strategy is so multifaceted as to be virtually impossible for rivals to replicate, argues Ms Sherman. Still, its idiosyncrasies hit limits of their own. The pace of expansion of shops, which is limited to Europe and America, feels glacial to investors—but go any faster and the model's delicate economics may stop working. Critics wonder about the environmental sustainability of \$1 knickers. And new online rivals look menacing, particularly Shein, a fast-growing Chinese super-discounter.

Yet the queues outside Primark shops as they reopened after shutdowns suggest that some punters cannot wait to splurge in person. Sales are now higher than before the pandemic, helped by the covid-linked disappearance of some once-fearsome rivals, such as Topshop in Britain. In the world of fast fashion, slow, steady and cheap can be a winning strategy. ■



China's economy

Delta neutral

HONG KONG

The battle against covid-19 is compounding an economic slowdown—and feeding global supply disruptions

TRADE HAS flowed through the port of Ningbo on China's east coast since the Tang Dynasty in the 8th century. After the first opium war ended in 1842, it was one of five points of entry forcibly opened to foreign merchants. And in the first half of this year the port (which merged with the nearby Zhoushan port in 2015) handled more tonnes of cargo than anywhere else in the world. A tour group of 80 students recently spent three days admiring the free-trade zone and the port's "hardcore" power, as the Ningbo city government put it.

But on August 11th activity at one of the port's busiest terminals came to an abrupt halt. A 34-year-old dockworker, who had come into contact with visiting crews, was diagnosed with the Delta variant of covid-19 despite having received two shots of the Sinovac vaccine. That solitary infection was all it took for the government to shut down operations and consign 254 of his close contacts (and a further 396 of their contacts) to quarantine.

The case is revealing in three ways. It illustrates once more how hard it is to keep the Delta variant at bay. It demonstrates

how hard China will nonetheless try to do just that. And it shows how widely around the world this struggle will be felt. The terminal shutdown follows a similar closure at Yantian port on China's south coast in May (as well as disruptions wrought by last month's typhoon In-Fa). It now takes about 70 days for ocean freight to travel from its point of origin in China to its final destination in America, compared with 47 last August, according to Freightos, a digital freight marketplace. Some experts worry that the shipping delays and the prospect of future shutdowns may even disrupt Christmas shopping in the West.

The port infection is part of an outbreak that was first discovered on July 20th at Nanjing airport. By August 10th it had spread across a dozen provinces. Unlike other countries, which are learning to live with Delta, China has imposed a hardcore combination of widespread testing and uncompromising quarantines. Anyone who tests positive is whisked to hospital, even if they are free of symptoms. Anyone judged to have come into close contact with them (based on mobile-phone data

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and other indicators) is quarantined, as are close contacts of these contacts. By August 10th China had quarantined 50,808 people, more than 20 for every active confirmed case. The government has discouraged non-essential travel between cities and provinces. And two of the worst-hit cities, Nanjing and Zhengzhou, have postponed the start of the school year. According to a gauge of lockdowns devised by Goldman Sachs, a bank, China's restrictions are now as tight as they were in April 2020.

Their impact is already showing up in high-frequency data. The median amount of traffic congestion in the 12 cities most affected by the outbreak has fallen almost 13% below its pre-pandemic norm, according to Ernan Cui of Gavekal Dragonomics, a research firm. And airports were operating at only 38% of their capacity on August 12th, according to Flight Master, an online-travel platform.

This immobilisation will add to an economic slowdown that was already under way. Industrial production, retail sales, investment and property sales were all weaker than expected in July (see chart on next page), partly because the government is trying to curb steelmaking to preserve the environment, and housing speculation to preserve financial stability. Ting Lu of Nomura, another bank, expects GDP to be only ▶▶



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The slowdown on slowdown

China, % change on two years earlier
2021, annualised



▶ 0.3% higher this quarter than last. He has cut his forecast for growth this year from 8.9% to 8.2%, which might warrant further easing from China's central bank, even as housing curbs remain.

The slowdown is moving markets at home—the CSI 300 index of large Chinese stocks fell by 4% in the week after August 10th—and abroad. The price of iron ore has slumped by more than 20% since the end of last month; copper has fallen by more than 5%. China's tough stance will also prevent any revival of foreign travel. That is bad news for places like Thailand, which relied on Chinese visitors for almost 30% of its tourist receipts before the pandemic.

China's fight against Delta will be costly. But it is also proving successful. New local infections (excluding imported cases) dropped to just six on August 16th. The outbreak has started to narrow in scope as well as scale: 134 neighbourhoods remained at risk, by the government's reckoning, down from 224 on August 10th.

China has both an unusual ability to contain Delta outbreaks and a strong incentive to do so. It lacks two of the characteristics that have allowed other countries to tolerate an otherwise disturbing rate of Delta infections. Relatively few of China's people have caught covid-19 in the past. As a consequence, few have any natural immunity to the disease. And although a respectable percentage of the population has received two jabs (over 55%, according to the government) China's vaccines appear less effective than Western versions. The share of China's population that enjoys some kind of immunity is lower than India's or even Indonesia's, according to Goldman Sachs, even though its vaccination rate is far higher. If China were to drop its defences and tolerate the infection rates common in America and Europe, the number of people suffering from severe illness could rise to alarming levels.

China is unusually good at fighting Delta. And it needs to be. Having failed to fail against previous waves of the disease, it is now obliged to succeed again. ■

Emerging markets

Feeling the heat

WASHINGTON, DC

As inflation rises, policymakers in poor countries face a stern test

IT HAS BEEN a long few months for the emerging world. Punishing temperatures—July was the hottest month on record worldwide, according to a recent analysis—fanned fires on Turkey's Mediterranean shores and scorched Russia's wheat fields. Covid-19 rages across countries with low vaccination rates. Just 24% of Brazilians, 9% of Indians and 7% of South Africans are double-jabbed. On top of everything else, inflation is running hot, too.

Soaring food and energy prices have pushed inflation to uncomfortably high levels. In Brazil consumer prices are 9% higher than they were a year ago (see chart), more than twice the central bank's target. In Russia inflation is 6.5%, well above the central bank's aim of 4%. Inflation in India, which had been high in 2020, rose above 6% this summer—north of the Reserve Bank's target range. Policymakers in poorer countries have navigated a fraught path this year. The outbreak of high prices lays another severe test at their feet.

Growth has mostly resumed, despite the continued ravages of covid-19. In parts of the emerging world, such as India, output has already regained its pre-pandemic level. In others, such as Russia, it is expected to do so by the end of the year. Soaring prices for oil, metals and agricultural products have been a boon for commodity exporters. But recoveries have been frustratingly uneven. Better times for export industries have not always translated into broader labour-market recovery. Business is booming in Brazil's mining towns, for instance, but the unemployment rate across the country, at 14.6%, has scarcely declined from its pandemic peak.

The numbers are up

Consumer prices
% increase on
a year earlier



Central-bank
interest rates
%



Source: Refinitiv Datastream

That, in turn, has placed pressure on governments to extend or even increase spending on relief programmes. Economic growth is boosting tax revenues in many countries, improving the public finances that were battered by covid-19. Still, fiscal deficits remain large. A decision in June to expand grain handouts means that India's central government is likely to borrow more than the 6.8% of GDP expected in the budget for the 2022 fiscal year. Brazil, which borrowed an eye-watering 13.4% of GDP last year, has extended its emergency cash transfers. Chile and Colombia, which limited their borrowing to a modest 7% of GDP in 2020 last year, are planning to borrow about as much or more this year, according to the Institute of International Finance, a bankers' group.

When you combine more money flowing through the economy with supply disruptions, though, the result is inflationary pressure. Emerging-market central bankers, like their rich-world counterparts, argue that high inflation is merely temporary. But, unlike their advanced-economy peers, some have not felt comfortable enough to wait and see. They have more recent experience of bouts of high inflation, and doubt that public expectations of low inflation are as firmly anchored as in rich countries. They have thus moved forcefully to rein in inflation. Brazil's central bank raised interest rates by a full percentage point on August 4th, on top of three increases of 0.75 percentage points each since March. The Central Bank of Russia also announced a full-point rise on July 23rd, also its fourth of the year. Mexico and Peru raised interest rates on August 12th. Other central banks that have held fire are expected to tighten in coming months.

This determination to curb inflation may have kept foreign investors interested. Early this year some economists worried that a roaring recovery in America and the prospect of higher interest rates there could lead to a rush of money out of emerging economies: an echo of the "taper tantrum" of 2013, when the Federal Reserve began normalising monetary policy after the financial crisis. An uptick in American Treasury yields in February and March this year was accompanied by a slowdown in portfolio flows to emerging markets, seemingly presaging worse to come.

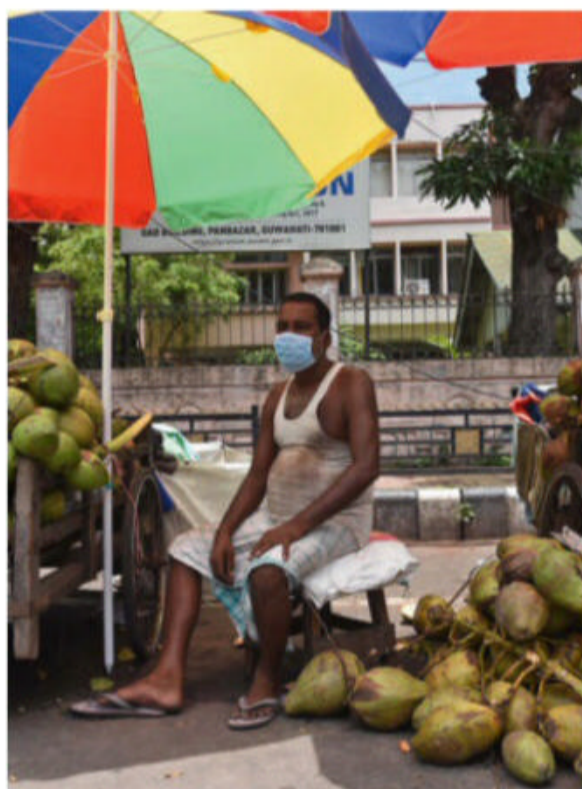
That has not materialised, however, and not only because Treasury yields have dropped back from their spring highs. It also reflects a more robust policy framework in emerging economies, and greater resilience to market swings. In recent decades they have built up foreign-exchange reserves and limited their dependence on foreign-currency debt. Most survived a severe squeeze in March 2020, when panicked investors rushed to havens and emerging markets' currencies tumbled, ▶▶

▶ with minimal economic damage.

By comparison, recent exchange-rate wobbles have been modest, which has limited the extent to which higher import prices add to inflationary pressure. So far this year the Brazilian real and the Indian rupee have weakened against the dollar by about 2%. (The real sank by nearly a quarter last year, and by about 20% during the ructions of 2013.) Vigilant central banks probably helped keep investors from growing skittish.

But higher interest rates are tough medicine at home. Large increases pose a risk to growth. Slower growth in turn hurts the public coffers, even as higher interest rates raise governments' borrowing costs. Among the large emerging economies, the risk of a crisis is perhaps most palpable in Brazil, where a loss of confidence in the public finances contributed to a deep recession in 2015 and 2016. If the fiscal risk premium that bond-buyers demand continues to rise, then the government may soon face a terrible choice between slashing spending while unemployment remains high and a full-blown fiscal crisis. Indeed, on August 12th Roberto Campos Neto, the head of Brazil's central bank, fretted that markets were beginning to perceive a "fiscal deterioration" that could jeopardise economic recovery.

