

The Economist

The roaring 20s?
Towards a new era
of innovation



JANUARY 16TH-22ND 2021

The reckoning





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On the cover

The right and the wrong ways to hold Donald Trump to account: leader, page 7. Congress has impeached the president for his incitement of the storming of Capitol Hill. What happens next? Page 33. The Republican Party launches an overdue civil war: Lexington, page 38. Political theorists have been worrying about mob rule for two thousand years, page 54

• **Innovation** Pessimism about technological change is giving way to hope—much of it justified: leader, page 8. Economists are convinced that governments can increase economic growth by spending more on research and development. Are they right? Briefing, page 15. Companies will emerge from the pandemic recession more highly automated, page 57 and Free exchange, page 70. Reviving the Apollo spirit, page 77

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The world this week

- 5 A summary of political and business news

Leaders

- 7 **Impeachment**
The reckoning
8 **Innovation**
The roaring 20s?
9 **Social media**
The sound of silence
9 **Governing India**
Reaping what you sow
10 **Waste in low-Earth orbit**
New brooms needed

Letters

- 12 On Brexit, inflation, girls, content analysis, the Dutch royal family, rats, Republicans

Briefing

- 15 **The economics of government R&D**
Molecules, missions and money



Banyan Have departing American officials left a booby trap for Taiwan as well as Joe Biden? Page 50



Britain

- 19 The economy after Brexit
20 Rolling out the vaccine
21 The pressure on hospitals
21 Sequencing SARS-CoV-2
22 Biden's lessons for Labour
22 Civil-service reform
24 Private art goes public
25 **Bagehot** Trump and the Tories



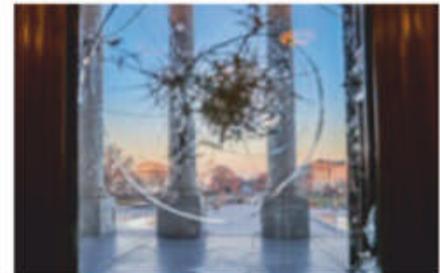
Europe

- 27 Race in France
28 A political crisis in Italy
29 Germany's Christian Democrats pick a leader
30 Covid-19 in Turkey
30 Greenland's economy
31 **Charlemagne**
Cyberpunked



United States

- 33 The final chapter
34 Social media and speech
35 Murder rates surge
36 Minor-league baseball
37 The Texas legislature
38 **Lexington** The conscience of some conservatives



The Americas

- 39 Biden and Latin America
40 Ford leaves Brazil



Middle East & Africa

- 41 Gulf jabs, made in China
42 A Saudi city with no cars
43 Uganda's election
44 Animating Africa



Asia

- 45** Indonesia's royal revival
46 Child abuse in the Philippines
47 Kyrgyzstan's election
48 India's farm reforms
48 Gaming in Afghanistan
50 **Banyan** Taiwan and America

**China**

- 51** Killing rural democracy
52 Defiance in Hong Kong
53 **Chaguan** Covid-19 stigma

**International**

- 54** Democracy and the mob

**Business**

- 57** A robot revolution
58 A chill in China Inc
59 Pre-emptive antitrust
59 Electronic cars
60 **Bartleby** Covid-19 routines
61 Post-Trump social media
61 TikTok's other rival
62 Brand lessons from Rizla
63 **Schumpeter**
 Refashioning Zara

**Finance & economics**

- 65** The impact of lockdowns
66 Surging commodities
67 **Buttonwood** Options trading
68 Emerging-market stocks
68 Brazil's new investors
69 The Big Mac index
70 **Free exchange** Robots and jobs

**Science & technology**

- 71** Cleaning up space
72 Satellites made of wood
73 Hitchhiking viruses
74 New drugs for covid-19
74 Thieving monkeys

**Books & arts**

- 75** Mikhail Gorbachev
77 A novel of the "dirty war"
77 Innovation and the state
78 **Johnson** The language of incitement

**Economic & financial indicators**

- 80** Statistics on 42 economies

Graphic detail

- 81** Eating a bit of meat may have improved Japanese longevity

Obituary

- 82** Brian Urquhart, godfather of UN peacekeeping

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

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Protected by National Guard troops, the House of Representatives voted to impeach **Donald Trump** for inciting the recent mob attack on Congress, the first time that an American president has been impeached twice. It is uncertain if and when the Senate will hold an impeachment trial. Meanwhile, the FBI has reportedly warned officials of further armed protests ahead of Joe Biden's inauguration on January 20th. Pro-Trump demonstrations are apparently being planned for all 50 state capitals as well as Washington, DC.

Mr Biden nominated William Burns to head the **CIA**. Mr Burns is a career diplomat who has been an ambassador to Russia and was instrumental in forging the nuclear deal with Iran in 2015, which Mr Trump pulled America out of.

The Trump administration announced that it was banning the import of all cotton and tomato goods from **Xinjiang**, and products from other countries that contain those items, because they are produced using the forced labour of Uyghurs, a predominantly Muslim group who have been subjected to mass internment by China. It is the most sweeping trade order yet issued regarding Xinjiang.

The north-eastern **Chinese** province of Heilongjiang declared a state of emergency following the discovery of a handful of locally transmitted cases of covid-19. This followed the imposition of tight curbs on travel in parts of Hebei after a new outbreak in the province, which borders on Beijing. A team of experts sent by the World Health Organisation at

last arrived in China to investigate the origins of the pandemic, after China delayed their entry because of a "misunderstanding" about visas. The team's first two weeks will be spent in quarantine.

A **South Korean** court ruled that the government of **Japan** should pay compensation to 12 women forced to work as sex slaves for Japanese soldiers during the second world war. Japan maintains that several agreements have already settled all such claims.

Abu Bakar Basyir, the spiritual leader of Jemaah Islamiyah, a jihadist group that carried out deadly bombings in **Indonesia**, was released from prison after serving ten years of a 15-year sentence for setting up a training camp for terrorists.

Sadyr Japarov, a convict freed from prison by supporters in October, was elected president of **Kyrgyzstan**.

American prosecutors claimed that **Honduras's** president, Juan Orlando Hernández, directed his armed forces to protect deliveries of cocaine to the United States. They allege that Mr Hernández took bribes from traffickers and wanted to "shove the drugs right up the noses of the gringos". He denies wrongdoing.

The Trump administration put **Cuba** back onto America's list of state sponsors of terrorism. The measure, which restricts business between America and Cuba, will make it more difficult for Joe Biden to normalise relations when he takes over as president. The administration is also to designate the Houthi rebel movement of **Yemen** as a terrorist group, a move aid organisations warn will make it harder to help the millions of Yemenis who need assistance.

America's secretary of state, Mike Pompeo, claimed that **al-Qaeda** had established a new "home base" in **Iran**, though he did not provide hard evidence. Terrorism experts, as well as Iran, disputed the

claim, which some saw as an effort to sabotage Mr Biden's outreach to Iran. Meanwhile, Israel bombed Iranian-backed militia bases in Syria.

Kuwait's cabinet, less than a month old, resigned amid a stand-off with parliament. MPS claimed the ministers were "not reflective" of recent election results. The feud has hindered efforts to tackle a fiscal crisis caused by low oil prices and covid-19. It is the first big test for Emir Sheikh Nawaf al-Ahmed al-Sabah, who took over in September.

Uganda cut off access to social media ahead of an election scheduled for January 14th. Opposition candidates have been shot at, arrested and intimidated by the government of Yoweri Museveni, who has been president for 35 years.

Ethiopian government forces claimed to have killed several leading members of the Tigrayan People's Liberation Front, the ousted ruling party of the northern region of Tigray. Seyoum Mesfin, a former foreign minister of Ethiopia, was among the dead.

The trial began of more than 300 alleged members of Italy's most powerful **Mafia** group, the 'Ndrangheta. It is the largest Mafia trial for more than three decades, and is expected to last for at least two years.

The **Italian government** was meanwhile plunged into crisis when Matteo Renzi, a former prime minister who leads a small splinter party, withdrew his support for the ruling coalition.

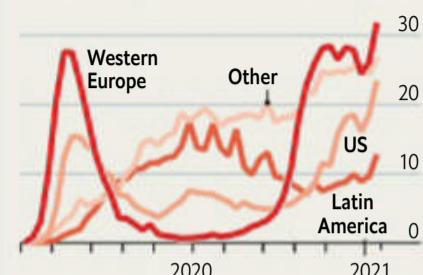
Madrid was paralysed by the heaviest snowstorm for 50 years. Temperatures fell to -16°C in the Spanish capital.

Correction: Last week, on this page and in "So sweet and clear" in the United States section, we were wrong to say that Raphael Warnock was the first black person to be elected to the Senate from the South. He is the first black Democrat. Tim Scott, a Republican from South Carolina, holds a Senate seat. Sorry.

Coronavirus briefs

To 6am GMT January 14th 2021

Weekly confirmed deaths by area, '000



Vaccinations

	Total '000	This week '000	Per 100 people
Israel	1,991	602	23.00
UAE	1,395	367	14.10
Bahrain	98	23	5.75
Britain	3,068	1,151	4.52
United States	10,278	3,790	3.11
Denmark	118	65	2.04
Italy	801	469	1.32
Spain	582	339	1.24
Slovenia	24	16	1.18
Canada	388	176	1.03

Sources: Johns Hopkins University CSSE; Our World in Data; *The Economist*

New variants of the disease that are more infectious than the original strain were reported in Brazil and Ohio.

Two cabinet ministers in **Malawi** died after contracting covid-19 as a second wave of the pandemic sweeps across sub-Saharan Africa. Hospitals in **South Africa's** major cities have been overwhelmed, leading the government to close 20 border crossings.

London's mayor, Sadiq Khan, declared a "major incident". The death toll from covid in the city passed 10,000; 7,600 are being treated in hospital. British police toughened the use of new powers targeting a "stubborn number of people" wilfully flouting the rules.

Andrew Cuomo, the governor of **New York**, promised to increase vaccination rates in his state, but also warned that "We simply cannot stay closed until the vaccine hits critical mass...We will have nothing left to open."

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

Social-media companies, including Facebook, Twitter and YouTube, kicked Donald Trump off their platforms for inciting the mob that stormed Congress. Twitter's ban is permanent, a blow for a man who last year tweeted 6,280 times (over 17 a day on average) and retweeted 5,956 items. Questions were raised about the implications for free speech. **Parler**, a social network favoured by right wingers who are banned from other forums, was also muzzled. Its app was dropped by Apple and Google, and Amazon stopped hosting it in the cloud.

Flight test

The American government issued an edict that all air passengers travelling to the United States must test negative for covid-19 a minimum of three days before their departure. **Airlines** will be required to deny boarding to anyone who cannot produce evidence of the test. The International Air Transport Association has criticised such moves, its director-general this week lamenting that "governments are not interested in managing a balanced approach to the risks" of the disease, making it impossible for the travel and tourism industries to recover.

Moderna is working with **Uber** to disseminate information about the safety of its vaccine through the ride-hailing app. Uber also hopes people will be able to book a car when scheduling a vaccination appointment. It recently made 10m rides available free or at a discount to get people to vaccination centres, in a project targeted at black communities.

Airbus delivered 566 commercial aircraft to customers last year, a sharp drop from 2019 but in line with its revamped production schedule. Beset by problems with the 737 MAX, **Boeing** delivered just 157 passenger planes. Boeing has reached a deferred prosecution agreement with the Department of Justice, in which it admits that two former em-

ployees misled regulators about changes to the 737 MAX. It is to pay \$2.5bn in penalties.

American employers shed 140,000 workers in December, the first **job losses** since April, when millions were being thrown out of work because of the pandemic.