Recent woes only make the inflation problem starker—and at risk of spilling over to other countries. A severe drought in Brazil has reduced the capacity of its hydroelectric plants and sent energy prices soaring. It also threatens the production of export crops like coffee, leading to reduced supplies and higher prices. Low levels of the Paraná river have forced firms like Vale, a mining company, to reduce the loads of iron ore being carried on barges, causing



Prices are going nuts

global shortages. Russia's government is taxing wheat shipments abroad, contributing to higher prices worldwide.

The fever could break later in the year, as bottlenecks ease and as demand from America and China cools a little. Yet there is also a risk of new disruptions: fresh outbreaks of covid-19, more natural disasters or social unrest, perhaps related to higher food prices. And for exporters like Brazil, softer commodity prices bring their own problems, such as a tumbling currency and an economic slowdown. A turn for the worse in one country could sour investor sentiment towards other places. Emerging markets have handled the economic strains of the past 18 months with fortitude. But a break in the heat cannot come soon enough. ■

Neobanks

New tricks

NEW YORK

Can the popularity of digital-only banking apps outlast the pandemic?

“WHAT DO YOU think we are, a bank?” scoffs an advertisement for Current, a neobank, on New York's subway. It goes on to paint bank branches, poor customer service and overdraft fees as relics. The company is one of a hundred-odd “neobanks” vying to shake up retail banking in America, and which have exploded in size and number in the past year. On August 13th Chime, the country's biggest neobank, raised a round of funding that valued it at \$25bn—about the same as America's 13th largest listed bank.

As the advert suggests, most neobanks are not technically banks. They offer debit cards and online banking services through snazzy apps. But instead of obtaining a banking charter, which is onerous, costly and time-consuming, they often negotiate partnerships with small regional lenders, which hold and insure customers' deposits. The startups pride themselves on their speed: they typically deposit paycheques a few days faster than large banks and, thanks to simpler identity checks, open accounts in minutes, even for customers with poor credit histories.

Unlike conventional banks, which also earn money on overdraft and other fees, neobanks make most if not all of their money from interchange fees on debit-card transactions. Regulators allow small banks to charge at least double the interchange fees that large ones do; the benefit is passed on to the fintechs that latch on to them. In exchange, partner banks grow the pool of deposits against which they lend.

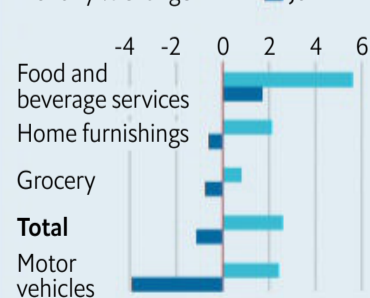
The pandemic partly explains neobanks' success. Lockdowns nudged customers to open online bank accounts from home. That neobanks cashed stimulus cheques swiftly probably also helped. According to Apptopia, a data provider, the number of monthly active users of neobank apps doubled between July 2019 and June 2021, while those of traditional banking apps shrank a little. Top neobanks boasted nearly 20m downloads in the first half of this year alone.

The underlying drivers of the boom, though, are long-standing. Many customers have been poorly served by the financial system, if not shut out altogether. (The Federal Reserve estimates that one in five adults were either unbanked or underbanked in 2018.) The larger neobanks aspire to help those living paycheque to paycheque; others cater to specific under-

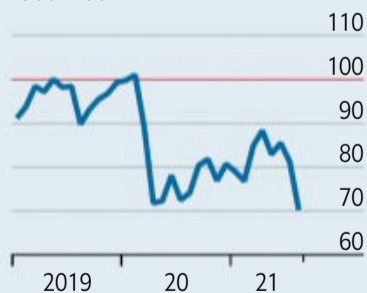
Cool customers

United States

Retail sales, 2021
Monthly % change



Consumer sentiment
1966=100



Economic activity†, 2021

% decrease from pre-pandemic level‡



*Average monthly change †Visits to workplaces, stations, retail outlets and recreation sites ‡Seven-day moving average
Sources: Google; University of Michigan; US Census Bureau; The Economist

The dog days of summer

Flush with stimulus cash and a hoard of savings, consumers have powered America's recovery. But the fervour is cooling. Figures released on August 17th showed that retail spending shrank by 1% in July compared with the previous month. Some of that could reflect disruption to the supply of cars. But caution about covid-19 may be playing a role too. Sentiment has fallen steeply, and mobility indicators have stalled.

► served groups such as migrants. Social purpose aside, this makes business sense: such customers tend to save little and spend often, which suits the interchange-fee business, explains Max Flötotto of McKinsey, a consultancy. Jarad Fisher of Dave, another neobank, hopes that, once in the system, customers “graduate” to using more profitable services. To that end, his firm helps consumers find gig work.

Optimists say incumbent banks will struggle to compete with neobanks, given the difficulty of modernising technology and customer service, and the risk of can-

nibalising their fee-based business. Banks’ shareholders may also be less keen on innovation than venture capitalists, says Scott Galloway of New York University.

But the challengers face hurdles, too. A business based on interchange fees is only viable if costs are contained and volumes are high. All neobanks must bleed cash building trust with the hesitant underbanked and luring the already banked with freebies, but life is especially hard for the small ones that chase narrow customer segments. Chime aside, few firms turn a profit. Surveys suggest that a small fraction

of bank customers regard the fintechs as their primary bank. Meanwhile, giants such as Google and Walmart are starting to dabble in digital finance.

Many neobanks have realised that, if they are to achieve sustained profitability, they have to get into lending, says Jeff Tijsen of Bain, another consultancy. A few firms are launching credit cards and other lending products, venturing further into the terrain of conventional banks. Some might be swallowed up by the incumbents. Others might even, eventually, seek charters of their own. ■

Buttonwood Jacks are all traders

Gauging the might of active retail traders

JUST TWO years ago the future of investing seemed to involve fewer and fewer people. Retail investors were piling into “passive” index funds, which track a broad basket of stocks for a tiny fee.

Active fund managers, whether swaggering hedge-fund gurus or staid mutual-fund bosses, were in retreat as index and quantitative funds swelled. More automation seemed inevitable. A future in which human investors vanished altogether, replaced by slick, powerful machines swapping shares at near-light-speed seemed just around the corner.

That is not quite how things have turned out. A mass of active retail traders have been romping around the American stockmarket for more than a year. They piled into short-dated derivative bets on Tesla, an electric-vehicle maker, and bid up shares in Hertz, a car-rental firm, after it went bankrupt. Early this year came their *pièce de résistance*: a frantic rally in the shares of GameStop, a video-game retailer, which rose by 2,000% in a little over two weeks. So volatile was the share price and so large the flows that the stock-settlement system nearly broke.

The proximate causes for the retail renaissance are hard to disentangle. Lockdown-induced boredom and stimulus cheques are often cited as fuel for the active retail investor. But the pandemic swiftly followed a price war in October 2019, when America’s largest brokers all cut commissions to zero, copying Robinhood, a digital upstart. And retail access to sophisticated trading tools, such as leverage and derivatives, has long been growing. Between October 2019 and February 2020 trading volumes at retail brokers almost doubled from a low level, before doubling again once lockdowns began.

Almost two years on from the price

war it is clearly much more fashionable to be obsessed by the stockmarket and hang out on Reddit swapping tips than it is to be coolly indifferent. But how big has the shift towards active retail trading really been? Is passive now passé?

These questions can be answered in three ways. The first is by examining the number of retail traders. In 2019 around 59m Americans had accounts with one of seven of the largest brokers. This number has surged since to 95m, as 17m new accounts were opened in 2020 and 20m were set up this year.

Next, consider trading flows. These suggest an almighty spike. Retail trading went from around a quarter of volumes to a third in early 2020 and peaked at over 40% in the first quarter of 2021 (once marketmakers, who stand in the middle of every trade, are excluded). The plurality of trading activity now comes from retail punters, not institutions, quants or banks.

Third, look at asset holdings. According to Goldman Sachs, a bank, the share of American stocks held directly by households has been falling for decades as

investing has become dominated by professionals. In the 1970s and 1980s pension funds rose to prominence, before active mutual funds gained market share in the 1990s and 2000s. Over the past decade passive funds have gobbled up assets. But the share held by households directly began to stabilise around 2015 and is climbing again: between the end of 2019 and March 2021 the share of stocks held by households climbed from 36% to 38%.

All this makes the active retail surge seem vast. But two things should give you pause. First, the rise of the active retail investor has not derailed growth in passive ones. Though the total slice of equities passively tracking an index is hard to measure, the share of the S&P 500 held in exchange-traded and mutual index funds has risen by around 0.5 percentage points since 2019, to 18.3%. That is slower than in preceding years, but still a relentless march upwards.

Furthermore, not everyone who has opened a brokerage account since 2019 is a day-trader. On average the 32m account holders at Charles Schwab (which recently merged with TD Ameritrade) trade around four times a month. This is more active than Vanguard customers, who seem positively idle (three-quarters of them do not trade at all in a year) but leisurely compared with the 34 or so trades that the 1.5m customers of Interactive Brokers, another retail broker, make every month.

Active retail traders, then, are clearly a force to be reckoned with. And if their ascent was prompted by the structural changes to access to trading rather than a passing pandemic fad, then they will remain so. Yet it is worth remembering that most retail investors still trade at a sedate pace.



Free exchange | Assume the positional

The case for mutual educational disarmament



ECONOMISTS TEND to be big fans of education, which is perhaps not surprising given how much of it they consume and how well their textbooks can do. Alfred Marshall, writing in 1873, hoped that education would help erase the “distinction between working men and gentlemen”. Gary Becker of the University of Chicago reimagined education as an investment in “human capital” that would earn a return in the market much like other assets. Harvard University’s Greg Mankiw, whose books have educated more than most, once calculated that differences in human capital between countries could account for much of their otherwise inexplicable differences in prosperity.

But economics can also be scathing about schooling. The theory of signalling likens many educational credentials to peacock’s tails: costly encumbrances, useful only as conspicuous proof that their owners are intellectually strong enough to bear them. And in “The Social Limits to Growth”, a book published in 1976, Fred Hirsch, once a writer for this newspaper, pointed out that education is often “positional” in nature. What matters is not only how much you have, but whether you have more than the next person. For many students it is not enough merely to acquire a good education. They must obtain a better education than the people jostling with them in the queue for sought-after jobs.

Positional goods are, by their nature, in strictly limited supply. Everyone can in principle live in a good neighbourhood, attend a good school, and work in a good job. But logic sadly dictates that not everyone can enjoy the nicest neighbourhoods, best schools or most prestigious jobs. As Hirsch pointed out, “what each of us can achieve, all cannot.”

An unhappy corollary is that one family’s outlays on schooling raise the bar for everyone else. Families are drawn, often unwittingly, into educational arms races. They spend money and time on after-school tutoring or extra-curricular activities (so-called shadow education) in the expectation that it will improve their child’s position in the queue for advancement. But they quickly discover that everyone else is doing the same, leaving them in the same position as before. They are in fact worse off, because of the costs and frustration incurred. “If everyone stands on tiptoe, no one sees better,” Hirsch noted. And their feet also hurt.

These arms races are often particularly ferocious in East Asia. In China and South Korea, schoolchildren face nationwide “high-stakes” tests—the *gaokao* in China and the *suneung* in South Korea—that play a big role in determining whether and where they can go to university. In China’s cities, pupils spent 10.6 hours a week on after-school tutoring, according to a report by Frost & Sullivan, a market-research firm.

The governments in both countries have tried to orchestrate a kind of collective disarmament. South Korea imposed a 10pm curfew on cramming schools in 2009. Inspectors would go on patrol looking for schools with their lights on. (Some schools covered their windows with black tape.) China has been introducing restrictions on after-school tutoring at an increasing pace since 2018. Last month it barred tutoring firms from listing on the stock-market, raising foreign capital or making a profit. The strictures have wiped tens of billions of dollars off the market value of China’s once-booming edtech sector.