Intel announced that Pat Gelsinger, who worked at the company for several decades and is presently in charge of VMware, would return as its chief executive, after it abruptly ditched Bob Swan. Mr Gelsinger's task will be to reverse a steady decline. Intel's chip factories are no longer cutting-edge, and it is losing market share to AMD, a much smaller rival.

According to reports, Americans will still be allowed to invest in Alibaba, Baidu and Tencent, after the Treasury intervened to have them removed from a blacklist of **Chinese tech firms** that are alleged to have ties with China's armed forces. Rumours that the three companies were to be put on the list had caused their share prices to swoon.

Joe Biden was expected to choose **Gary Gensler** to head the Securities and Exchange Commission. Mr Gensler

earned a reputation as a tough overseer of Wall Street when he led the Commodity Futures Trading Commission in the aftermath of the financial crisis, overhauling derivatives markets.

The EU's competition regulator approved the \$27bn takeover of **Refinitiv**, a data and trading company, by the **London Stock Exchange**. It was the last big hurdle for the deal, which was announced in August 2019.

Plugged in

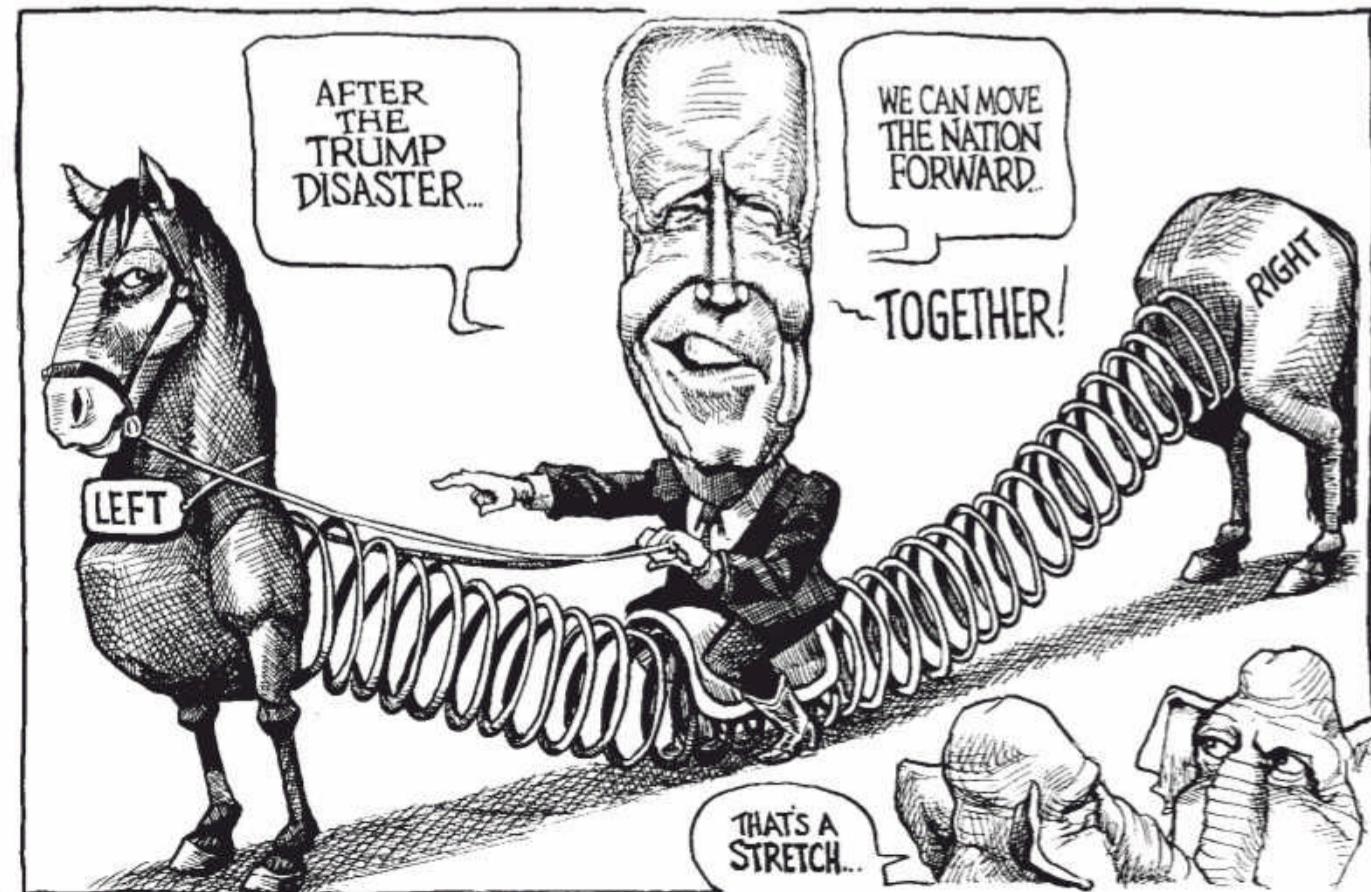
Volkswagen's worldwide vehicle sales fell by 15% last year, to 9.3m, and by more in Europe and South America. Sales of electric cars, however, more than tripled, to 231,600. That is close to half the number that Tesla sold in 2020, evidence that competition in the electric-car market is at last revving up. Separately, **Baidu**, China's leading internet-search platform, which has a big interest in artificial intelligence, announced that it was teaming up with **Geely**, a Chinese carmaker, to build smart electric cars.

Ford is to close its factories in Brazil. The carmaker opened its first assembly plant in the country in 1919, its vehicles

helping to shape Brazil's modern layout, which still relies on road over rail. Henry Ford even established Fordlândia, in the Amazon, to secure a source of rubber, but his company town eventually failed.



Sheldon Adelson died at the age of 87. The casino tycoon started out selling newspapers on Boston's street corners and took various other jobs before making his fortune in Las Vegas and, eventually, by transforming Macau into a gambling mecca. In 1989 he bought the famed Sands hotel, only to demolish it in 1996 to make way for the Venetian. Like the punters who flocked to his casinos, Mr Adelson's riches could fluctuate at astonishing speed. As one of America's wealthiest men, his deep pockets funded political campaigns, backing Binyamin Netanyahu in Israel and Donald Trump in America.



The reckoning

The right and the wrong ways to hold President Donald Trump to account

IN 230 YEARS the House of Representatives voted for the president to be impeached just twice. In only 13 months it has doubled the total by indicting Donald Trump twice more. Now the Senate should issue another historical rebuke by making him the first American president in history to be convicted.

The article of impeachment that passed on January 13th accuses Mr Trump of inciting an insurrection (see United States section). Stand back, for a moment, and consider the enormity of his actions. As president, he tried to cling to power by overturning an election that he had unambiguously lost. First, he spread a big lie in a months-long campaign to convince his voters that the election was a fraud and that the media, the courts and the politicians who clung to the truth were in fact part of a wicked conspiracy to seize power. Then, having failed to force state officials to override the vote, he and his henchmen whipped up a violent mob and sent them to intimidate Congress into giving him what he wanted. And last, as that mob ransacked the Capitol and threatened to hang the vice-president, Mike Pence, for his treachery, Mr Trump looked on, for hours ignoring lawmakers' desperate pleas for him to come to their aid.

In a democracy, no crime is higher and no misdemeanour more treasonous. Mr Trump needs to be punished for betraying his oath as head of state. He must be prevented from holding office again—or he may well stand in 2024. And, in case someone is minded to copy him, he must serve as an example of how vehemently America rejects a leader who tramples its constitution.

Until this week the only attempt to hold Mr Trump to account for the storming of the Capitol had come from social-media companies, which had banned him from their platforms to prevent further violence before the inauguration of Joe Biden on January 20th. Although the FBI indeed warns that violence is a real risk, the likes of Twitter and Facebook would have done better by focusing on the president's individual tweets and posts (see leader).

Outright bans will undermine politics. They appear arbitrary, because tech firms imposed them on the spur of the moment, having chosen not to block Mr Trump before. And they appear self-interested, because executives are open to the charge that they saw a chance to ingratiate themselves with the Biden administration or wished to quell anti-Trump mutinies among their progressive staff. Regardless of whether that criticism is fair, the fact that powerful, unelected businesspeople have been the first defence against Mr Trump sets a bad precedent. It also fires up his supporters' grievances. If you try to exile the mob from politics rather than assimilate and tame it, you risk driving it into the arms of demagogues (see International section).

The proper place to defend the constitution is the venue the constitution itself provides: Congress. That is why the House was right to vote to impeach Mr Trump and why the Senate should move fast to convict him. Due process and the chamber's procedural rules mean that hearings are virtually certain to take place after Mr Trump leaves office. If so, two potential hurdles will stand in the way: the requirement to secure a two-thirds ma-

jority for conviction and the constitution itself.

The constitutional hurdle comes from conservative jurists who argue that a president cannot be tried once he has left office. Although hearings against Ulysses Grant's secretary of war for corruption went ahead after he had resigned, no president has been subject to impeachment after his term ended. Yet the framers cannot have intended presidents to be unimpeachable during the lame-duck period. If so, the commander-in-chief would be beyond the law precisely when the impossibility of being re-elected meant that he or she might be most tempted to flout it.

The conservative-leaning Supreme Court may have to determine the answer. If it prevents a Senate trial, Congress must fall back on other, less satisfactory tools such as censure or banning Mr Trump from office under the 14th Amendment for having "engaged in insurrection or rebellion". If it allows a trial to go ahead, then the Senate should proceed immediately rather than leave Mr Trump to fester. Those who worry about impeachment obstructing Mr Biden's plans for the first 100 days during a national emergency are miscalculating. If Republicans do deals on covid-19 relief or an infrastructure bill, it will not be because Mr Biden's party goes slow on impeachment. If necessary Congress could divide its day between the trial and the rest of its business.

The political hurdle is not Mr Biden's agenda but the fact that removing a president requires his party to turn against him. In the next Senate, at least 17 Republicans will have to abandon Mr Trump. Although that goal will be hard to meet, impeachment is still right. The principled arguments for convicting Mr Trump are unassailable. Many Republican senators detest the president and his constitutional vandalism. And many are still being personally threatened with violence by

Mr Trump's supporters.

They have more calculating reasons to convict Mr Trump, too. Impeachment is inescapably political, and this is their best chance to loosen the president's malign grip on their party. Only one in six of his voters now supports the storming of the Capitol, but many of them still think the election was stolen, partly because, shamefully, Republicans have not dared to tell them the extent of Mr Trump's lies. Now is the time to start.

Mr Trump will never forgive those whom, like Mitch McConnell, the Senate leader, he judges to have failed him by acknowledging Mr Biden's election victory. Having begun to move against him, they should finish the job. And there is history. They should think about how Mr Trump's presidency will ultimately be judged, and their part in it. In the House ten Republicans voted for impeachment. Senators should follow their lead. The more the better, for the Republican Party and for America, too.

And that leads to the last argument for Republicans to remove Mr Trump. His supporters argue that impeachment is divisive just when America needs to become united. That is self-serving and wrong. Nobody has sown discord as recklessly as Mr Trump and his party. You do not overcome division by pretending that nothing is wrong, but by facing it. Were Mr Trump to be convicted, the healing might genuinely begin. ■



Innovation

The roaring 20s?

Pessimism about technological change is giving way to hope—much of it justified

FOR MUCH of the past decade the pace of innovation overwhelmed many people—especially those miserable economists. Productivity growth was lacklustre and the most popular new inventions, the smartphone and social media, did not seem to help much. Their malign side-effects, such as the creation of powerful monopolies and the pollution of the public square, became painfully apparent. Promising technologies stalled, including self-driving cars, making Silicon Valley's evangelists look naive. Security hawks warned that authoritarian China was racing past the West and some gloomy folk warned that the world was finally running out of useful ideas.

Today a dawn of technological optimism is breaking. The speed at which covid-19 vaccines have been produced has made scientists household names. Prominent breakthroughs, a tech investment boom and the adoption of digital technologies during the pandemic are combining to raise hopes of a new era of progress: optimists giddily predict a “roaring Twenties”. Just as the pessimism of the 2010s was overdone—the decade saw many advances, such as in cancer treatment—so predictions of technological Utopia are overblown. But there is a realistic possibility of a new era of innovation that could lift living standards, especially if governments help new technologies to flourish.

In the history of capitalism rapid technological advance has been the norm. The 18th century brought the Industrial Revolution and mechanised factories; the 19th century railways and electricity; the 20th century cars, planes, modern medicine and domestic liberation thanks to washing machines. In the 1970s, though, progress—measured by overall productivity growth—slowed. The economic impact was masked for a while by women piling into the workforce, and a burst of efficiency gains followed the adoption of personal computers in the 1990s. After 2000, though, growth flagged again.

There are three reasons to think this “great stagnation” might be ending. First is the flurry of recent discoveries with transformative potential. The success of the “messenger RNA” technique behind the Pfizer-BioNTech and Moderna vaccines, and of bespoke antibody treatments, shows how science continues to empower medicine. Humans are increasingly able to bend biology to their will, whether that is to treat disease, edit genes or to grow meat in a lab. Artificial intelligence is at last displaying impressive progress in a range of contexts. A program created by DeepMind, part of Alphabet, has shown a remarkable ability to predict the shapes of proteins; last summer OpenAI unveiled GPT-3, the best natural-language algorithm to date; and since October driverless taxis have ferried the public around Phoenix, Arizona. Spectacular falls in the price of renewable energy are giving governments confidence that their green investments will pay off. Even China now promises carbon neutrality by 2060.

The second reason for optimism is booming investment in technology. In the second and third quarters of 2020 America's non-residential private sector spent more on computers, software and research and development (R&D) than on buildings and industrial gear for the first time in over a decade. Governments

are keen to give more cash to scientists (see Briefing). Having shrunk for years, public R&D spending across 24 OECD countries began to grow again in real terms in 2017. Investors' enthusiasm for technology now extends to medical diagnostics, logistics, biotechnology and semiconductors. Such is the market's optimism about electric vehicles that Tesla's CEO, Elon Musk, who also runs a rocket firm, is the world's richest man.

The third source of cheer is the rapid adoption of new technologies. It is not just that workers have taken to videoconferencing and consumers to e-commerce—significant as those advances are, for example to easing the constraints on jobseeking posed by housing shortages. The pandemic has also accelerated the adoptions of digital payments, telemedicine and industrial automation (see Business section). It has been a reminder that adversity often forces societies to advance. The fight against climate change and the great-power competition between America and China could spur further bold steps.

Alas, innovation will not allow economies to shrug off the structural drags on growth. As societies get richer they spend a greater share of their income on labour-intensive services, such as restaurant meals, in which productivity growth is meagre because automation is hard. The ageing of populations will continue to suck workers into low-productivity at-home care. Decarbonising economies will not boost long-term growth unless green energy realises its potential to become cheaper than fossil fuels.

Yet it is reasonable to hope that a fresh wave of innovation might soon reverse the fall in economic dynamism which is responsible for perhaps a fifth of the 21st century's growth slowdown. Over time that would compound into a big rise in living standards. Perhaps still more is achievable because many service industries, including health care and education, would benefit greatly from more innovation. Eventually, synthetic biology, artificial intelligence and robotics could up-end how almost everything is done.

It's not rocket science

Although the private sector will ultimately determine which innovations succeed or fail, governments also have an important role to play. They should shoulder the risks in more “moonshot” projects (see Books & arts). The state can usefully offer more and better subsidies for R&D, such as prizes for solving clearly defined problems. The state also has a big influence over how fast innovations diffuse through the economy. Governments need to make sure that regulation and lobbying do not slow down disruption, in part by providing an adequate safety-net for those whose livelihoods are upended by it. Innovation is concentrated among too few firms (see Free exchange). Ensuring that the whole economy harnesses new technologies will require robust antitrust enforcement and looser intellectual-property regimes. If governments rise to the challenge, then faster growth and higher living standards will be within their reach, allowing them to defy the pessimists. The 2020s began with a cry of pain but, with the right policies, the decade could yet roar. ■



Social media and democracy

The sound of silence

Regulation of free speech should not be outsourced to a few tech tycoons

THE FIRST reaction of many people was one of relief. On January 6th, with 14 days remaining of his term, the social-media president was suspended from Twitter after years of pumping abuse, lies and nonsense into the public sphere. Soon after, many of his cronies and supporters were shut down online by Silicon Valley, too. The end of their cacophony was blissful. But the peace belies a limiting of free speech that is chilling for America—and all democracies.

The bans that followed the storming of the Capitol were chaotic. On January 7th Facebook issued an “indefinite” suspension of Donald Trump. Twitter followed with a permanent ban a day later. Snapchat and YouTube barred him. An array of other accounts were suspended. Google and Apple booted Parler, a small social network popular with the far-right, from their app stores and Amazon kicked Parler off its cloud service, forcing it offline entirely.

Surely this was acceptable in the face of a mob on the rampage? Legally, private companies can do as they choose. However, some decisions lacked consistency or proportionality. Although Twitter cited a “risk of further incitement of violence” by Mr Trump, the tweets it pointed to did not cross the common legal threshold defining an abuse of the constitutional right to free speech. Meanwhile Ayatollah Ali Khamenei is still on Twitter and death threats are easy to find online. The companies ought to have focused on individual posts for incitement. Instead they have banned people, including the president, pushing fringe voices further from the mainstream. In some cases action was needed, as with Parler’s poorly policed and violent exchanges, but overall there was no clear test for when speech should be banned. The internet’s infrastructure, including cloud-computing services, which should be neutral, risks being drawn into divisive partisan battles.

The other problem is who made the decisions. The tech industry’s concentration means that a few unelected and unac-

countable executives are in control. Perhaps their intent really is to protect democracy, but they may also have other, less elevated motives. Some Democrats cheered, but they should evaluate any new speech regime based on its broader application. Otherwise an act that silenced their enemies last week could become a precedent for silencing them in future. The regrets were telling. Angela Merkel, Germany’s leader, said that private firms should not determine speech rules. Alexei Navalny, a Russian dissident, decried an “unacceptable act of censorship”. Even Jack Dorsey, Twitter’s CEO, called it a “dangerous precedent”.

There is a better way to deal with speech online. Making the industry more competitive would help by diluting the clout of individual firms and by stimulating new business models that do not rely on virality. But for as long as the industry is an oligopoly, another approach is needed. The first step is to define a test of what should be censored. In America that should be based on the constitutional protection of speech. If companies want to go further by attaching warnings or limiting legal content they need to be transparent and predictable. Difficult judgments should fall to independent non-sta-

tuary boards that give people the right of appeal.

Over 80% of Twitter and Facebook users live outside America. In most countries tech firms should adhere to local laws on speech—Germany’s rules on hate speech, say. In autocracies, like Belarus, they should default to the standards they observe in America. Again, judgments about which standards apply in which country could be guided by media boards. This may harm American firms in more places: this week Uganda banned Facebook and Twitter ahead of a contentious election.

America needs to resolve its constitutional crisis through a political process, not censorship. And the world must seek a better way of dealing with speech online than allowing tech oligopolies to take control of fundamental liberties. ■



Governing India

Reaping what you sow

The failure of Narendra Modi’s farm reforms is a parable of mismanagement

WHEN MOST of India’s laws on farming were adopted, in the 1950s and 1960s, the country was often on the brink of famine. In 1966 mass starvation was averted only by the arrival of 10m tonnes of American food aid. Small wonder that a Himalayan range of regulations rose up, to boost output and stop hoarding.

Happily, much has changed since then. In 2020 India exported 14m tonnes of rice alone. The government has amassed grain stores of around 50m tonnes. Yet even as the food has piled up, the rules have remained the same. The bill for the subsidies has risen dramatically. So have the environmental costs, in the form of sinking water tables, for example, and choking smoke from

the burning of stubble. The prime minister, Narendra Modi is trying to enact reforms. His failure to make them stick illustrates much of what is wrong with Indian politics.

The first problem is inertia. Reform has been an absurdly long time coming. A judge this week asked the attorney-general whether farmers had been consulted about the changes. He replied that consultations had been under way for 11 years. Such dithering is all too common. The overhaul of sales taxes pushed through in 2017 had been under discussion even longer.

In both cases, the ruling Bharatiya Janata Party (BJP) deserves credit for adopting long-overdue reforms that its predecessor in ►

► government, Congress, had simply debated ad nauseam. But the BJP takes things to the opposite extreme. It whisked three farm bills through parliament in September with minimal scrutiny. It refused even to put them to a proper vote in the upper house, insisting, questionably, that they had been passed by acclaim. This is standard procedure for the BJP: no parliamentary committee got a chance to debate changes to the laws on citizenship that sparked protests in 2019. The government first made public a constitutional amendment revoking the autonomy of the state of Jammu & Kashmir only a day before parliament approved it.

It is not just parliament that does not get a look-in. Two of the BJP's coalition partners left the government in protest at the farm reforms. No one seems to have tried to bring the farmers' unions around until after the bills were passed. Rather than cultivating broad support for its agenda, the BJP tends to ram it through.

The result has been big and intractable protests from suspicious farmers. That is where a third scourge of Indian democracy entered the picture: the judiciary. Farmers' groups and opposi-

tion parties have petitioned the courts to throw out the new laws. On January 12th the Supreme Court came close, suspending them indefinitely (see Asia section). There is a genuine debate about whether the government might have exceeded its powers by regulating matters that should be left to the states. But the justices did not seem very interested in that. Instead, they expressed concern about the health of the women and children among the protesters, and anxiety that the long stand-off might end in damage to property. The solution, they said, was to form a committee (which no one had asked for) to determine whether the laws were in the national interest—a reprieve for dither.

India is not an easy place to govern. It is so vast, with so many competing interests, that securing a consensus about anything is a challenge. The BJP's proposed farm reforms are sensible enough. But they will never be implemented without a concerted effort to win farmers over. As for the courts, their job is to uphold the laws, not prevent them from being implemented. The alternative, yet more drift, yields meagre harvests. ■

Decluttering low-Earth orbit New brooms needed

It's time to tidy up space

EVERYBODY'S BUSINESS, an old saw has it, is nobody's business. And that is a good description of the business of keeping outer space clean and tidy. Yet the part of space nearest Earth, known technically as low-Earth orbit, is getting cluttered. Some of the objects up there are working satellites. Some are satellites that have stopped working. Some are stages of the rockets which put those satellites into orbit. And a lot are debris left over from explosions and collisions between larger objects.

The risk of such collisions is increasing, for two reasons. First, the number of satellites being launched is rising. Second, collisions themselves beget collisions. The fragments they create add to the number of orbiting objects. At the moment, more than 20,000 such objects are being tracked, but there may be as many as 1m bigger than 1cm across.

In the long term, this accumulation of junk may lead to a chain reaction, known as Kessler syndrome, that would make some low-Earth orbits unusable. Even in the short term it puts lots of expensive hardware at risk. So plans are being laid to send up special craft to "deorbit" redundant satellites and rocket stages (see Science section). Given the current situation, this is a good, if expensive, idea. But a better one for the future would be to build deorbiting into the life-cycles of satellites and rocket stages from the beginning.