Will these measures work? It is almost impossible to stop families hiring private tutors to teach their children in their own homes. And if shadow education is successfully curtailed, the arms race can take different forms. Parents who cannot buy a better education directly can instead buy homes near better schools. A study by Xuejuan Su of the University of Alberta and Huayi Yu of Renmin University found that when the management of a public elementary school in Beijing is taken over by another better-regarded school, property prices nearby rise by an average of 7%.

The arms race is notably less intense in parts of Europe. In Norway and Sweden parents show little demand for tutoring—the wealthy even less than others, according to Steve Entrich of the University of Potsdam. And overeducation is less common in Germany and other countries that sort children early into academic or vocational schools, with little mobility between the two, according to a study by Valentina Di Stasio of Utrecht University together with Thijs Bol and Herman Van de Werfhorst of the University of Amsterdam. Vocational schools are supposed to teach what employers want recruits to know. That may limit the scope for credential inflation. For better or worse, they also remove large numbers of students from the race for more academic laurels.

Beruf als Politik

Both China and South Korea have begun promoting vocational education. China’s latest five-year plan (which concludes in 2025) promises to explore an “apprenticeship system with Chinese characteristics” and to “vigorously cultivate talents with technical skills”, according to one translation. Some of the edtech firms squeezed out of after-school tutoring are exploring vocational education instead.

Germany’s custom of placing children on different tracks at age ten or 11 also invites an interesting thought experiment. What if the *gaokao* (and similar tests) were held earlier in a pupil’s career? If these exams truly test the knowledge required for university, they must be held just before university starts. But if such tests mostly serve as filters, sifting better students from worse, they need not be held so late. An aptitude test at 16 years of age, say, will probably generate a similar ranking as one held two years later. The tests would remain stressful. But an earlier *gaokao* would save families a year or two of costly cramming, shortening “the obstacle course”, as Hirsch put it, without much changing the results. Such tests will always have high stakes. But they need not require such high effort. ■



The story of a life

A dance to the music of time

It is not only individuals' bodies that have structure. Lives are structured, too

THE ORGANS of a body are a spatial division of labour, one created by different genes being turned on in different cells. The same process serves to give individual lives a division of labour over time. Complex algae, animals, fungi and plants all have predictable life histories which separate out three basic aspects of development—the creation of an autonomous individual, growth and reproduction—and run them sequentially.

In some creatures, including humans, the move from one phase to the next has an obvious continuity. Fertilised eggs turn into fetuses, which become babies, who grow into two different sorts of adult, which, between them, can then produce new fertilised eggs. In other animals things are more clearly punctuated. The embryo growing inside a butterfly egg turns into a series of leaf-munching and moulting caterpillars, called instars. The last of these cocoons itself in a pupa before emerging, winged and

fluttering, as an imago with a completely new set of organs. Plants have two separate life histories, which alternate from generation to generation—though this is rarely obvious to human observers.

A lot of the complexity here is to do with sex. The fission of a bacterium; the budding of a yeast cell; the vegetative growth of a tree pushing up suckers: each of these yields progeny genetically identical to the progenitor and each other. Sex is clearly

the start of something new: a novel individual with a novel genetic blueprint and a selfish Darwinian imperative that can put it at odds with even its siblings. Asexual individuals often link up into wider structures—bacterial biofilms, coral heads or aspen forests, for example. Sexual individuals almost never do this.

In sexual reproduction, each parent contributes only a half genome. In asexual reproduction the whole genome can get passed on. In terms of the “selfish gene” account of biology, a strategy which passes on all the genes seems intrinsically more appealing than one in which half of them get left behind. Sex must therefore convey benefits worth dumping half a genome for.

The current belief is that these stem from the mixing of genes. By producing genetically novel individuals, sex poses a problem for parasites and pathogens and provides flexibility in changing circumstances. Those advantages compensate for its inefficiency. *Caenorhabditis elegans*, a nematode worm much favoured in biology laboratories, reproduces asexually in benign environments but starts creating some males when things get more challenging, in order to mix things up a bit. That said, mysteries abide—for instance, bdelloid rotifers, which seem to have been exclusively asexual for 25m years.

Once fertilised, an animal egg grows into an embryo, or something equivalent to one. An embryo's role is to lay the groundwork for subsequent developments. It produces what, in Silicon Valley, might be termed a minimum viable product. When a human embryo is born as a baby, it already contains almost all of the organs which that individual will ever possess.

This comes about first by the repeated division of the initial, fertilised egg into many cells that have the potential to become any part of the body. Then, around the 16th day of development, the embryo folds in on itself in a process called gastrulation. This sees the body plan begin to take on a physical form, defining the head and the tail (for human embryos do, indeed, have tails), the left and the right, the inner and the outer.

After gastrulation, more and more cell lines have their future possibilities pared down as molecular switches disable some genes and promote the activity of others. Each cell line is thus guided along a path that leads to its specialisation as part of an organ. A few laggards, called stem cells, drop out of this journey. Their role is to generate, throughout an individual's life, replacements for cells that have died. But many specialised cells, particularly in the muscles and the nervous system, do go on to last a lifetime.

Other species have similar tales to tell, but not identical ones. For example, a but-▶

→ In this series on the levels of life

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

terfly embryo develops not only the organs needed in order to be a caterpillar, but also starter packs, called imaginal discs, for the organs that will be needed in adulthood.

For most plants, things are more complex because there are two, radically different, types of body. This again is a division of labour, one in which mating and dispersal have been separated.

Cells in gametophytes, the mating body type, have a single complement of chromosomes—a state known as being “haploid”, which is also seen in the eggs and sperm of animals. It is the process of creating haploid cells that sees half of each parent’s genome scrapped in sexual reproduction. Unlike eggs and sperm, though, these haploid cells can grow and differentiate themselves, creating the gametophyte body.

Once it has grown sufficiently a gametophyte will produce eggs and sperm, which meet and mate, pooling their chromosomes to create “diploid” individuals that grow into a body-type called a sporophyte. Sporophytes produce haploid spores, which they often seek to distribute as widely as possible—a valuable strategy for a stationary creature.

In mosses, the larger of the two forms is the gametophyte. In ferns, it is the sporophyte, though the gametophyte is still visible to the naked eye. In flowering plants things have gone further still, with the gametophyte stage essentially being ab-

sorbed into the sporophyte. The gametophytes of an oak, for example, are microscopic addenda to the sporophyte body: the pollen grains born by its male catkins and the embryo sacs in its female flowers.

In flowering plants like oaks, progeny-dispersal is achieved not through haploid spores but instead by the fertilised embryo sacs creating embryo-containing seeds—which, in oaks, are called acorns. The embryo in an acorn lacks precursors of many adult organs. Leaves are grown later, as required, from stem cells known as meristems. But it is equipped with an incipient root and stem, and also has two food-storing leaves, called cotyledons.

Once an embryo is out of its womb, its eggshell or its seed, its main aim is to grow. In children, larvae, saplings and even the young gametophytes and sporophytes of ferns, physiological resources are focused on developing the size and competencies that will be needed to prosper in the mating game and subsequent child rearing—even if that role is limited to cramming protein into an acorn.

For many creatures, the growth stage is at first blush similar to the adult, but just smaller. The onset of puberty, striking as it is for a human to undergo, has little effect on the overall body plan. But for some, notably among the insects, it can be startlingly different. The specialised eating machine which is a caterpillar or a maggot, for

example, allows energy to be stored through the use of an ecological niche the adult could not gain access to.

For an adult to reproduce, and thus pass on its genes, it must first find a mate. Sometimes the finding is done directly by the sperm—fern’s sperm swim from the antheridia in which they form, through films of water, in search of the egg-bearing archegonia of other gametophytes. Sometimes it is done by the adults, through courtship rituals or competitions. Many flowering plants exploit a go-between in the form of a pollinating insect, bat or bird.

Temporary kings

An oak bears its first acorns two or three decades after it has germinated, and may keep doing so for centuries. A human, after puberty, can look forward to decades of subsequent life. Many adulthoods, however, are brief. An extreme example is the mayfly, the imagos of which cannot feed themselves and exist only to mate and, if female, lay their fertilised eggs back in the water from which they have just emerged.

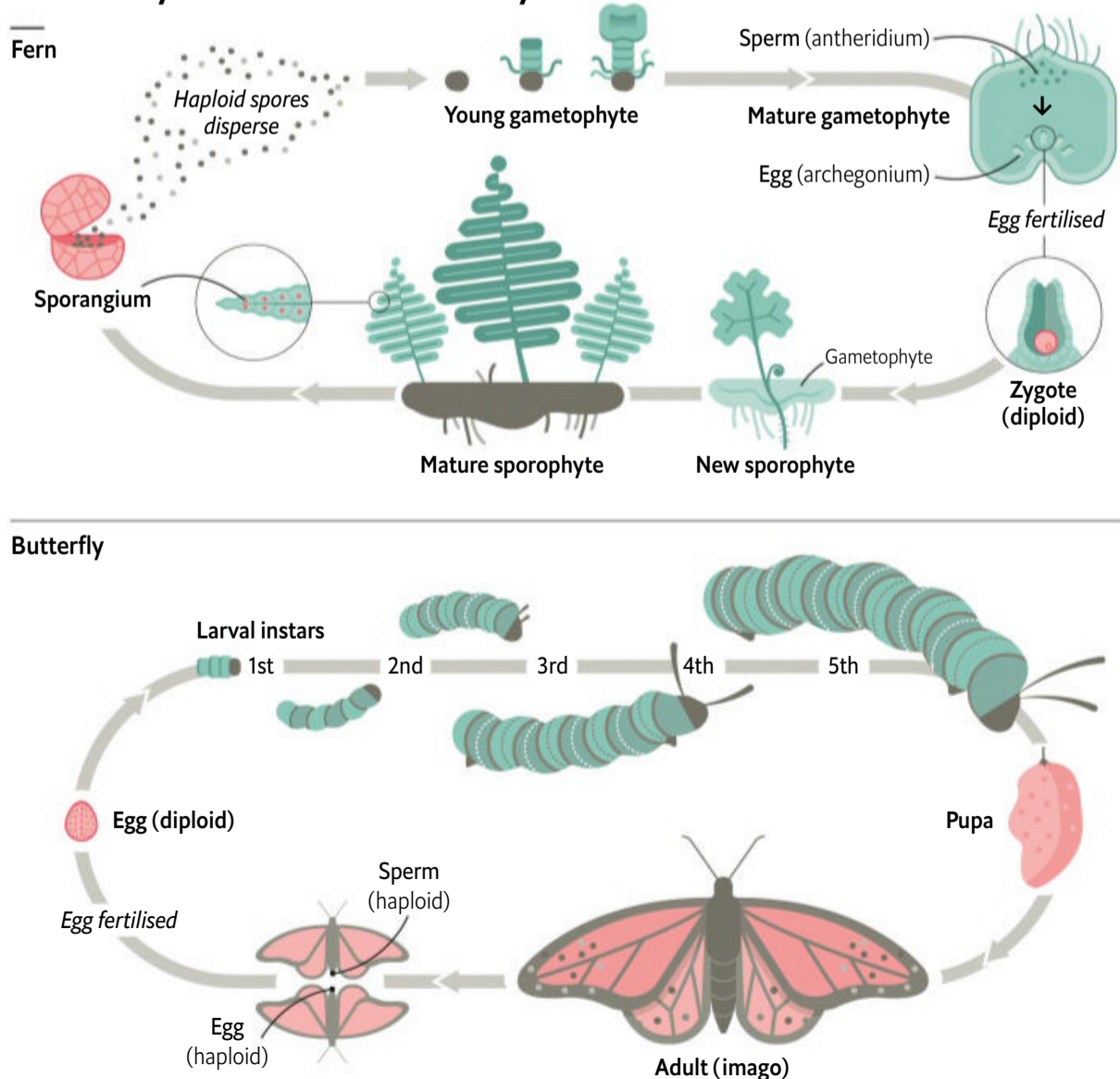
In animals, adults of long-lived species often look after their offspring and sometimes, to some degree, those of others as well. It makes sense to collaborate with a close relative in child rearing because their children will carry some of your genes, but it can also make sense if the adults are not related, especially in situations where favours are reciprocated. It is thought that this social aspect of child rearing may explain why in a few species—humans and killer whales are notable examples—adults may live quite some time after they stop being capable of reproduction.