There are several ways of doing this. One is a "launch tax". But that would load costs onto the satellite industry with no benefit unless the proceeds were actually spent on orbital clean ups—and the record of tax-hypothecation of this sort is not good. A launch tax would also fail to attack the nub of the problem, which is that rocket stages and satellites need to be able to deorbit themselves unaided, even though building in such capability increases weight, and therefore launch costs.

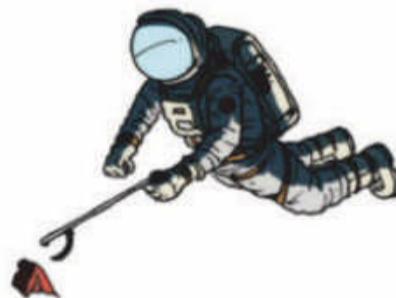
A second idea is a space-going "bottle deposit" scheme. Satellite owners would pay an agreed sum into an escrow account that

was redeemable when they deorbited their property. If they did not do so, enterprising salvagers could try to do it for them, and claim the deposit if successful. This has the virtue of encouraging built-in deorbiting capability, though claiming the bounty would require a separate launch.

The best idea, though, is to attack the problem at its roots. The littering of space is an example of the "tragedy of the commons", in which no charge is made for the use of a resource that is owned collectively. So why not charge the beneficiaries for the right to put something into orbit and keep it there? The longer an object stays up, the more the satellite owner pays. The more popular (and hence crowded) the orbit chosen, the more expensive it would be to add a satellite to it.

That raises the question of who would do the charging. The Outer Space Treaty, signed in 1967, assigns responsibility and liability for objects in orbit to the country which launches them, and entreats signatories to avoid harmful contamination of space and celestial bodies. As far as low-Earth orbit is concerned, this has not really worked. France requires rocket boosters to be dumped in the sea, but that's about it. It would make sense for countries with space-launch capability, and thus an interest in keeping space clean, to hammer out a new and specific agreement. A well-crafted treaty would clean up space, cause it to be used more efficiently, and raise some useful revenue from a resource currently exploited for nothing.

To deal with non-participants acting as free-riders, participants might agree to make pariahs of firms that tried to take advantage in this way, while perhaps offering a share of orbital-use fees to countries without launch capacity of their own. Other natural commons, notably the oceans and the atmosphere, have suffered, and still suffer, from a lack of sensible arrangements for their joint exploitation. It is not too late to stop outer space being added to that list. ■





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NEOM

Britain has to find its way

I was surprised to see you describe, in your leader on post-Brexit Britain, the cut to British foreign aid from 0.7% to 0.5% of GDP as merely "painful" ("Britain's place in the world", January 2nd). Painful no doubt for recipients of the aid, already reduced by our shrinking economy, which the aid figure is linked to, yet hardly painful for the government, many of whose supporters have been crying out for such a cut for years.

The consequences for the Global Britain project will be seriously negative. We will soon see to what extent the 0.7% commitment was a key element in sustaining Britain's standing and influence in the world, in terms of bilateral relations and of votes and having an effective say in a whole range of multilateral organisations. It would be more convincing to think of the 0.7% commitment as an essential part of any Global Britain policy, quite apart from the moral and humanitarian arguments.

DAVID HANNAY
House of Lords
London

Your leader ended by sneering at the "blindness" of Brexiteers. The only blindness is in the pages of *The Economist*, which cannot see why ordinary people defied the intelligentsia and voted to leave. Why do you respect the wish for self-determination by the peoples of other countries but refuse to do the same for British people?

ROBERT MACMILLAN
Dunmow, Essex

The Economist's take on Brexit reminds me of those who suggest Napoleon won Waterloo. In particular I was taken by the implied pejorative that supposedly some British people have a "romantic notion of sovereignty" ("How was it for EU?", January 2nd). Silly billies.

I actually do have a romantic view of sovereignty's sister, democracy. *The Economist* of my younger days would have rejected the European Union's

protectionism and statism. And that is exactly what a democratic Britain has done.

CHRIS RHODES
Horsham, West Sussex

The fundamental supposition since Britain began its relative decline has been that the country's interests were served by punching above its weight. And yet other countries achieve similar or higher qualities of life without this need to "project". Switzerland, Norway, the Low Countries, but also Germany and Japan, spring to mind. One of the long-term consequences of Brexit might be that England (Scotland and Northern Ireland are unlikely to remain long in the United Kingdom) can become a normal country again. Let's try punching below our weight and focus on the well-being of our own citizens.

JAMES HICKMAN
West Raynham, Norfolk

Britain is not losing its relevance when it comes to the arts. In fact, I expect that the digitisation of media will cause British culture to become more saturated throughout the English-speaking world. Take "The Great British Bake-Off". Growing up in the American Midwest, I had a less-than-nuanced view of British cuisine, believing it to be composed solely of tripe and fish 'n chips. Now, I have spent lockdown trying to perfect sticky toffee pudding.

British television is some of the most popular content on Netflix, *The Economist* circulates more outside Britain than in it, and any American who says they haven't read the *Daily Mail* is a liar. The connected world we live in is becoming more British, not less.

RACHEL BEDDOR
Phoenix

The up to 2m British who have settled in Europe will not have the rights of EU citizenship preserved ("No longer in Rome", January 2nd). We maintain residence rights in the one country we happened to live in on December 31st 2020, and have lost all rights in the other

EU countries, not to mention losing the vote. To paraphrase a former British prime minister, if you believe you are a citizen of Europe, you're a citizen of nowhere.

OWEN BROWN
Brussels

Adding to price rises

You continue to view inflation as a pricing phenomenon of products and services ("Will inflation return?", December 12th). But this misses where inflation is hiding in plain sight: asset prices, notably in the increase in prices of investment assets such as property and speculative equity. The way we measure inflation and where we look for it needs a long-overdue change.

NAEEM HUKKAWALA
New York

Girl power

"Getting girlhood right" (December 19th) rightly pointed out the many positive knock-on effects of giving girls access to education. One you missed is the impact on climate change. According to Project Drawdown, giving girls the tools of education and family planning is ranked as the second most meaningful solution to limit global heating, only surpassed by reducing food waste, and far ahead of wind energy and solar panels.

BEATE TRIANTAFILIDIS
London

Computing content

Your excellent Christmas special on the use of data analysis in the liberal arts ("The book of numbers", December 19th) should have spared a thought for the late Phil Stone's *General Inquirer*. Developed in the 1960s, this set of procedures continues to be applied to machine-readable text in all disciplines, and indeed everyday discourse. It added to the computerised content analysis based on rote counting, distinguished among the different meanings of most words and applied dictionaries for scoring,

profiling and comparing different text extracts in a variety of categories, such as positive and negative sentiments and various political and social values.

HERBERT BLUMBERG
Department of psychology
Goldsmiths, University of London

A lemon about an Orange

You sent the wrong Orange to London for the second world war ("Bruised Oranges", January 9th). It was not Juliana (who spent her war years in Canada) but her mother, Queen Wilhelmina, whom Churchill quipped to be the only real man among the governments-in-exile in London. As a British publication you might be aware that when there are two generations of royalty involved, the oldest usually is the monarch, and the younger of the two is waiting in line.

PETER RISSEEUW
Heemstede, Netherlands

Rats in the kitchen

Many Western people may shudder at the thought of eating rats ("Hamper scamper", January 2nd). In 1962 Miguel Delibes, a Spanish novelist, published "Las Ratas", in which he mentions a village where people eat the rodents. The mayor of the village tells the governor of the province that "They are delicious, sir, with some vinegar!"

WALTER SCHUIT
Overdinkel, Netherlands

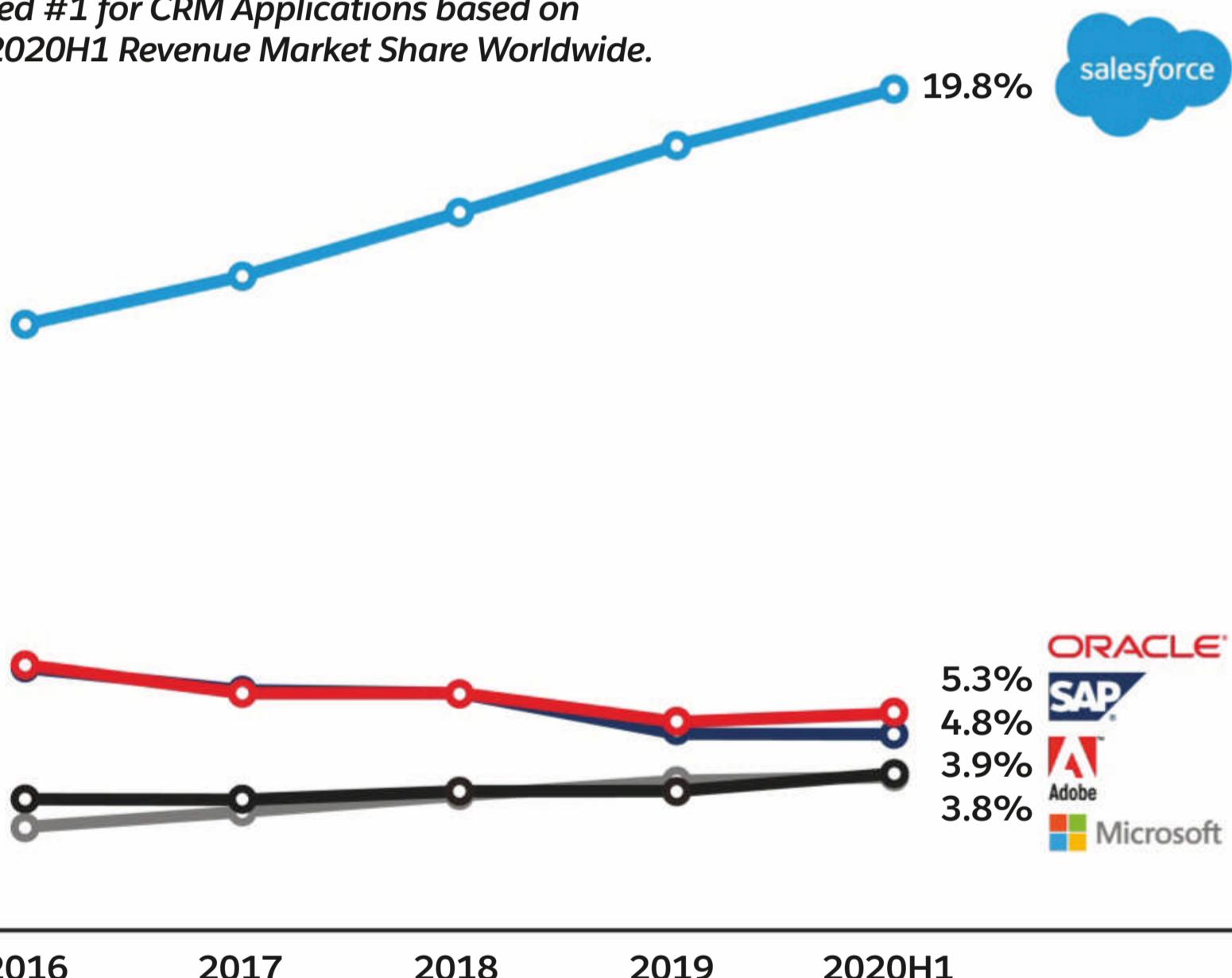
A follow-up

In the Letters section of the September 26th issue, Paul Shannon stated that he did not "recall any unlawful behaviour from Republicans" after losing an election. Well, now he can.

RYAN PHILIPS
Oakland, California

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Molecules, missions and money

Economists are convinced that governments can increase economic growth by spending more on research and development. Are they right?

THERE IS nothing new about economists arguing for more government spending on research and development (R&D). Theoretical work done by Kenneth Arrow in the 1960s convinced his colleagues that the private sector would not on its own provide the amount of innovation that economies need to maximise their growth. Empirically the coincidence, in the 1950s, of increased government R&D spending and excellent rates of productivity and GDP growth strengthened the case further.

It is true that the hard evidence for a positive impact of such R&D spending on overall growth is both fairly weak and suggests that it lags the outlay by quite a while. But few doubt that the return is, in practice, significant. Rich-world governments currently spend, on average, a bit over 0.5% of GDP on R&D; a couple more tenths of a percentage point could make a big difference.

The economists have the advantage, here, of pushing at a door that others are in the process of pulling open. Government R&D spending as a fraction of GDP has spent

most of the past 40 years shrinking (see chart 1 on next page). In 2018, though, the most recent year for which data are available, figures from 24 OECD countries showed government spending on R&D rising by a healthy 3% in real terms following a particularly lean period after the financial crisis. In 2020 the French government promised to increase its research budget by 30% over ten years as part of a new research strategy. The Japanese government has also been increasing funding, and setting up a new provision for "moonshots". In America, having resisted Donald Trump's attempts to cut research budgets, Congress may well look favourably on President-elect Joe Biden's promise to pump them up.

This enthusiasm is not simply driven by a belief that such spending will increase growth. It is also about a fear of China. A research backwater when its economy took off in the 1980s, China has since spent heavily on R&D to obvious effect. A study published by Elsevier, a scientific publisher, and Nikkei, a news business, in 2019

found that China published more high-impact research papers than America did in 23 out of 30 "hot" research fields. Many in Europe and America think that competing with, or outcompeting, China means following its lead. The incoming Biden administration promises "breakthrough technology R&D programmes" which will "direct investments to key technologies in support of US competitiveness".

And a third factor unites governments inside and outside China: they have strategic goals they can only meet through the development of new technologies and the deployment of existing ones. The government support for vaccines against SARS-CoV-2 is a case in point. The increasing need for deep decarbonisation is another.

Rise and fall and rise?

There are voices which temper this enthusiasm. In "The Rise and Fall of American Growth", a highly influential book published in 2016, Robert Gordon of Northwestern University argued that, although the century of exceptional American productivity growth from 1870 to 1970 was caused by technological change, such change will not come again (see chart 2). There is no future equivalent to the "great inventions"—internal-combustion engines, electrification, plumbing and the like—which allowed a one-off shift from an agrarian society to an industrialised consumer one over that singular period; ►

► they catered to the needs of the human condition in a primary and unrepeatable way. Moving from the internal-combustion engine to electric motors in order to move vehicles is both impressive and necessary, but it is not in the same league as moving from the horse to the car.

Another concern is that emphasising government R&D oversimplifies innovation. What matters to the economy are not scientific discoveries or the innovations at technology's cutting edge, but the technology people and firms make widespread use of—not papers in peer-reviewed journals or even cool lab creations, but things which pervasively improve the everyday and generate economic activity in doing so. And there is no simple production line which, fed with new scientific understandings, produces such technological change.

A recent paper by Ashish Arora of Duke University and colleagues, which focuses on the large corporate lab of post-war America, shows how important that distinction can be. The post-second-world-war years were not only marked by a growth in government R&D spending, but also by the scientific excellence of in-house laboratories at companies such as AT&T and IBM. In the 1960s researchers at DuPont published more articles in the *Journal of the American Chemical Society*, the field's leading journal, than MIT and Caltech combined. The production of scientific knowledge and the desire to solve real-world commercial problems were closely entwined. Science was being pulled into the economy, not just pushed; this was the environment in which, in the 1960s, the term R&D was invented.

What is more, the link between scientific publication—whether publicly or privately funded—and economic improvements is weakening. "Ideas are getting harder to find," according to a paper published in the *American Economic Review* in 2020. Applying econometric tools to technologies-in-use such as chipmaking and crop improvements, Nick Bloom of Stanford University and his colleagues found

that, over time, more inputs—more researcher time, more money—have been needed to get the same improvement in outputs as before.

This may explain why, as a fraction of GDP, corporate-sector R&D has grown by more than enough to offset the reduction in government research spending. Indeed, some firms are doing staggering amounts of R&D, though their definitions may be elastic. Amazon claimed to spend \$36bn on "technology and content" last year, more than the science budgets of Britain and France combined. Nevertheless Dr Arora argues that corporate science has gone into decline, with big firms increasingly choosing to license research from universities rather than do it themselves. Further removed from production, the universities which serve as the primary research focus in many countries are not so focused on useful invention. If the current innovation system is simply less good at creating growth-boosting innovations than it was, then spending more on R&D will not raise incomes as much as it might. It may simply produce more research papers.

A final concern about boosting government spending is *cui bono*. In the clubby, closed world of the 1950s and 1960s it made sense for governments to invest in R&D because one of their domestic firms—and, through its good offices, the nation's consumers—would reap the benefits. What is more, big companies on the cutting edge were not that worried about technological competition. In 1995 a researcher at Bell Labs, the R&D titan which in its pomp earned AT&T Nobel prizes, noted that "xerography was invented...in 1937, but it was only commercialised by Xerox in 1950", and "[w]hen the transistor was invented...at Bell Labs in 1948, several years elapsed before other laboratories acquired enough expertise in the semiconductor area to make [a] significant contribution."

All that has changed, thanks to greater travel, better communications and, perhaps most straightforwardly, a much greater number of researchers and research centres. As a recent paper from the IMF puts it, "globalisation has intensified the diffusion of knowledge and technology across borders". It has been doing so for some time; the Bell Labs anecdote pointed out that following the "discovery of high-temperature superconductivity at the IBM Zurich lab in 1987, it took only a few weeks for groups at University of Houston, University of Alabama, Bell Labs and other places to make important further discoveries."

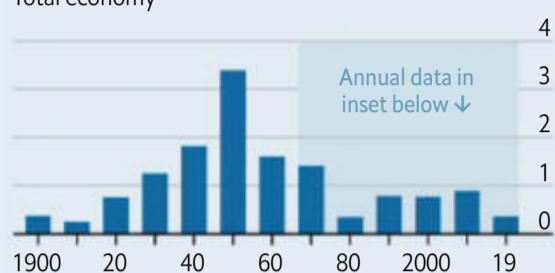
David Edgerton of King's College London, Britain's foremost historian of technology, argues that "Only in technonationalist fantasies...does national invention drive national economic growth. In the real world, global innovation leads to national growth, and national innovation

Not what it was

United States, total factor productivity*

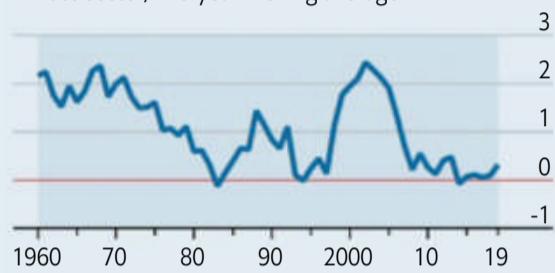
Ten-year average annual % increase

Total economy



% change on a year earlier†

Private sector, five-year moving average



*The portion of output growth not explained by the amount of inputs used in production †Utilisation-adjusted
Sources: Robert J. Gordon; Federal Reserve Bank of San Francisco

leads to global growth." At most times and places, most of the technology which creates growth is imported from elsewhere, not made at home. In a globalised world, investing in domestic R&D will never be purely to a country's own advantage; it will help others too, willy-nilly.

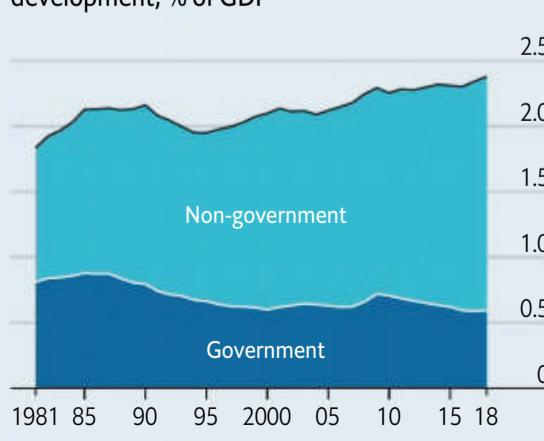
Hot-wired progress

To the extent that these concerns hold water, the worst they do is suggest that the returns to be expected from increased government R&D expenditure may be lower than some claim, and less easily captured by the nations that make them. And their ability to hold water is open to question. Dr Gordon's thesis, like much historical argument, is limited by a sample size of one. It is also, in its overall form, familiar; the idea that the best lies in the past has a long history, and it has spent most of that history being wrong.

What is more, such declinism can be used to argue that government R&D spending, far from being futile, is vital. In the 1930s Alvin Hansen, a noted American economist, put a Gordon-like emphasis on the special qualities of certain "great inventions" when he argued that although railroads, electricity and the car had propelled growth in the past, America could not "take for granted the rapid emergence of new industries as rich in investment opportunities." The people who argued for the government's wartime R&D effort to persist, in a modified form, after 1945 appreciated Hansen's argument enough to be doing something about it. Rather than taking the formation of new industries for granted, they were creating a way for government to ►

The state role reduced

OECD, total spending on research and development, % of GDP





HM Government
UK TRANSITION



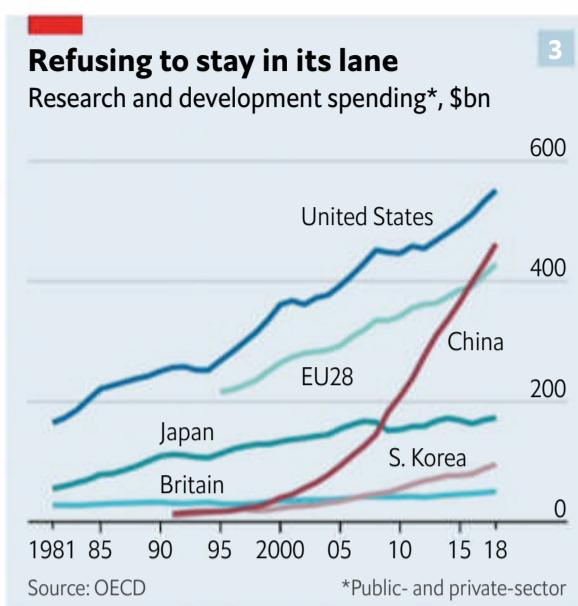
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► bring them into being, thus making good any failures of private investment.

Today plenty of people reckon that the government can help unlock further inventions. In their book "Jump-starting America", Jonathan Gruber and Simon Johnson, two MIT economists, single out synthetic biology, hydrogen and deep-sea mining. Of the three it is synthetic biology, which offers new approaches to everything from petrochemicals and agriculture to medicine and computer memories, that is best placed for the "great invention" status that comes from improving the material conditions of billions of lives.

The shape of things to come

The other contender for such laurels is AI. After spending some time being visible "everywhere but the productivity statistics", in a famous quip of Robert Solow's, computers finally provided a measurable boost in the mid-1990s. With ever more information to learn from, information appliances which can whisper into every ear, robots at its command and applicability to any number of problems computers that use AI might yet do more than that. The fact that an AI program recently showed unmatched prowess in the prediction of protein structures that synthetic biologists might like to change underlines that innovation can and will often come about most surprisingly where two fields collide.