Long or short, though, all lives go the same way. Onward transmission of the body’s genes achieved (or not), the individual itself matters not a jot to evolution. This explains why individuals grow not just old, but decrepit. They have evolved to be thrown away.

Inevitable mortality means that bodily repairs and maintenance need not be perfect, particularly if the physiological resources needed for them could be put to better use in mating and reproduction. Damage to a body’s cells therefore gradually accumulates with age.

For animals, the transition from life to death, even when not administered by a predator, is rapid. The interdependence of an animal’s organs means some failures—in particular, failure of the circulatory system—are almost instantly fatal. A large plant, by contrast, may die slowly, for it has no vital organs. Die, however, it will. But its progeny may live on, to cross-fertilise once more with others of their kind. Biologists call such sets of interfertile organisms “species”. The slipperiness of that seemingly simple concept is dealt with in the next Biology brief. ■

→ The life cycles of a fern and a butterfly





Three-dimensional printing and construction

Factory fresh

Your next home could emerge from a printer

A BATCH OF new houses across California is selling unusually fast. In the past two months, 82 have been snapped up, and the waiting list is 1,000 long. That demand should, though, soon be satisfied—for, while it can take weeks to put up a conventional bricks-and-mortar dwelling, Palari Homes and Mighty Buildings, the collaborators behind these houses, are able to erect one in less than 24 hours. They can do it so rapidly because their products are assembled from components prefabricated in a factory. This is not, in itself, a new idea. But the components involved are made in an unusual way: they are printed.

Three-dimensional (3D) printing has been around since the early 1980s, but is now gathering steam. It is already employed to make things ranging from orthopaedic implants to components for aircraft. The details vary according to the products and processes involved, but the underlying principle is the same. A layer of material is laid down and somehow fixed in place. Then another is put on top of it. Then another. Then another. By varying the shape, and sometimes the composition

of each layer, objects can be crafted that would be difficult or impossible to produce with conventional techniques. On top of this, unlike conventional manufacturing processes, no material is wasted.

Just press “print”

In the case of Palari Homes and Mighty Buildings, the printers are rather larger than those required for artificial knees and wing tips, and the materials somewhat cruder. But the principle is the same. Nozzles extrude a paste (in this case a composite) which is then cured and hardened by ultraviolet light. That allows Mighty Buildings to print parts such as eaves and ceilings without the need for supporting moulds—as well as simpler things like walls. These are then put together on site and attached to a permanent foundation by Palari Homes’ construction workers.

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65 High-voltage cars

66 A new prosthetic hand

Not only does 3D-printing allow greater versatility and faster construction, it also promises lower cost and in a more environmentally friendly approach than is possible at present. That may make it a useful answer to two challenges now facing the world: a shortage of housing and climate change. About 1.6bn people—more than 20% of Earth’s population—lack adequate accommodation. And the construction industry is responsible for 11% of the world’s man-made carbon-dioxide emissions. Yet the industry’s carbon footprint shows no signs of shrinking.

Automation brings huge cost savings. Mighty Buildings says computerising 80% of its printing process means the firm needs only 5% of the labour that would otherwise be involved. It has also doubled the speed of production. This is welcome news, the construction industry having struggled for years to improve its productivity. Over the past two decades this has grown at only a third of the rate of productivity in the world economy as a whole, according to McKinsey, a consultancy. Digitalisation has been slower than in nearly any other trade. The industry is also plagued, in many places, by shortages of skilled labour. And that is expected to get worse. In America, for example, around 40% of those employed in construction are expected to retire within a decade.

The environmental benefits come in several ways, but an important one is that there is less need to move lots of heavy stuff about. Palari Homes, for instance, es-

► timates that prefabricating its products reduces the number of lorry journeys involved in building a house sufficiently to slash two tonnes off the amount of carbon dioxide emitted per home.

Palari Homes and Mighty Buildings are not, moreover, alone in their endeavours. Similar projects are being started up all over the place. The vast majority print structures using concrete. 14Trees, a joint venture between Holcim—the world’s biggest cement-maker—and CDC Group, a British-government development-finance outfit, operates in Malawi. It says it is able to print a house there in just 12 hours, with a price tag of less than \$10,000. Besides being cheap and quick, 14Trees says this process is green as well. Holcim claims that by depositing the precise amount of cement required and thereby reducing waste, 3D printing generates only 30% as much carbon dioxide as using burnt-clay brick, a common technique in Malawi.

In Mexico, meanwhile, a charity for the homeless called New Story has created a partnership with ICON, a 3D-printing firm, to erect ten houses with floor areas of 46 square metres. Each was printed in around 24 hours (though these hours were spread over several days), with the final features assembled by Échale, another local charity. And in Europe the keys to the continent’s first 3D-printed home, in Eindhoven, in the Netherlands (see picture on previous page), were handed over to its tenants on July 30th.

Layer cakes

The house in question, the first of five detached, two-bedroom dwellings in a project co-ordinated by Eindhoven’s municipal government and the city’s University of Technology, is a collaboration between several firms. The Dutch arm of Saint-Gobain, a French building-materials company, developed the concrete mortar needed. Van Wijnen, a construction firm, built the thing, while Witteveen+Bos, a consultancy, was responsible for the engineering. It is being rented out by its owner, Vesteda, a Dutch residential-property investor.

Making the cement involved in projects like this is not, however, a green process. It turns calcium carbonate in the form of limestone into calcium oxide and carbon dioxide, and is reckoned responsible for about 8% of anthropogenic emissions of that gas. A group at Texas A&M University, led by Sarbajit Banerjee, has therefore developed a way to dispense with it.

Dr Banerjee’s new building material was inspired by a project he masterminded some years ago to construct supply roads to remote parts of the Canadian province of Alberta using stuff immediately to hand. The road metal he devised combined local soil with a mulch of wood fibres, and was held together by liquid or water-soluble

silicates that then hardened and acted as cement. To build houses he uses whatever clay and rock debris is lying around under the topsoil near the construction site, crushes it into a powder and blends it with silicates. The result can then be squeezed through a nozzle, after which it rapidly consolidates and gains strength, so as to hold its shape and bear the weight of the next layer. The process is thus doubly green. It eliminates both cement and the need to transport to the site, often over long distances, the sand and aggregates used in conventional concrete.

Concrete benefits

There are limitations to 3D-printed homes. For a start, construction codes need to be tweaked to accommodate them. To this end UL, one of America’s largest certifying agencies, has collaborated with Mighty Buildings to develop the first 3D-printing standard. The guidelines will be included in the new International Residential Code, which is in use in, or has been adopted by, all American states save Wisconsin. While this is a welcome boost to a fledgling industry, most governments have yet to come up with country-specific standards. There are also questions about the quality and finish of homes built by 3D printers.

Even so, the direction of travel looks promising. Last year, plans for a 3D-printed apartment building were approved in Germany. This three-floored structure, assembled by Peri, a German construction company, from parts made using printers developed by Cobod, a Danish firm, will contain five flats. Use of the technology is also expanding in the Middle East and Asia. Dubai’s government wants a quarter of new buildings in the country to be 3D-printed by 2030, and is dedicating a district on the outskirts of its eponymous capital to host 3D-printing companies and their warehouses. Saudi Arabia wants to use 3D printing to build 1.5m houses over the next decade. And India’s Ministry of Housing and Urban Affairs wants to use 3D printing to address the country’s housing shortages.

If successful, building by 3D printing is likely to spread beyond housing. Opportunities also exist in warehousing, offices and other commercial buildings. And beyond earthly structures, NASA, America’s space agency, is exploring the use of 3D printing to build landing pads, accommodation and roads on Mars and the Moon. There is no soil on those two celestial bodies, just shattered rock called regolith. Dr Banerjee’s group, which is working with NASA, says its approach to 3D printing functions just as well with this material. “We would ultimately like to have property on Mars and the Moon but we’re not going to be able to take concrete up there with us,” says Dr Banerjee. “We’re going to have to work with regolith.” ■

Electric cars

Pump up the voltage!

Electric vehicles which operate at 800v can be recharged in half the time

ELECTRIC VEHICLES (EVs) are becoming commoner. Some 750,000 of them were sold in the first quarter of 2021 according to JATO Dynamics, a British consultancy. JATO reckons EVs now account for just over 4% of new-car sales, up from 2% in the same quarter last year. Yet many potential buyers still suffer from “range anxiety”, a wariness about having to interrupt a long journey while an EV’s battery is recharged. The good news is that the time required to do this is about to be slashed.

Most EVs operate at 400 volts (400v). But a number of producers and their component suppliers are now gearing up to introduce 800v drive systems. Higher voltages supply the same amount of power with less current, which means electric cables can be made lighter—the consequent weight saving helping to increase a vehicle’s range, says Christoph Gillen, a technology director for GKN Automotive, a British components group which recently announced that it is accelerating its development of 800v drive systems. As most cabling is made from copper, the price of which has been soaring, this should also save carmakers money.

What drivers are most likely to notice, though, according to Dr Gillen, is that vehicles with 800v drive systems will be able to make greater use of some of the latest fast chargers. For instance, Ionity, a German company backed by a number of carmakers, is building a network of 350kw fast chargers across Europe. These automatically optimise charging speed to the maxi- ►►



► mum that a vehicle can handle. Using one of these, an EV with an 800v system will be able to recharge about twice as quickly as a similar vehicle with a 400v system.

Fast chargers are also more efficient. All chargers take electricity from the grid, which uses an alternating current (AC). When an EV is plugged into a standard charging point, its systems convert AC into direct current (DC), which is what a battery needs to store electricity. Fast chargers bypass the vehicle's converter, using their own beefier bits of kit to pump a DC charge directly into the battery.

The first EV to use an 800v drive system was the Porsche Taycan, a luxury sports saloon. This was launched in 2019. According to Porsche, by using a fast-charger the Taycan's huge 93kwh battery can, in a little more than five minutes, gather enough juice for the car to travel 100km.

Two South Korean producers, Hyundai and its partner Kia, launched their first 800v vehicles this year. Kia says the 77kwh battery in its EV6, which went on sale on August 2nd, can be recharged from 10% to 80% in 18 minutes. (The last 20% of capacity is charged at a slower rate in most EVs, to prevent damage to the battery. Hence a full recharge is typically carried out overnight on a standard charger.) Others have 800v vehicles in the works, too. They include General Motors, Volvo, BYD and Stellantis (a large shareholder in which, for full disclosure, also has a stake in *The Economist's* parent company).

Angst and amps

Turning an EV's battery from a 400v to an 800v system is fairly straightforward. Principally, it involves wiring up more of the battery's cells in series. But the associated electronics need additional re-engineering. The main reason why the current generation of EVs use 400v is that semiconductors able to handle higher voltages have not been readily available.

Now that EV sales are growing strongly, though, specialist chipmakers are investing in semiconductors that can operate at 800v. Instead of using transistors made from pure silicon, those employed by these chips are made from silicon carbide, which is more robust. Safety systems in vehicles, such as automated circuit breakers which isolate the battery in the event of a crash, also need to be upgraded.