There are also arguments against the idea that the link between scientific research and technology-in-use has become weaker. It may well have done so in some ways; but in other ways things have speeded up. This is particularly true of the process that puts today's innovation into the hands of millions tomorrow. Electric appliances had been around for decades before they made a definitive difference to rich-country homes. Information appliances—specifically, smartphones—have spread far further far faster. The SARS-CoV-2 genome sequence was shared between China and the rest of the world before there were any confirmed cases of covid-19 outside Wu-

han. The vaccines enabled by that sequence may turn out to be the technology-in-use with the greatest economic impact over a single year ever seen.

As for the difficulty of capturing the benefits of national R&D spending in a global world, making use of cutting-edge technologies developed elsewhere is not possible without a lot of very highly trained locals, and such cadres are hard to produce and maintain without R&D spending. China's immense investment in R&D (see chart 3) has produced an immense number of people with skills, know-how and curiosity, as well as institutions with the equipment they need. These researchers and engineers have developed many innovations of their own, but to date their most crucial role has been in exploiting knowledge brought in from elsewhere by fair means or foul. It is notable that, now it is in the R&D front rank, China too is grappling with a slowdown in productivity growth.

If Dr Bloom and his colleagues are correct in arguing that ideas are getting harder to find, more money may be required, in China and elsewhere, just to stand still. But raising government R&D spending in the G7 nations as far above its 1970 level, relative to GDP, as it is currently below that level would cost about \$400bn a year overall: considering that the G7's GDP is \$36trn, this appears easily doable. Still, it would be worth finding ways to produce new ideas more efficiently. In much of the OECD the mechanisms and institutions through which governments support R&D are more or less the same as they were 50 years ago. There is a degree of ossification.

A new paper by Mikko Packalen of the University of Waterloo and Jay Bhattacharya of Stanford University shows some evidence of this at America's National Institutes of Health (NIH), where they find

that funding for papers that build on the most recent advances has declined. Conservative funders get conservative researchers. Even DARPA, an agency of America's Department of Defence famous for funding out-there projects, is accused of taking fewer risks than it used to.

New organisations can be more innovative. Tyler Cowen of George Mason University has explored one possibility: Fast Grants, a project he launched in April with Patrick Collison of Stripe, a payments firm, dispenses grants for promising covid-19 research very quickly, usually within days. But the budget is tiny relative to what is required. Mr Biden promises to create new organisations for research on health and climate, while the British government says it plans to "experiment...with new funding models across long-term time horizons". But the ideas are little more than sketches.

Another way to instil urgency is through a sense of mission. Dr Gordon's point that "some inventions are more important than others" is very pertinent for governments. Technologies which let them achieve strategic goals become important, and they are willing to spend a lot on them. This can end badly. But when it works governments do not so much pick winners as make them. In the 1950s and 1960s, its strategic focus on the cold war, the American government made winners out of aerospace and electronics. In the 1970s France, always nervous about depending on others for electricity, made a winner of its nuclear industry.

Strategic programmes of this sort do not always require groundbreaking R&D. France's reactors were based on American designs. They may need hardly any R&D at all. Germany made a winner of solar panels simply by providing massive subsidies for them, driving up demand and allowing manufacturers in China to make hay. And there is no clear evidence that the technologies governments decide that they need for strategic reasons will be those that most improve economic growth.

But such projects do typically lead to both a sense of mission among those involved and researchers from government and academia working alongside those from industry. If they do so in multidisciplinary environments—which missions often require, whether in the public or private sectors—then growth-boosting technologies may be more likely to emerge.

It will take time for new ideas to have big effects. And in a world of 24-hour media, it will be hard to sweep unavoidable stories of wasted money and failed projects under the carpet—however inevitable, even welcome, some sorts of failure may be. But at a time when the need to boost innovation has never been greater, politicians may conclude that rebooting the innovation system is worth the risk. ■





The economy after Brexit

Not with a bang but a whimper

The real damage from Brexit will take time to make itself felt

FOR THE four and a half years since the referendum on European Union membership, firms have been worrying about the impact of Brexit. But Britain's transition out of the EU, completed on December 31st, did not end with a bang. There were no queues of lorries at Dover. Supermarket shoppers were not starved of green vegetables. And business has had other troubles on its mind.

England's third national lockdown began on January 5th, shutting much of the hospitality and retail sectors. The government has taken steps to soften the blow. Rishi Sunak, the chancellor of the exchequer, announced a further £4.6bn (\$6.2bn) package of grants, worth around 0.2% of pre-crisis GDP, for firms as the lockdown began and signalled that more support may be forthcoming at his next budget, due in early March. The job-retention scheme, under which the state will pay up to 80% of the wages of furloughed employees, has already been extended until the end of April

and the Treasury has not ruled out a further continuation.

With many firms now better adapted to home working than they were last year, more retailers offering an online service and more restaurants better set up to han-

dle takeaway business, GDP should not shrink as fast as it did in April 2020 (see chart). But schools have been closed, as they were in the first but not the second lockdown, so many parents are unable to work. Samuel Tombs of Pantheon Macroeconomics, a consultancy, reckons that the impact of the third lockdown will be closer to that of the first than the second.

But although the resurgence of covid-19 has overshadowed Brexit, the latter is causing problems. The hassle of new VAT rules has prompted some businesses to halt shipments to Britain entirely. Dutch Bike Bits, an online retailer of bicycle parts, has called the new arrangements "ludicrous" and halted sales to Britain in December.

In the other direction Scottish seafood traders complain that new paperwork is delaying exports, leading to valuable langoustines going to waste. In general traffic seems to have run smoothly on the Dover-Calais route, but advance stockpiling, trucks turned away in Kent and covid-19 restrictions all seem to have eased the transition. The government has warned hauliers that delays are likely to increase as volumes rise and EU enforcement of rules tightens.

Rules-of-origin checks have emerged as a particular bugbear. Many traders were pleased that the EU-UK trade deal promised no tariffs or quotas on goods. Yet to qualify, companies must be able to certify that ►



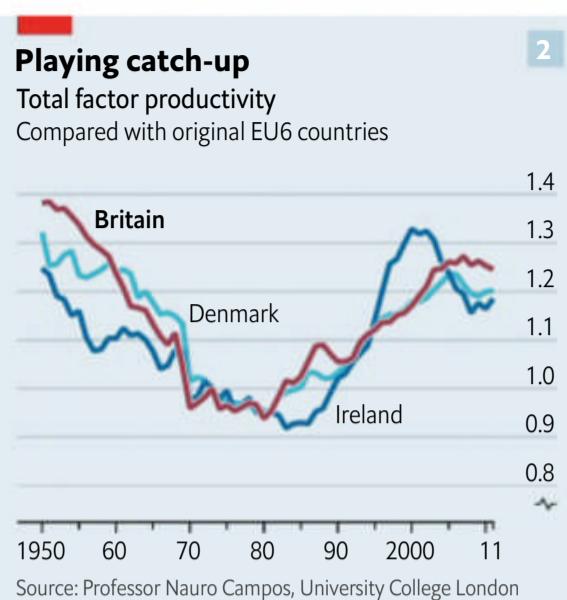
▶ around 50% of any exported product originates in Britain or the EU. This catches not just Asian t-shirts or dates imported from Israel. Even foodstuffs imported from other EU countries and repackaged for export back into the bloc without significant value-added in Britain can lose certification. That is disrupting distribution hubs.

The need for rules-of-origin checks flows directly from the government's long-standing red line of quitting the customs union and single market, so bigger companies should have been prepared even if smaller ones were not. Yet detailed new rules for each product (including a temporary derogation for batteries in electric cars) were not known until a week before January 1st. Talks with the EU could produce more derogations or longer grace periods for the toughest checks. But Sam Lowe of the Centre for European Reform, a think-tank, says Brussels will weaken its rules only to help EU members such as Ireland; it has no interest in softening the impact of Brexit on Britain.

It will care more about Northern Ire-

land. To avert a hard border on the island of Ireland, the two sides agreed that there should be a border in the Irish Sea between Great Britain and Northern Ireland, which remains in the customs union. Freight businesses worry that importers have not grasped how this will work. The complexity of the customs procedures has led some to give up trading or to narrow product ranges. Marks & Spencer, a retailer, has dropped several hundred products in its 21 Northern Irish stores, ranging from BrewDog beer to bin-bags. With Northern Irish politicians grumbling about empty shelves, the supermarkets have appealed to the government for help in sustaining the province's grocery market.

Yet the real hit to the economy from Brexit is likely to come as more of a whimper than a bang. With a last-minute trade deal, Britain and the EU avoided the worst short-term chaos, but economists worry about the return of the post-war "British disease"—hence the Bank of England's prediction that the economy will be three or four percentage points smaller in ten years'



time than it would be had it stayed in the single market and customs union.

In the three decades after the second world war, Britain's economy declined relative to its European neighbours. That was not just because they had so much ground to make up after the war; by the 1960s, they were beginning to pull ahead. Britain suffered from confrontational industrial relations, poor management, weak productivity and low investment.

Margaret Thatcher is often credited with changing the country's trajectory, but many economists argue that the effect of Britain's entry to the then European Economic Community (EEC—now the EU) in 1973 was at least as important. Nauro Campos and Fabrizio Coricelli of the Centre for Economic Policy Research, a network of economists, point to a similar productivity-growth pattern among the three countries—Britain, Denmark and Ireland—that joined the EEC in 1973 (see chart). They suggest that Britain's entry into the Common Market created the conditions for Thatcherism to thrive by offering British entrepreneurs access to a larger, deeper and more innovative market than was previously available to them.

Nicholas Crafts, a leading historian of Britain's economy, argues that the real cause of the British disease was a lack of competition. The economy was cartelised in the interwar years and sheltered from international competition in the post-war decades. Thatcher, by his reckoning, deserves credit for liberalising markets and deregulating industries, but was helped by the wider exposure of firms to international competitive pressure from entry into the EEC and the creation of the European Single Market in the mid-1980s. He reckons that Britain's failure to join the EEC at its creation in 1957 had a substantial cost in terms of lost productivity.

If the effect of leaving the EU is the opposite of joining it, the impact will not be a swift, painful recession, but growth forgone. Britain will be like a boiled frog, not noticing the damage until it is done. ■

Rolling out the vaccine

Quick jabs

Britain gets off to a quick start; ministers promise acceleration

WHEN IT COMES to the race to get out the covid-19 vaccine, there is Israel, which has given out 23 doses for every 100 people, and then there is everywhere else. In second and third place, some way behind, sit the United Arab Emirates and Bahrain, which are relying on a jab without published data from late-stage trials (see Middle East and Africa). Next is Britain, the speediest big country.

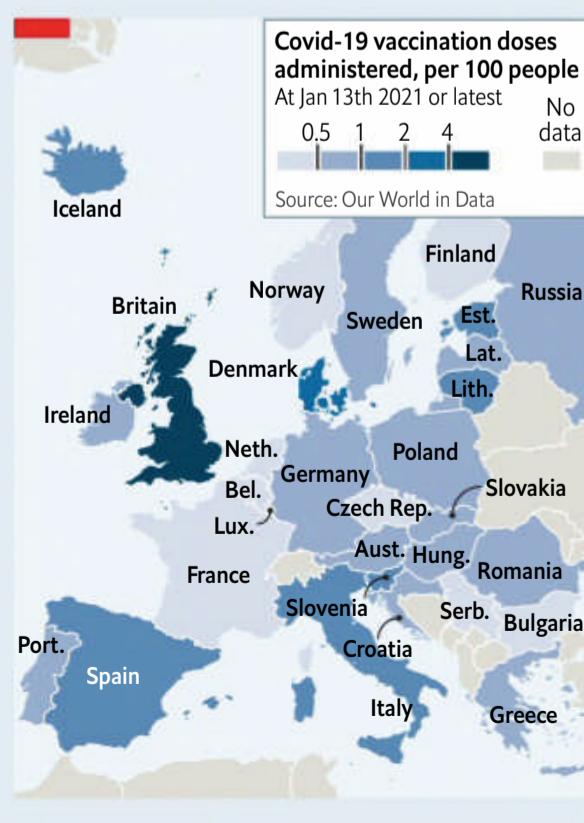
British medics were quick off the mark with early approvals for the Pfizer-BioNTech and AstraZeneca-Oxford University vaccines, and the roll-out has recently sped up. On January 6th, 1.3m doses had been delivered. A week later, 3.1m had, a number equivalent to 4.5 doses per 100 people. Denmark, Britain's nearest rival in Europe, has done 2.