What all this means is that, as more 800v EVs come onto the market, and batteries continue to improve with increased capacity, more motorists are likely to be persuaded to go electric. Much, however, will depend on the availability of fast-charging infrastructure. If stations are easy to find, and topping up batteries takes only the amount of time required to pick up a coffee, then the malady of range anxiety will at last be laid to rest. ■

Prosthetics

A new prosthetic hand

It gives users the sensation of touch, and is cheaper than alternatives, too

PROSTHETIC LIMBS have been around for a long time. The oldest known, a piece of wood carved and painted to replace the lost toe of an Egyptian noblewoman, dates back more than 3,000 years. But prosthetics which behave like the real thing as well as looking like it are still very much a work in progress. And a group at Shanghai Jiao Tong University, in China, have just come up with what looks to be a significant advance—an affordable prosthetic hand that not only responds like a real one to signals from the wearer's brain, but is also able to signal back to the brain what it is touching and doing.

Gu Guoying and his colleagues describe their invention in *Nature Biomedical Engineering*. Its fingers are made of rigid tubes connected by soft joints. These are similarly connected to a 3D-printed plastic palm. The whole is covered with a flexible elastomer layer to mimic skin and is attached to the user's residual limb via a customised plastic socket. In contrast to current models, which are electrically powered, Dr Gu's hand is powered pneumatically by a pump held in a waist bag, with the connecting air lines running under the user's clothes alongside communication cables. This reduces its weight below 300 grams—half that of some current models, and less, indeed, than the weight of a real hand—though the waist bag adds a further 444 grams.

The hand uses similar signal-processing algorithms to other prosthetics on the market. The big advance is that it

does not require invasive surgery or electronic implants into the residual limb to communicate with the user's brain. Sensors on the skin record electrical activity from the remaining arm muscles. In an intact arm, this activity would tell those muscles how to operate the hand. Instead, they are interpreted by pattern-recognition software that sends appropriate commands to the pump to move the artificial hand in the same way. Meanwhile, other signals travel in the opposite direction from sensors in the hand's fingertips to nerves in the arm, whence they are relayed to the brain and provide a sensation of touch. The upshot is something which responds like a hand and feels like one to the user.

Dr Gu and his colleagues compared the efficacy of their invention with that of existing models using tests borrowed from research into strokes and spinal-cord injuries. These included writing, grasping and lifting objects, lifting food to the mouth, and stacking draughtsmen. Normally, they found, it worked better—particularly for delicate tasks like handling fragile objects, petting a cat and shaking hands.

The other advantage of Dr Gu's invention is that it is cheap. The components it is made from cost about \$500. Existing models may sell for \$10,000 or more. If it, or something similar, goes into production, that will permit the transformation of many more of the lives of the 5m people who have lost a hand, or were born without one, than is possible at the moment.



A welcome invention



Dante's legacy

The way through the wood

FLORENCE

Seven hundred years after Dante's death, the "Divine Comedy" remains a salutary guide to hope amid adversity

OFF A BUSY street in Florence stands the church of San Remigio. The chapel nearest the left of the altar was patronised by the Gaddi family, one of whose most illustrious sons, Niccolò Gaddi, commissioned its 16th-century altarpiece. In his will, he specified that it should depict a scene from Dante Alighieri's "Paradiso", the final part of his monumental poem, known in English as the "Divine Comedy".

Gaddi's stipulation was a gesture of appreciation to the poet's family, the Alighieri, who previously sponsored the chapel. Even so, as David Ekserdjian remarks in a recently published study, "The Italian Renaissance Altarpiece", it was an extraordinary choice. Here was a Florentine grandee, a man whose entire life was entwined with the Catholic church, treating a work of fiction—and one scathingly derogatory of Catholic clerics—as a religious authority "almost on a par with the Bible and the lives of the saints".

The painting in the chapel, by Jacopo da Empoli, exemplifies Dante's exceptional status. For Italians, he is the *sommo poeta*: the supreme poet, unsurpassed in the 700 years since his death in 1321, the anniversa-

ry of which falls next month. Though Dante wrote several other works, including treatises on politics and language, the "Divine Comedy", a chronicle of his imaginary journey through hell and purgatory to heaven, is his masterpiece. There is scarcely an Italian who cannot recite its opening lines, in which he describes being in the middle of his life, finding himself in a dark wood and losing his way:

Nel mezzo del cammin di nostra vita
mi ritrovai per una selva oscura,
ché la diritta via era smarrita.

For non-Italians, too, Dante belongs in a pantheon of the West's paramount literary geniuses, alongside Homer, Cervantes and Shakespeare. In the English-speaking world, his influence can be discerned in the work of Chaucer, Milton, Shelley and T.S. Eliot, among many others. The *terza rima*, the interlocking rhyme scheme that Dante first set down in writing, and which propels readers through the "Divine Comedy", has been used by poets ever since.

And yet Jacopo da Empoli's altarpiece was painted in a city that exiled Dante, confiscated his possessions and sentenced

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him to death on trumped-up charges. For Lino Pertile of Harvard University, that points to a paradox: "We celebrate Dante. But we don't listen to him. Why has Florence never revoked the capital sentence it decreed in 1315? Because what Dante was preaching and what the Florentines were doing were utterly at odds."

It is often argued that the *sommo poeta* was ahead of his time. Dante unquestionably gave Italians the basis for a common language more than 500 years before they were united politically (though it is doubtful that he would have approved of unification: he lived before the age of nation-states and aspired to a universal monarchy). Dante also prefigured ideas characteristic of the Renaissance and the Reformation. He imagined a pagan author, Virgil, as his guide to hell, which he peopled with monsters from classical mythology. And he consigned to the underworld "clergymen, and popes and cardinals within whom avarice works its excess".

But in no sense was Dante, who was born in or around 1265, a liberal—even by the standards of his time. He was appalled by the property boom that had transformed Florence in the 13th century and the rampant materialism it unleashed. One of the city's proudest achievements was, and still is, to have made its gold coin, the *fiorino*, widely accepted in Europe seven centuries before the euro. In a play on words, Dante damned it as *il maladetto fiore* (the accursed flower). The little that is known of his personality suggests that, at least while he remained in Florence, he ▶▶

▶ was a rather grouchy moralist.

What Dante offers in the “Divine Comedy” is a journey beyond politics, “from the life of the senses to a life of the spirit”, as Mr Pertile puts it. That may renew his appeal in a bruised world that in short order has endured a financial crisis, a recession and a pandemic, and now faces the cataclysm of global warming.

Joseph Luzzi of Bard College calls Dante a “poet of crisis”, whose life split in two when he was expelled from Florence. Mr Luzzi himself endured a similar fate, in even more dramatic fashion. At 9.15am on November 29th 2007 Mr Luzzi’s wife, Katherine Mester, eight and a half months pregnant with their first child, pulled out of a petrol station in upstate New York and into the path of an oncoming van. Forty-five minutes after doctors performed an emergency caesarean section to deliver Isabel, her daughter, Mester died. By noon Mr Luzzi was a father—and a widower.

Beyond mortal flesh

A book he published in 2015, “In a Dark Wood”, recounts how he began to see his own distraught bereavement reflected in the writings of his favourite poet. “I heard Dante’s own voice as never before,” he says. The poet “lost everything. And the sense he conveys of losing a life that you once had was visceral in me.” Mr Luzzi too felt he was wandering through hell, and only after years of despair and confusion reached a kind of purgatory. But then his path crossed that of Bard’s artist-in-residence, Helena Baillie, an English violinist, and “the stars aligned”. They married and today have four children, including Isabel.

Most readers never proceed beyond the macabre thrills of Dante’s “Inferno”, with its grotesquely inventive torments. The gluttons get off comparatively lightly: they merely lie for ever under icy rain while the three-headed monster Cerberus claws at their flesh and they “howl like dogs”. Warmongers flounder in boiling blood while flatterers wallow in excrement. The archbishop of Pisa, Ruggieri degli Ubaldini, is encased with the enemy he had starved to death, Count Ugolino, who gnaws at his neck for eternity.

Those who do ascend from the “Inferno” find some of Dante’s most lyrical verse in his “Purgatorio”. One of the most quoted passages is the greeting he receives from his friend, Casella, in the second section, or canto: “As once I loved you in my mortal flesh, without it now I love you still.”

But it is the least-read of the three books, “Paradiso”, that makes sense of the other two. It shows, says Mr Luzzi, that its author was not just a poet of crisis, but also a poet of hope: “The ‘Divine Comedy’ is that rarest thing, an epic poem with a hopeful ending. It is about getting a second chance—and ultimately finding joy.” ■

A heroine of the resistance

Together in Berlin

All the Frequent Troubles of Our Days.

By Rebecca Donner. *Little, Brown*; 576 pages; \$32. *Canongate*; £16.99

IN FEBRUARY 1943 a sympathetic chaplain at Plötzensee Prison in Berlin made one last visit to a condemned woman. She was bent over a book of Goethe’s poems, writing English translations in the margins. Mildred Harnack, an American teacher, was executed that day on Hitler’s direct orders. More than half a century later her great-great-niece found the book in the archives of the German Resistance Memorial. Harnack had been a leading figure in the anti-Nazi underground; yet whereas the world honoured such martyred anti-fascists as Sophie Scholl, killed six days later, almost nothing was known of this idealistic professor of literature from Wisconsin, or of how she came to lead the largest resistance cell in Berlin.

This obscurity was no accident. After the defeat of the Nazis, Harnack’s sister, aghast at reports of her involvement with anti-fascists and Soviet spies, ordered family members to destroy her letters. Fortunately her mother did not comply, stashing the correspondence in an attic. Harnack’s niece, Jane Donner, saw to it that the story was handed down to her own granddaughter, Rebecca Donner—who has produced a compelling portrait of her forebear’s courage, along with that of her German husband Arvid and their comrades.

Those who resisted the Nazis in Germany knew that they were marked. Harnack and Arvid, who met and married while at



A profile in courage

the University of Wisconsin, were a young academic couple living in Berlin when Adolf Hitler became chancellor in 1933. Immediately they formed a “discussion circle” of students, friends, factory workers, professors and writers, debating what to do as the Nazis locked up their enemies. Over the years the circle’s resistance strategies evolved, from leaflets to recruitment of new members to serving as Soviet spies while posing as “a dutiful servant of the Third Reich”.

Harnack was tall, blonde and blue-eyed; as president of the American Women’s Club in Berlin she masqueraded as the perfect Nazi wife. Meanwhile she and Arvid were funnelling military information to Allied contacts abroad. Even as the pressure steadily mounted, survivors would later recount, they persisted. “Relentless Nazi brutality invigorates their conviction that they must fight back steadily, diligently, without hesitation,” the author writes.

Harnack was careful to betray nothing in her letters home. So Ms Donner has pieced the story together from a vast array of sources. Her book is a tour de force of investigation: she searched two dozen archives in America, Europe and Russia, trawling through intelligence reports and official documents, plus scores of published and unpublished memoirs, diaries and letters. Her most precious source, however, is the memory of Donald Heath junior, who was the 11-year-old son of an American diplomat when he began acting as Harnack’s secret courier. His story fleshes out the lady with the “low, kind voice” whom he visited twice a week in 1939 on Woyrschstrasse, where she slipped notes for his father into his blue backpack.

The couple’s commitment to defying the dictator who was wrecking the country they called home shines through. Arvid was a nephew of a scholar who helped draft the Weimar constitution, part of an intellectual clan that became a “Who’s Who” of resistance to Hitler. His cousins the Bonhoeffers, Delbrücks and Ernst von Harnack participated in the most famous attempt on Hitler’s life, the failed military “Valkyrie” plot of 1944. Harnack joined their fight as women’s rights, too, were shredded by the Nazis. She lost her university teaching job, purged like tens of thousands of women, Jews and others.

The story unfolds in fragments. The early pages, as Ms Donner lays out Hitler’s overthrow of German democracy, can read like potted history. But as the pieces cohere, the couple’s story becomes gripping. They are betrayed, eventually, by a Soviet blunder. As the Gestapo moves in, arresting resisters from various cells, the reader hears first-hand accounts of their interrogation and torture. The abiding impression is of virtuous, extraordinarily brave people caught up in tragic horror. ■

Contagion and authoritarianism

Moscow rules

Just the Plague. By Ludmila Ulitskaya.
Translated by Polly Gannon. *Granta*; 144
pages; £9.99

IN 1988 LUDMILA ULITSKAYA wrote a screenplay about an epidemic as part of her application for a film-making course in Moscow. When she was rejected, she filed the script away; 32 years later covid-19 erupted and she dug it out again. “Just the Plague”, published last year in Russian and now translated into English by Polly Gannon, is based on the true story of a plague outbreak in Moscow in 1939, caused by a scientist accidentally infecting himself as he worked on a vaccine.

“Just the plague” is an expression that Russians deploy, ironically, when something bad happens. An apartment floods, it’s “just the plague”. In this case, it was meant literally. When people vanished in Moscow in 1939, the NKVD (forerunner of the KGB) had usually spirited them away. In this fearful world, it is a relief for Ms Ulitskaya’s characters to learn that their relatives have only gone to quarantine, from which most will return.

At the start of a short, sharp text comprised overwhelmingly of dialogue, Maier, the infected scientist, takes the train to the capital after being invited to present his research there. Once he arrives, ailing, at a Moscow hospital and doctors grasp his condition, the response is fast and effective. The job of rounding up those who have potentially been exposed is entrusted to the NKVD, whose boss—modelled on the infamous Lavrenty Beria—boasts of his ability to draw up lists and “liquidate” when necessary. “No, no, we’re only talking about quarantine,” the health commissar corrects him hastily.

Hospital staff concoct a fiction to avoid panic. Their concern, they tell patients, is merely influenza. A man is hauled off for spreading the (accurate) rumour that the disease is really plague. Meanwhile another doctor who becomes infected while caring for Maier writes a deathbed letter to the “Big Boss”—Stalin—asking for clemency for his imprisoned brother. A woman turns grey overnight, convinced her quarantined husband has vanished into the prison system. Not everyone is worse off. A poor old woman wolfs down the buttery porridge served to her in quarantine and is “absolutely contented”.

A distinguished novelist who trained as a geneticist, Ms Ulitskaya captures the

shape-shifting nature of epidemics, and the way they acquire meaning backwards. One minute all eyes are anxiously on Moscow; the next the race is on to find Anadurdyeva, a people’s deputy from Turkmenistan who may be carrying the germ to Central Asia. Only then does the earlier moment when Anadurdyeva crossed paths with Maier at the Hotel Moscow become poignant. When the outbreak has been contained, the survivors hasten to leave quarantine and each other. They only want to look forwards.

In an interview included in the book, the author explains that she never really expected her script to be accepted by Valery Fried, who ran the film-making course, because he had been incarcerated in Stalin’s labour camps and found it disturbing to think the NKVD could have committed even one “humane act”. His loss is the reader’s gain, because the questions the book raises about authoritarianism and contagion-control remain bitingly relevant. ■

Wildfires

Down in flames

Paradise: One Town’s Struggle to Survive an American Wildfire. By Lizzie Johnson.
Crown; 432 pages; \$28

SOON AFTER giving birth to her third child, Rachele Sanders is evacuated from Feather River Hospital in Paradise, California. It is November 8th 2018 and a wildfire is raging in the foothills of the Sierra Nevada mountains. Before long, flames are swallowing the town. The ambulances have all left and traffic is grid-

locked as 27,000 people try to evacuate at the same time. Bundled into a car, her lower body still numb and a newborn in her lap, Ms Sanders and the driver make a grim plan. If the blaze overtakes them, he will take the baby and run.

The damage inflicted by wildfires is often measured in acres burned, buildings razed and lives lost. Lizzie Johnson, a former journalist at the *San Francisco Chronicle* (and now of the *Washington Post*), duly covers these costs in her new book. The Camp Fire, as the conflagration that incinerated Paradise is known, was the deadliest in California’s history, killing 85 people and destroying nearly 19,000 structures.

But the stories of individuals—such as Ms Sanders—on which the author focuses will haunt readers most. A school-bus driver navigates bumper-to-bumper traffic and harrowing roads lined with “drooping oak” and “tangled brush”, fuel for the flames, to get a group of children to safety. An emergency dispatcher stays on the phone with an elderly woman as she hides in her bathtub—until the line goes dead. Ms Johnson lived among her subjects while reporting the book, and the result is a painstakingly constructed narrative that reads as though she was scribbling notes alongside each of them as they fled for their lives.

Nestling in the grisly tales of those who escaped, and those who didn’t, are wider questions of culpability. The Camp Fire was sparked by equipment owned by Pacific Gas & Electric (PG&E), California’s biggest utility. Last year the company pled guilty to 84 counts of involuntary manslaughter. “I make this plea with great sadness and regret”, said Bill Johnson, then the firm’s chief executive, “with eyes wide open to what happened and to what must never happen again.” Yet it may have happened again. This summer’s Dixie Fire was the second largest on record in California. Again PG&E acknowledged it may have provided the spark. Greenville, a town ▶▶



The ghost road

▶ within 100 miles of Paradise, was seared from the map.

Ms Johnson suggests other culprits too. Houses were built willy-nilly on lots too cramped to provide “defensible space”, which can act as a firebreak. Paradise sprawled ever farther into the forest. Local officials narrowed the main highway in the name of beautification, which made evacuation more difficult. These blunders are not peculiar to Paradise. The allure of America’s wide-open spaces, combined with rocketing house prices, has led more people to settle in cheaper, fire-prone

areas. Roughly half the population of the American West now lives at “the wildland-urban interface”, according to Headwaters Economics, a think-tank.

Fire, it is true, was a part of the western landscape long before settlements such as Paradise and Greenville were built. It helps regenerate soil and clear forests of debris. But the fact that the blazes are perennial does not mean tragedy is inevitable. In recounting the choices that turned a town into a tinderbox, “Paradise” nudges readers to think differently about fire.

Take the phrase “natural disaster”. It

implies that a weather event is a freak accident or act of God, and that humans are helpless bystanders. But the damage wrought by wildfires today is caused as much by haphazard development and bad policy as Mother Nature. Can a natural disaster be caused by an electrical utility? What if it is exacerbated by man-made climate change?

Paradise itself is slowly rebuilding. Its welcome sign—charred but replaced—affirms that the town is “all its name implies”. Perhaps one day, Ms Johnson hopes, the slogan will again ring true. ■

Johnson What do they know, and when?



A pioneering linguist, Lila Gleitman illuminated the way children learn to talk

LILA GLEITMAN was driving her two-year-old daughter in the car when, executing a tricky turn, she advised her to “hold on tight”. The toddler responded: “Isn’t that ‘tightly’?”

It was a turning-point in the young scholar’s career. She had already switched from English literature to classics, in which she quickly became bored of her teacher’s digressions on Athenian society (she wanted to get back to grammar). Realising that her two-year-old already had an understanding of language made Gleitman want to get into her child’s head, and those of other children. The questions that shaped her career were, as she put it, “the presidential questions” of children’s knowledge. What do they know, and when do they know it?

Gleitman, who died on August 8th at the age of 91, turned those questions into a research career that helped define psycholinguistics, a field that hardly existed before. Her early interest coincided with the emergence in the 1950s of Noam Chomsky, a frequent visitor to the University of Pennsylvania when she began taking courses there. Until then linguistics largely involved concentrating on what people said, shying away from what they might be thinking. The two scholars’ work and that of others instead considered the mental systems that might produce the sentences you hear, which are shaped by abstract rules that speakers may not even know that they know.

An early piece of Gleitman’s research, for example, investigated small children’s “telegraphic” speech, in which many words are left out: a toddler might say “throw ball” rather than “throw me the ball”. This seems to imply that the child’s knowledge is primitive. But she

found that children nonetheless comply with instructions better when their parents use adult-style English than when they mimic their offspring. She and her colleagues concluded that youngsters know more than they can say.

Parents prefer to think that they teach their children most of what they learn. But Gleitman’s work supported the idea that youngsters are somehow programmed to learn, even if what they hear from those around them is sparse and unstructured. So parents do not need to use “motherese”—her husband Henry’s term—with their children. She found that their progressive mastery of language rules had little to do with how much (or little) motherese their caregivers resorted to.

As the learning process goes on, children deploy some remarkable strategies. They often seem to correctly guess what a word means after hearing it just once. The physical environment is an obvious spur (as when they hear “dog” and see one at the same time). But how would a child guess the meaning of the verb in “I believed that he lost his keys”? Gleitman

noticed that the sentence structure is identical to those with other verbs that mean similar things (ie, refer to states of mind): saw, remembered, imagined, forgot, worried and doubted. More broadly, it turned out that verbs which are similar in meaning tend to turn up in similar sentence structures. This intuitive aid helps children learn astonishingly quickly, a process she called “syntactic bootstrapping”.

Her work also had implications for the debate over whether a person’s native language strongly influences how they think—or even what they can think. She was convinced that all languages shared fundamental traits, forged by the nature of the human mind itself; the effects of using a particular one on cognition were modest and fleeting. The notion that speaking a different language entails a profoundly different way of thinking was romantic and tempting, but she would not buy it.

Asked to participate in a debate on the subject hosted by *The Economist*, and told that the audience would vote, she pointedly joked: “Next let’s do ‘Is 2+2 exactly 4?’” But take part she did, in her always lively fashion. Even her technical writing was witty and readable for the layperson. She had an aphoristic way of describing her conclusions: of the finding that verbs with similar meanings occur in similar sentence structures, she said “verbs of a feather flock together”.

Gleitman was also a prodigious mentor to other scholars. Many of them were women, for whom she was a pioneer, beginning her own research in the early 1960s while bringing up her own family. When her husband observed that “most great scientists are not great men”, she had a ready answer: “Yeah. For instance, I’m not a great man.”