Though fast, the pace still needs to accelerate further to meet the government's target of offering everyone in a big group—which includes people over the age of 70 and front-line health- and social-care workers—a jab by the middle of February. To meet it, around 2.5m doses will have to go out each week. Ministers promise they will.

The roll-out is not without flaws. The government has provided little information on, for instance, who exactly has received jabs, although more is promised soon. Care-home vaccinations seem to

be getting done more slowly than in other countries that got off to a quick start. And observers have raised concerns about the lack of ventilation in mass-vaccination centres, in which elderly and vulnerable people congregate.

These are serious problems. They are also ones most of Europe would love to have—which is not a position Britain has been in for most of the pandemic.



Hospitals

Long covid

The health service is in its worst period since the start of the pandemic

TO THOSE WHO receive them, vaccines offer fast protection, with effects kicking in just a few weeks afterwards. For health-care systems, though, the protection takes a little longer—as those working in English hospitals are now acutely aware.

In all 32,689 National Health Service beds are currently occupied by people with covid-19, 50% more than in last year's peak. Modelling by the Covid-19 Actuaries Response Group suggests that because of the slow start to the roll-out, even if everything goes to plan, hospital admissions will not decline sharply until early February.

Intensive-care admissions will take still longer. The government has jabbed the oldest first. Yet the elderly tend not to end up in intensive-care units, because they don't do well on ventilators (the average age of covid-19 patients on critical-care wards is a sprightly 60). Thus the actuaries think intensive-care admissions won't drop much until the end of February.

The modelling is based on the assumption that cases will remain at current levels. That is not too far off what many in the health service are now expecting. Growth in cases seems to have halted, but the lockdown may not force a fast decline in infections, because of the increased transmissibility of the new variant.

The result will be a period of sustained pressure on hospitals. London's and the south-east's have so far borne the brunt of this wave. Chris Hopson, chief executive of NHS Providers, a representative group, says he is worried about those in the north-west, which have patients in beds from the autumn, and the south-west, which has low capacity.

Politicians talk of the need to avoid “collapse”, implying a binary outcome where hospitals suddenly go from being able to provide care, to not. In reality there is a gradual ratcheting up of risk well in advance of such a moment. “It's really important that nobody in the NHS should pretend that you will get the same quality of care or the same outcomes,” says Mr Hopson.

This can be seen in oxygen supplies. Since the first wave there has been a move to less-invasive breathing support, which requires lots of oxygen (as much as 60 litres a minute, compared with 15 for a ventilator). Piping—particularly in older institutions—is struggling, meaning some hospitals have reduced blood-oxygen targets to prevent systems from giving out. William

Harrop-Griffiths of the Royal College of Anaesthetists says this is safe in itself, but leaves little wiggle room if, say, there is an interruption in the gas supply or if the patient's lung function deteriorates.

It is a similar story in other areas of care. Some 6% of London's ambulances are now delayed for longer than an hour, more than double the rate this time last year. Patient-to-staff ratios in critical care are rising, with reports suggesting three or four intensive-care patients to each specialist nurse in some places. That is lower than during the worst of the first wave, but well above the normal one-to-one ratio.

Efforts to free up capacity are getting increasingly unpleasant; ranging, in the capital, from booking hotel rooms for recuperating patients to cancelling cancer operations. The hope is that this will stop critical-care capacity being breached. Whether it works is still in the balance. Yet even if it does, it will come at a cost. ■

Covid-19 genomics

An unusual sequence of events

How Britain has done so much sequencing of the covid-19 genome

WHEN A NEW, more transmissible variant of the genome of SARS-CoV-2, the virus which causes covid-19, was identified in Britain in December, the discovery seemed to underline how badly the pandemic had hit the country. But a happier interpretation was also available: that the discovery had been made because of Britain's impressive performance at sequencing the virus's genome. With further mutations almost inevitable, that capacity is going to be at the forefront of the fight to suppress the pandemic.

This work is being undertaken because of a phone call on March 4th between Sharon Peacock, a professor at Cambridge University, and five other experts in the sequencing of pathogen genes. It was obvious to infectious-disease experts that covid was set to spread fast in Britain, even though only 84 cases were known of by then. Sequencing the genome of the virus that was causing covid-19 could help the public-health response by showing the geographical distribution of different variants, how those variants were changing over time thanks to natural selection and where new mutations were popping up.

Ms Peacock now heads Covid-19 Genomics UK Consortium (COG-UK), which resulted from that phone call. It is a collaborative effort between scientists which monitors the virus by regularly sequencing

its genome, using samples collected from covid patients across Britain. To date, it has sequenced as many SARS-CoV-2 genomes as the rest of the world combined.

By March 15th the fledgling consortium had dropped a request on the desk of Sir Patrick Vallance, the government's chief scientific adviser, for funding to speed up their sequencing effort. Three days later they had £20m of government money, pulled from the covid-19 “fight” fund established in early March. COG-UK's membership is a Who's Who of Britain's top-rank medical institutions, comprising some 300 individual researchers. Unlike much of the rest of British health care, COG-UK's partners work together and share data and systems across the devolved nations. All the genomes they sequence are published freely online, so that public-health systems worldwide can compare notes.

The consortium has worked quickly. COG-UK had already sequenced 280 genomes by the time its funding arrived. As of January 13th it had sequenced 190,352, about ten times more than the next-best sequencers, Australia and Denmark. In early December the consortium spotted a new variant of the virus spreading in Kent.

Whether the mutations that led to the new variant occurred in Britain is not known. Nor does it much matter. Spotting it early does. The broader search-beam provided by COG-UK, the world's broadest by far, meant that Britain was the first to spot and react to it.

Ms Peacock identifies two related factors which gave Britain the ability to build that broader beam quickly. The scientific community in Britain has been at the cutting edge of genomic sequencing for some time. Back in 2013 the government gave tens of millions of pounds to genome sequencers focusing on infectious diseases. Ms Peacock was one of them. That meant that the disease-sequencers had the right ►



Samples at the Wellcome-Sanger lab

► political connections to get their project moving fast.

It also meant that COG-UK's member institutions already had sequencing infrastructure in place when covid hit. Unlike the microbiology labs needed to test for the disease en masse, which the government had wound down over 20 years, COG-UK's members had labs full of sequencing machines. About 70% of its sequencing has been done in one place, the Wellcome-Sanger laboratory near Cambridge, says Ms Peacock. This non-profit is named after Fred Sanger, a British biochemist who won two Nobel prizes—one for the fundamental advances in genomic sequencing that underpin the institute's efforts.

Ms Peacock expects to find more mutations. "We're going to see real complexity as more mutations accumulate in different combinations," she says. That may well be bad news for the virus' human hosts and the societies they comprise. But at least now, through COG, the world has a better chance of seeing that bad news coming. ■

The Labour Party

Learning from Joe

How America's incoming president is helping Labour manage a divided party

THE LABOUR PARTY has long spied the future through a telescope across the Atlantic. New Labour was entranced by Bill Clinton's New Democrats. Ed Miliband was a keen student of Barack Obama's campaign. Jeremy Corbyn and Bernie Sanders were mutual admirers. American politics is more exciting than Europe's these days, which is why Labour wonks can recite with greater ease the names of Democratic senators than the prime ministers of Europe, and their shelves heave with Robert Caro biographies and West Wing dvds.

Yet the echoes of America in British politics are faint. British partisanship is less vociferous than America's, and its cultural and racial rifts shallower. Although Boris Johnson is embarrassed by his dabbling with Trumpism (see Bagehot), he did not suggest bleach as a treatment for covid-19, nor incite an insurrection.

The most striking similarity is between the bind the Democrats found themselves in following the defeat of Hillary Clinton in 2016 and the crisis Labour faces after Jeremy Corbyn's defeats in 2017 and 2019. Both saw their electorates split: their younger, more diverse, city-dwelling voters stayed loyal, while older, whiter voters in industrial towns drifted away. Labour's woes in the so-called red wall were mir-

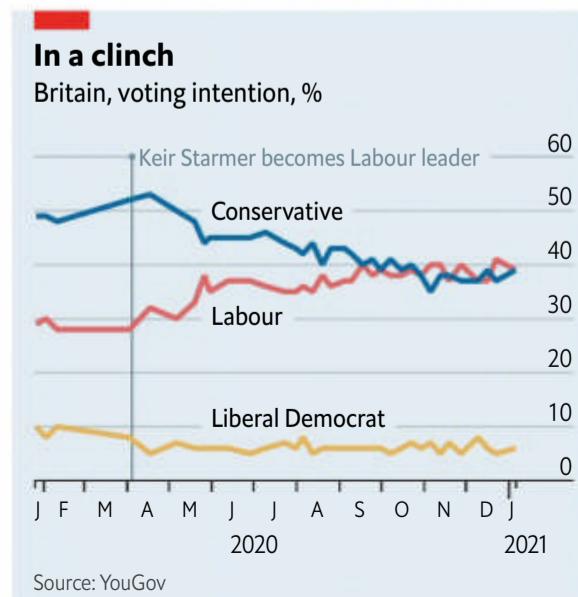
rored in Mrs Clinton's loss of the rustbelt states of Wisconsin, Michigan and Pennsylvania. The centrist Mr Biden's success validates Labour's decision to replace the radical Mr Corbyn with the moderate Sir Keir Starmer.

Sir Keir initially made big advances against the Tories, but insiders fret that he hasn't opened up a clear lead despite the pandemic (see chart). His party is therefore keen for advice. Lisa Nandy, the shadow foreign secretary, is leading the outreach to the incoming administration.

Sir Keir's circle sees the insecurity of lower-middle-class families, who "feel the world is spinning out of control", as the root of Britain's volatile politics. Mr Biden promised such voters "jobs, dignity, respect and community". A key insight from Team Biden is that people who once voted for revolutionary change in the form of Donald Trump now hanker for stability. Like Mr Biden, Sir Keir has styled himself as a safe pair of hands, and a defender of the rule of law and Britain's standing in the world. (Mr Biden's slogan, "No Malarkey", rather suits managerial Sir Keir.)

A speech by Sir Keir about "family first" policies reflected advice from John Anzalone, Mr Biden's pollster, on how to win back working-class voters: faced with a rhetorician like Mr Johnson, a leader's personal values carry more weight than eye-catching policies. Sir Keir's speeches are heavy on moralism and light on plans. He now sits in front of a union flag for television interviews, and speaks of his admiration of the queen, the troops and the doggedness of the British people. (The elder-statesman routine is easier for Mr Biden, 78, who took his seat in the Senate around the time the Labour leader was sitting his 11-plus exam.) Sir Keir, like the president-elect, plays up his humble background. "My dad was a toolmaker; he spent his whole life on the factory floor," he declared on January 11th.

There are also lessons in how Mr Biden navigated the issues of identity politics—trans rights, the Black Lives Matter move-



ment—which span the Atlantic. As with the Democrats, such issues motivate party members, but can be met with indifference or suspicion by voters, especially older ones. Mr Biden's solution was to embrace a socially-liberal agenda, couched in the language of love and respect, while being careful not to rebuke voters who weren't on board, says Marcus Roberts, a pollster at YouGov who has worked for the Democrats and Labour.