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	Gross domestic product				Consumer prices			Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units					
	% change on year ago		2021†		% change on year ago		2021†		%		% of GDP, 2021†		% of GDP, 2021†		10-yr gov't bonds		change on year ago, bp		per \$		% change
	latest	quarter*			latest								latest,%		Aug 18th		Aug 18th				
United States	12.2	Q2	6.5	6.0	5.4	Jul	3.6	5.4	Jul	-2.7		-12.7	1.3		60.0	-					
China	7.9	Q2	5.3	8.5	1.0	Jul	1.3	5.1	Jul [§]	2.8		-4.9	2.7	\$\$	-14.0	6.48		6.9			
Japan	7.5	Q2	1.3	2.2	0.2	Jun	0.1	2.9	Jun	3.8		-9.0	nil		-8.0	110		-4.0			
Britain	22.2	Q2	20.7	5.8	2.0	Jul	2.9	4.7	May ^{††}	-4.5		-10.9	0.7		35.0	0.73		4.1			
Canada	0.3	Q1	5.6	5.4	3.7	Jul	2.6	7.5	Jul	-2.0		-8.8	1.2		59.0	1.26		4.8			
Euro area	13.6	Q2	8.2	4.4	2.2	Jul	1.8	7.7	Jun	3.3		-7.1	-0.5		-2.0	0.85		-1.2			
Austria	-5.5	Q1	-12.6	3.5	2.9	Jul	2.7	6.4	Jun	3.4		-8.0	-0.2		4.0	0.85		-1.2			
Belgium	14.5	Q2	5.7	4.8	2.3	Jul	2.2	6.2	Jun	-0.7		-7.5	-0.2		1.0	0.85		-1.2			
France	18.7	Q2	3.8	5.5	1.2	Jul	1.6	7.3	Jun	-1.4		-8.7	-0.1		1.0	0.85		-1.2			
Germany	9.2	Q2	6.1	2.9	3.8	Jul	2.5	3.7	Jun	7.1		-5.7	-0.5		-2.0	0.85		-1.2			
Greece	-1.4	Q1	18.9	5.4	1.4	Jul	0.1	15.1	Jun	-3.7		-5.7	0.6		-54.0	0.85		-1.2			
Italy	17.3	Q2	11.1	5.0	1.9	Jul	1.3	9.7	Jun	3.4		-11.8	0.6		-44.0	0.85		-1.2			
Netherlands	9.7	Q2	13.1	3.4	1.4	Jul	2.1	3.2	Jun	10.3		-1.7	-0.5		-9.0	0.85		-1.2			
Spain	19.8	Q2	11.5	6.1	2.9	Jul	2.0	15.1	Jun	0.9		-8.6	0.2		-16.0	0.85		-1.2			
Czech Republic	-2.6	Q1	2.4	3.5	3.4	Jul	2.7	2.9	Jun [†]	3.2		-8.5	1.9		85.0	21.7		0.9			
Denmark	-0.9	Q1	9.1	2.8	1.6	Jul	1.4	3.8	Jun	7.8		-0.5	-0.2		17.0	6.35		-1.6			
Norway	-1.4	Q1	-2.5	2.6	3.0	Jul	2.9	4.9	May ^{††}	2.5		-1.0	1.4		76.0	8.90		-0.6			
Poland	-1.3	Q1	7.8	4.5	5.0	Jul	4.1	5.8	Jul [§]	2.4		-6.9	1.7		33.0	3.89		-5.4			
Russia	10.3	Q2	na	3.5	6.5	Jul	5.8	4.8	Jun [§]	4.4		-1.8	7.0		73.0	73.7		-0.7			
Sweden	9.3	Q2	3.6	3.9	1.4	Jul	1.9	10.3	Jun [§]	4.8		-2.2	0.1		14.0	8.72		-0.7			
Switzerland	-0.5	Q1	-2.0	3.4	0.7	Jul	0.3	3.0	Jul	7.0		-3.8	-0.4		6.0	0.92		-2.2			
Turkey	7.0	Q1	na	5.6	19.0	Jul	16.6	10.4	Jun [§]	-2.7		-2.8	16.8		271	8.47		-12.9			
Australia	1.1	Q1	7.3	4.3	3.8	Q2	2.6	4.6	Jul	1.9		-6.1	1.1		23.0	1.38		nil			
Hong Kong	7.6	Q2	-3.7	5.4	0.7	Jun	1.6	5.0	Jul ^{††}	2.0		-4.2	1.1		54.0	7.79		-0.5			
India	1.6	Q1	6.0	10.4	5.6	Jul	5.4	7.0	Jul	-1.0		-7.2	6.2		24.0	74.2		0.7			
Indonesia	7.1	Q2	na	3.0	1.5	Jul	2.0	6.3	Q1 [§]	0.3		-5.9	6.3		-41.0	14,372		3.3			
Malaysia	16.1	Q2	na	4.4	3.4	Jun	2.4	4.8	Jun [§]	3.1		-5.9	3.2		67.0	4.24		-1.4			
Pakistan	4.7	2021**	na	3.8	8.4	Jul	9.2	5.8	2018	-1.8		-7.2	9.8	†††	32.0	164		2.5			
Philippines	11.8	Q2	-5.1	5.1	4.0	Jul	4.2	8.7	Q2 [§]	-1.1		-7.5	4.2		158	50.4		-3.6			
Singapore	14.7	Q2	-7.2	5.4	2.4	Jun	1.8	2.7	Q2	17.3		-4.4	1.4		50.0	1.36		0.7			
South Korea	5.9	Q2	2.7	3.8	2.6	Jul	2.2	3.2	Jul [§]	4.9		-3.7	1.9		52.0	1,169		1.4			
Taiwan	7.4	Q2	-4.2	5.9	2.0	Jul	1.7	4.8	Jun	15.6		-0.7	0.4		1.0	27.8		5.7			
Thailand	7.5	Q2	1.5	2.8	0.5	Jul	1.5	1.5	Dec [§]	3.7		-6.5	1.3		21.0	33.3		-6.5			
Argentina	2.5	Q1	11.0	8.0	51.8	Jul	47.3	10.2	Q1 [§]	1.3		-5.5	na		na	97.3		-24.6			
Brazil	1.0	Q1	4.9	5.5	9.0	Jul	7.2	14.6	May ^{§††}	nil		-5.9	10.7		383	5.31		3.2			
Chile	18.1	Q2	4.2	7.5	4.5	Jul	3.6	9.5	Jun ^{§††}	-0.4		-7.1	4.7		225	786		1.2			
Colombia	17.0	Q2	-9.2	7.8	4.0	Jul	3.1	14.4	Jun [§]	-3.6		-8.9	7.0		187	3,862		-1.9			
Mexico	19.7	Q2	6.1	6.4	5.8	Jul	5.1	4.0	Jun	1.6		-2.8	7.0		130	20.0		10.8			
Peru	3.8	Q1	8.3	10.8	3.8	Jul	3.5	9.7	Jul [§]	-0.5		-5.7	6.5		304	4.09		-12.5			
Egypt	2.9	Q1	na	3.3	5.5	Jul	5.6	7.3	Q2 [§]	-3.8		-8.0	na		na	15.7		1.5			
Israel	17.0	Q2	15.4	4.2	1.9	Jul	1.8	5.2	Jun	3.9		-7.6	1.0		33.0	3.23		5.3			
Saudi Arabia	-4.1	2020	na	2.2	0.4	Jul	3.2	6.5	Q1	4.3		-2.0	na		na	3.75		nil			
South Africa	-3.2	Q1	4.6	3.0	4.7	Jul	4.0	32.6	Q1 [§]	1.8		-9.4	8.9		-42.0	15.0		15.8			

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:	
		Aug 18th	Dec 31st 2020
United States S&P 500	4,400.3	-1.1	17.2
United States NAScomp	14,525.9	-1.6	12.7
China Shanghai Comp	3,485.3	-1.3	0.4
China Shenzhen Comp	2,412.5	-3.0	3.6
Japan Nikkei 225	27,585.9	-1.7	0.5
Japan Topix	1,924.0	-1.5	6.6
Britain FTSE 100	7,169.3	-0.7	11.0
Canada S&P TSX	20,302.1	-1.2	16.5
Euro area EURO STOXX 50	4,189.4	-0.4	17.9
France CAC 40	6,770.1	-1.3	22.0
Germany DAX*	15,966.0	0.9	16.4
Italy FTSE/MIB	26,357.2	-0.4	18.6
Netherlands AEX	771.5	-0.6	23.5
Spain IBEX 35	8,970.2	-0.1	11.1
Poland WIG	68,796.2	nil	20.6
Russia RTS, \$ terms	1,675.2	1.1	20.7
Switzerland SMI	12,545.4	1.3	17.2
Turkey BIST	1,449.6	2.7	-1.8
Australia All Ord.	7,770.7	-1.1	13.4
Hong Kong Hang Seng	25,867.0	-3.0	-5.0
India BSE	55,629.5	2.0	16.5
Indonesia IDX	6,118.1	0.5	2.3
Malaysia KLSE	1,525.2	1.4	-6.3

	index	% change on:	
		Aug 18th	Dec 31st 2020
Pakistan KSE	47,258.5	-0.3	8.0
Singapore STI	3,131.4	-1.5	10.1
South Korea KOSPI	3,158.9	-1.9	9.9
Taiwan TWI	16,826.3	-2.3	14.2
Thailand SET	1,551.9	1.3	7.1
Argentina MERV	67,094.3	-3.4	31.0
Brazil BVSP	116,642.6	-4.4	-2.0
Mexico IPC	51,966.1	1.3	17.9
Egypt EGX 30	10,908.0	0.2	0.6
Israel TA-125	1,775.3	1.1	13.2
Saudi Arabia Tadawul	11,344.9	0.2	30.6
South Africa JSE AS	67,905.7	-2.5	14.3
World, dev'd MSCI	3,078.0	-1.0	14.4
Emerging markets MSCI	1,261.6	-2.8	-2.3

US corporate bonds, spread over Treasuries

	latest	Dec 31st 2020
Basis points		
Investment grade	119	136
High-yield	362	429

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

Commodities

The Economist commodity-price index	% change on				
	2015=100	Aug 10th	Aug 17th*	month	year
Dollar Index					
All Items	166.5	166.6	-9.5		32.8
Food	130.5	131.6	0.6		39.5
Industrials					
All	200.2	199.2	-14.7		29.0
Non-food agriculturals	142.8	140.2	-1.9		33.7
Metals	217.2	216.8	-16.8		28.1
Sterling Index					
All items	183.6	185.1	-10.3		27.8
Euro Index					
All items	157.6	157.7	-9.1		35.1
Gold					
\$ per oz	1,727.6	1,783.0	-1.5		-10.7
Brent					
\$ per barrel	70.8	69.1	-0.6		51.8

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)

The Delta delta

Jabs mostly fend off the new strain, but breakthrough cases are very infectious

ON AUGUST 18TH America's surgeon general announced that people who got covid-19 vaccines at least eight months ago can receive an extra shot. Israel has already given a third jab to many citizens. France and Britain are also considering boosters.

Covid-19 vaccines offer better defences against hospitalisation and death than versus transmission. However, their protection against infection may have begun to wane. In Iceland and Israel, most adults got jabs months ago, but cases are soaring.

There are two leading explanations for this trend. One is that the Delta variant escapes protection from vaccines. Another is that the jabs' efficacy declines over time. A new paper finds evidence for both causes.

Led by Koen Pouwels of Oxford, the study, released on August 19th, uses a survey of 500,000 people in Britain who were tested regularly for covid-19. After adjusting for age and time since vaccination, it compared the jabs' efficacy during two time periods: one dominated by the Alpha variant, and another by Delta. For cases with a high viral load, the efficacy of Pfizer's jab fell from 94% against Alpha to 84% versus Delta. AstraZeneca's efficacy dipped from 86% to 70%, and protection resulting from previous infection declined from 87% to 77%.

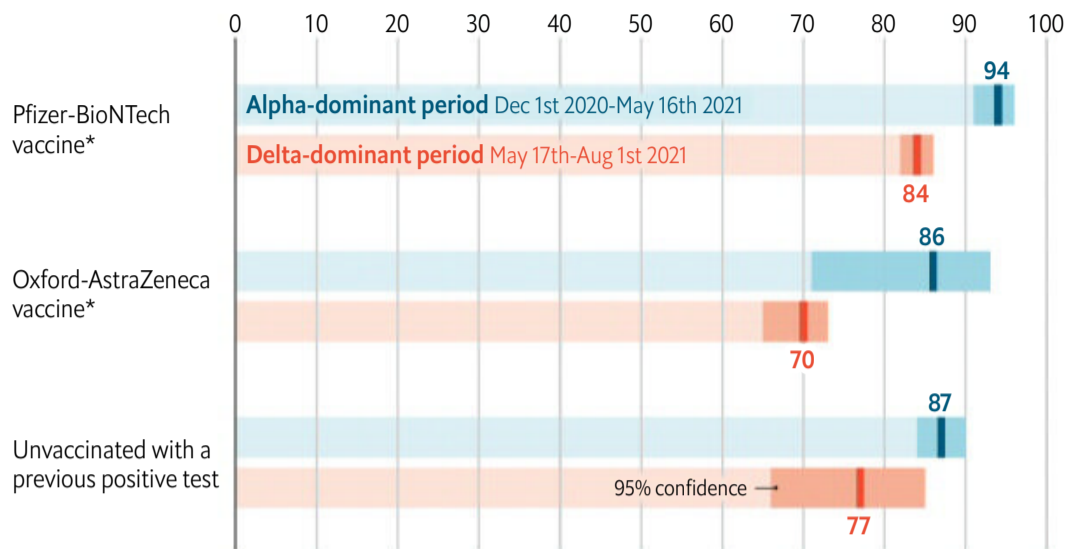
The passage of time has reinforced this immune escape. One Israeli study showed that people who got Pfizer's jab in January or February were 50% more likely to have a "breakthrough" case in June or July than were those vaccinated in March or April. The British data back up this result: in the three months following a second jab, Pfizer's efficacy declined by ten percentage points. AstraZeneca's vaccine had a milder drop, though it was less protective overall.

The study's most striking finding involved transmission. In the Alpha period, vaccinated people with breakthrough cases produced only small amounts of virus. This made them less likely to spread it. In contrast, viral loads in breakthrough Delta cases were just as high as those of people exposed to viral proteins for the first time.

The British paper does not study the severity of covid-19 cases. In theory, protection against infection can wane without harming defences against serious disease, because a vaccine-trained immune system can expel the virus quickly. However, hospitalisations in Israel have risen to levels last seen in March. The jury is still out on whether widespread boosters will be necessary to keep hospital beds open. ■

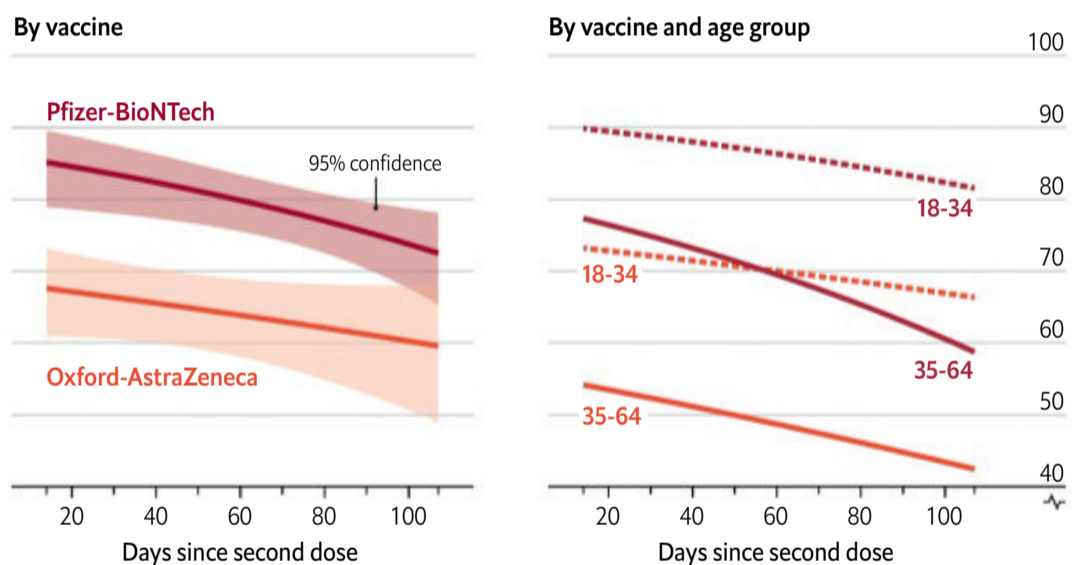
→ Vaccines and past infections offer good protection against the Delta variant

Efficacy against high-viral-load infection, by source of immunity, %
British adults, Dec 1st 2020-Aug 1st 2021



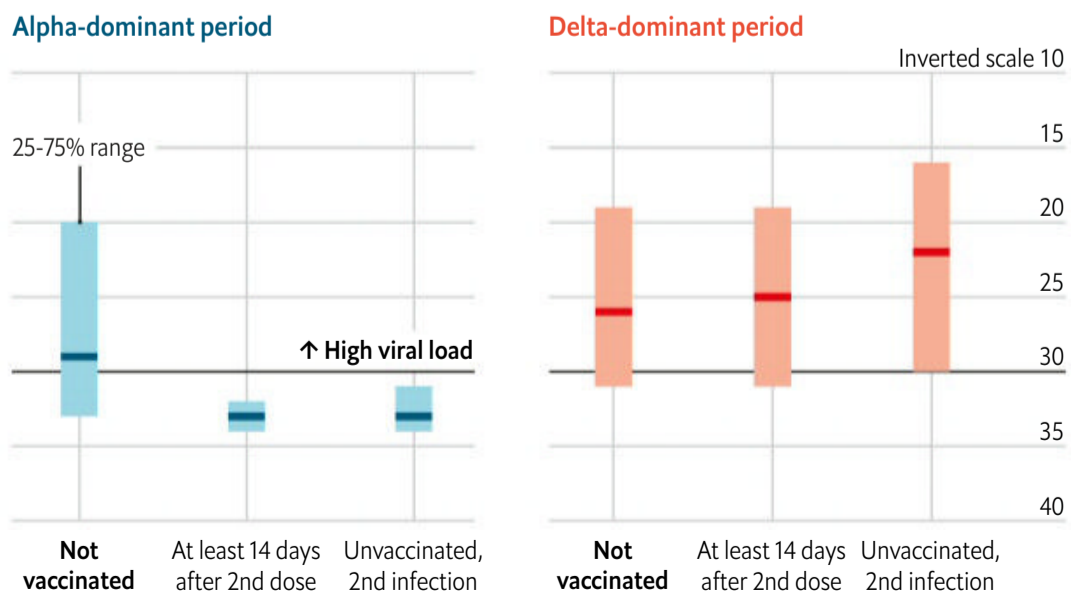
→ Vaccines' efficacy is lower in older people, and wanes over time

Vaccine efficacy against infection, %
British adults aged 18-64, Delta-dominant period



→ Vaccinated people infected with Delta are as infectious as the unvaccinated

Viral load among those testing positive for covid-19, by vaccination status
Study of British adults 2020-21, number of PCR cycles to achieve a positive result



*At least 14 days after second dose Source: "Impact of Delta on viral burden and vaccine effectiveness against new SARS-CoV-2 infections in the UK", by Koen B. Pouwels et al., 2021



America's favourite problem child

Jane Withers, tomboy star of Hollywood's Golden Age, died on August 7th, aged 95

FOR ANY small girl of energy and spirit, to be asked to be ladylike is insufferable. To sit up straight, be demure, wear gloves and speak only when spoken to is pure torture. Fortunately, that was not a difficulty Jane Withers faced. From the age of six she was paid to do things other children were usually spanked for, and she was very good at it. She was sassy, loud, awkward and answered back. She could blow out her cheeks like a puffer fish until her eyes disappeared almost into her head. She could caper like a cowpoke, in raggedy cut-off trousers, and preferred a battered straw hat to a flowery bonnet any day. If provoked she could throw a punch at any boy, or at least give him a good pummelling of fists on his stupid chest. She was not afraid to fall into muck and feathers, and could organise a pretty good brawl.

Her films had titles like "Arizona Wildcat", "The Holy Terror", "Rascals" and "Always in Trouble". She played characters called Ginger, Pepper, Corky and Peg Gurgle, usually orphans, who were forced into unwise adoptions, over-fancy schools, criminals' hideouts or desert islands, but would spunkily take charge and, after a struggle, come up beaming. These nuisance-girls were also excellent sleuths and menders of grown-up sadness, and her films (if they didn't end in an actual spanking, which she didn't mind a bit) often left not a dry eye in the house.

Her most memorable moment, when she was eight, was to steal a whole picture from Shirley Temple, the nation's favourite moppet. In "Bright Eyes" in 1934, as creepy-mean Joy Smythe, she ran her over with a tricycle and again with a baby buggy. When Shirley found one of Joy's cloth dolls in the trash and rescued it with soothing words, she snatched it back, ripped off its head and skipped away singing. She was the very antidote to cuteness: a clumsy child with a dark Dutch bob, a biggish nose and tailor-sharp collars, who had stood out like a sore thumb at interviews among the Shirley lookalikes in their curls. She got the role partly

for her imitation of the machinegun Joy Smythe wanted for Christmas, and she played her so convincingly that Shirley's mother forbade them even to say hello on set.

She worried that people would hate her for being so nasty to Shirley, but the opposite happened. She became wildly popular, twice making the top-ten box-office-star list, even though these were B-movies and low-budget. Shirley was perfect, but Jane was imperfect, like most little girls. Hundreds of dolls and teddy bears arrived in the mail—so many, that she started a collection which eventually filled a whole warehouse. President Franklin Roosevelt sent her flowers, and Eleanor Roosevelt hand-delivered another bear. Shops were filled with Jane Withers shoes, socks, hairbows, hats, dresses and paper dolls. Like many child stars, she made far more from the merchandise than from her 38 films. There were Jane Withers mystery books, too, in which her sleuthing won the day. She might not be as classy and pretty as Nancy Drew, the top girl-detective of the age, but like her she could ride a horse, ice-skate, speak French and tie baddies in knots. And, better than her, she could mimic anyone, though Darryl Zanuck, the head of 20th Century Fox, forbade her to take off Shirley in any public place.

The other pleasant surprise she gave the studio, besides her pulling power, was that away from filming she was so well behaved. Tomboy ways were there for sure, with her menagerie of horses, baby alligators, turtles, dogs and hens, and with the motorbikes she rode at the family's summer cabin. She would pipe up boldly at writers' conferences if she thought her script was not what a child would say. (Words she liked to say were "Swell!", and "You bet your boots!" and, when cross, "Oh, pooh.") But she threw no tantrums. If she liked the look of a role she went for it politely, and said thank you. Her mother, who had intended her to be an actress even in the womb, and had got her into Atlanta radio shows, with top hat and cane, at the age of three, had kept her from being spoilt. She was given a strict allowance of \$5 a week, rising to \$10. For every two dolls she was sent, one had to be given to a needy child. Her father put her earnings—\$2,500 a week at the peak—into California land and safe investments, insisting that they should live only on the money he brought home. He brought home plenty, providing their house on Sunset Boulevard with a swimming pool, badminton court and giant playroom, and later, when she was a teenager, a beauty salon and a soda fountain.

All this, she believed totally, was God's doing. Her parents, strict Presbyterians, taught Bible classes and Sunday school, and in both Atlanta and Hollywood orphan children were invited on Sunday afternoons to have fun at their house. Throughout her life she took any troubles directly to the Lord. He worked things out. She never had an agent, because she and her mother and God did all the planning. And He saw to it that she had an absolute ball.

Of course, the Hollywood bit didn't last. She grew in all the wrong places, and got so sick of playing child parts in pigtails that at 15 she wrote her own story, "Small Town Deb", in which a gawky teenage girl was at last allowed to be herself. She starred in the film, but it was clear that her fans still had trouble with her growing-up. In 1947 at 21 she retired, making little of note afterwards except "Giant", with Liz Taylor and Rock Hudson, in 1956. God made sure, though, that life wasn't dull. A growing family kept her busy, with television slots and a pile of charity work.

And Josephine the Plumber. From 1963 to 1974 she was on America's TV screens, in the longest-running ad till then, advertising Comet Cleanser. It was a useful part-time job, but also a direct reprise of her sparky tomboy self. As Josephine, she wore a white cap and overalls and flourished Super Comet with Chlorinol over every sink, scrubbing furiously to prove it cleaned away stains other leading cleansers couldn't. She was a caring sort, but no happy housewife: slamming her van doors, posing with hands on hips, cuffing a boy on the head, and winking broadly. Shirley Temple would have recognised her and trembled in a minute. Though they were now, of course, the very best of friends. ■



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