Mr Biden's campaign provides warnings too. Despite his ravings and his cataclysmic response to the pandemic, Mr Trump received 74m votes, 11m more than in 2016 and the highest cast for any presidential candidate bar Mr Biden. He increased his share among non-white voters, and remains dominant among men without a college education. Mr Johnson could equally advance in the red wall in 2024. Ejecting a prime minister with a majority of 87 is no easier than ousting a president after a single term. Mr Biden provides inspiration, but little comfort. ■

The civil service

The blob won

Britain's civil service has weathered the Cummings revolution

DOMINIC CUMMINGS was the Robespierre of the Brexit revolution. Toppling EU rule was just the start; he saved his reign of terror for what he regarded as the true enemy. The permanent civil service, in his view, was an "idea for the history books", run by underskilled, risk-averse officials who thwart the plans of elected ministers. He wanted to replace them with specialists who would transform Whitehall into a dynamic machine.

During his tenure as Boris Johnson's most senior aide, a slew of top civil servants were guillotined, among them Sir Mark Sedwill, the cabinet secretary, Sir Simon McDonald, the head of the foreign office, and Jonathan Slater, the permanent secretary at the Department for Education. Lurid briefings spouted from Downing Street: a "hard rain" would fall on Whitehall. Mr Cummings was said to keep a "shit list" of those he wanted out.

Mr Cummings met his Thermidor in November, and his reforms look less like creative destruction, more like idle vandalism. Some on his list have survived: Sir Tom Scholar, the permanent secretary of the Treasury, will have his contract extended when it comes up for renewal in July. Ousted mandarins have been replaced not by Silicon Valley whizzkids, but by a new ►

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► generation of civil-service thoroughbreds: Simon Case, Sir Philip Barton, and Susan Acland-Hood. Ciaran Martin, the former head of the National Cyber Security Centre, a government agency, remarked that between the hostile rhetoric and the defenestrations, Mr Johnson's government has thus far achieved "virtually nothing at all" by way of meaningful reform.

Along with the civil service, the media is one of the main constituents of "the blob" that revolutionaries fear swallows all attempts at radical reform. The planned war on the liberal media did not come to pass either. Charles Moore and Paul Dacre, former editors of right-wing newspapers, had been tipped to take charge of the BBC Trust and Ofcom respectively. Neither happened. The BBC job went to Richard Sharp, a former banker.

Substantive reforms are under way, but they are orthodox ideas—many promoted by the Institute for Government, the mandarins' favourite think-tank—which will strengthen the permanent civil service. Mi-

chael Gove, the cabinet office minister, would like the government to train graduates better, slow the merry-go-round of civil servants between departments and end the practice of hiring management consultants to do the most interesting projects. There are plans to move 22,000 civil servants out of London. Doing so will save money, but the idea is hardly radical: prime ministers from Harold Wilson to Theresa May have been promising to decant Whitehall staff to Leeds, Manchester and Swansea, and sometimes even doing it.

Old faces are back. Francis Maude, who oversaw civil-service reform under David Cameron, is advising Mr Gove on how to improve functions such as human resources. On January 12th, the day before admitting that food parcels delivered to poor children by a contractor were unacceptably meagre, Mr Johnson announced that Sir Michael Barber will review the delivery of government services. Sir Michael ran Tony Blair's Delivery Unit for five years. After the revolution, the restoration. ■

much as £1,375 (\$1,875) a night for a double bedroom in the nearby farmhouse it has turned into small hotel. But the revival of private galleries established for the public good in Britain is recent.

In this, Britain is behind the curve, according to the Global Private Museum Network. The J. Paul Getty Museum in Los Angeles has long been a model for wealthy Americans, and over the past couple of decades, rich Germans have taken to it. Karen and Christian Boros, for instance, have turned a massive (and massively ugly) Nazi-era air-raid shelter into a private-home-cum-public-gallery in central Berlin. The Chinese are doing it too, though often in order to boost the value of property developments.

Britain may start to catch up. Charles Saumarez Smith, a former chief executive of the Royal Academy, reckons that country-house owners are keener on collecting contemporary art these days, but the good taste and benevolence of the rich are not entirely responsible. Planners are more likely to grant permission for grand buildings if the public is given access.

In addition to the Dysons, Cate Blanchett, an Australian actress living in Britain, has recently been given permission to build a gallery in the grounds of her house in East Sussex to replace a dilapidated oast house. *Nouveaux riches* are not the only benefactors. Jane Heathcote-Drummond-Willoughby, 28th Baroness Willoughby de Eresby, has got permission to build a new exhibition space at Grimsthorpe Castle, her family's home since the 16th century. The 86-year-old grand-daughter of Nancy Astor has accumulated a fantastic collection, which includes paintings by Lucian Freud, her lover until his death in 2011. The Lincolnshire flatlands over which her castle looms are rich in cabbages but not in culture, so her plan to seed them with art will no doubt be welcome. ■

Contemporary art

Wall power

Private art collectors are building public galleries

AFTER CLEANING up thanks to his invention of bagless vacuum cleaners, Sir James Dyson, one of Britain's richest men, is planning a more glamorous legacy for himself. Last summer he and his wife Deirdre, who both studied art, applied for permission to build an exhibition space at Dodington Park, their Gloucestershire estate, to show their collection of pop art that includes Andy Warhol, Roy Lichtenstein, Yves Klein and David Hockney. The gallery will be open to the public, free of charge, for a month each year.

The Dysons are reviving a practice that used to be common. The National Gallery in London started in a town house in Pall Mall in 1824, when 38 old masters that had belonged to John Julius Angerstein, a Russian-born émigré banker, were put on show. The Walker and Lady Lever galleries were based on the collections of Liverpool businessmen, the Burrell Collection on a gift by a Glasgow shipping magnate, and the National Museum of Wales on the generosity of the two Davies sisters, Gwendoline and Margaret, who had collected fabulous impressionist paintings. But war and taxes took the stuffing out of artistic philanthropy, and the tradition faded.

In the art-market boom that began in the 1980s, galleries that were shopfronts for

trading in art, such as Charles Saatchi's, flourished. In 2014, Hauser & Wirth (H&W), a Swiss art dealer with global ambitions, opened a rural outpost in Somerset, its sixth gallery on two continents, proving that contemporary art was not just a metropolitan affair. The move put the small town of Bruton on the art-lovers' map; it has become so popular that H&W now charges as



A new gallery will make Grimsthorpe Castle grander still

Bagehot | Trump? Don't think I know him

The British right needs to come clean about its links with Trumpism



THE MAGA hats are in the bin. The strategy papers on what the Tories can learn from the Republicans have been shredded. Donald Trump's state visit to Britain? Mere realpolitik; Emmanuel Macron did much the same. Mr Trump's description of Boris Johnson as "Britain Trump"? The ungrammatical ravings of a madman.

Mr Johnson's spin doctors are busy drawing a bright line between the two men. Mr Johnson is a classics scholar who can recite lengthy chunks of Homer. The only Homer Mr Trump knows is the one in "The Simpsons". Senior Tories are equally busy denouncing the president and scrubbing their cvs of any hint of Trumpery.

This is hogwash. Mr Johnson basked in his close relations with the 45th president and, for a while at least, cultivated ties with Steve Bannon, the architect of Mr Trump's 2016 victory. Michael Gove, the intellectual engine of Brexit Toryism, was photographed with the president, making a thumbs-up sign and grinning impishly. Liam Fox, former trade secretary, seldom engaged in a conversation in which he didn't mention his links with Trumpworld.

Farther right, the connections are even closer. Nigel Farage, former leader of the United Kingdom Independence Party (UKIP) and then the Brexit Party, rejoiced in his position as Mr Trump's leading British fanboy, acting as a warm-up act at recent Trump rallies. Mr Trump repeatedly urged Mr Johnson to replace Sir Kim Darroch, ambassador to the United States, with Mr Farage. Sir Kim was eventually sacked for pointing out, in a leaked private cable, that Mr Trump was unstable. Raheem Kassam, a former adviser to Mr Farage, collaborated with Mr Bannon to create a British edition of Breitbart, an incendiary website, and supported Mr Trump's attempt to deny the legitimacy of the election result.

The links between the British right and Trumpworld are broad and deep. Over the past 40 years the American right has produced a conservative intelligentsia, watered by think-tanks and foundations, devoted to counterbalancing the liberal elite. Brexiteers were happy to join up, and clung to it even as it embraced Trumpism. Daniel Hannan, a Tory peer, is a regular columnist for the *Washington Examiner*. Douglas Carswell, a former MP who left the Tories for UKIP, recently became president of the Mississippi Centre for Public Policy, a free-market think-tank.

Right-wing Britons are building their own version of the Amer-

ican conservative news-entertainment complex that was born out of Rush Limbaugh's radio show, produced the Fox News juggernaut and helped create Trumpism. Julia Hartley-Brewer rages at "political correctness gone mad" on TalkRadio. James Delingpole, a co-founder of the British Breitbart, foams at "warmism" (climate change), "muzzles" (masks) and the "Bolshevik Broadcasting Corporation" (the BBC). Andrew Neil, the publisher of the *Spectator*, is launching a TV station aimed at conservatives.

The bond between the British and American right was supercharged by Brexit. There were close alliances between leading Brexiteers and Trumpworld. Matthew Elliott, the chief executive of Vote Leave, is married to Sarah Elliott, chairwoman of the British branch of Republicans Overseas. Mr Trump's election reassured worried Brexiteers that they weren't alone—indeed, that they had a "warm and generous friend", as Mr Gove put it, in the most powerful man in the world—and stoked their belief that the "Anglosphere" would provide a geopolitical home for Britain outside the EU.

Brexit and Trump also represented solutions to a common transatlantic problem. Both the Conservative Party and the Republican Party have seen their membership undergo a social transformation as they have lost highly educated voters (particularly among the young) and recruited working-class voters in their place. This transformation creates a dilemma: how do you satisfy your new working-class constituents while remaining committed to lower taxes and smaller government?

On both sides of the Atlantic, the answer was to divide the country and unite conservative voters by using nationalist rhetoric rather than economic issues. Brexiteers dismissed Remainers as "traitors" and warned that attempts to frustrate "the will of the people" would lead to violence in a way that sounded as much a threat as a prediction. Mr Johnson speculated that Barack Obama's "part-Kenyan" ancestry made him anti-British and raised the spectre of a "great conspiracy of the deep state" to frustrate Brexit. "Imagine Trump doing Brexit," Mr Johnson told a group of fundraisers, smacking his chops. "He'd go in bloody hard." Mr Johnson tried to go in "bloody hard" himself by proroguing Parliament, a move that was overruled by the Supreme Court, and more recently by threatening to break international law.

If Mr Johnson's classical education did not teach him the danger of playing with populist fire, the events of January 6th in Washington should have. America's democracy and society may have sustained long-term damage. The Republican Party certainly has. If the Tories want to avoid similarly imperilling the nation and the party, they need to change the way they behave, and not just by pretending they never met Mr Trump.

In America, some on the right are trying to work out how it got captured by Mr Trump and ensure that it never happens again. "Never Trumper" have been trying to formulate a new conservatism ever since their nemesis appeared on the scene. Others have been joining them as Mr Trump became progressively unhinged. Marco Rubio, a senator for Florida, is trying to flesh out a new sort of blue-collar conservatism. The Manhattan Institute is studying ways to revive conservatism in the Democrats' urban heartlands.

The Tories need to engage in this debate and to develop some real policies to solve the real problems on which populism feeds. Mr Johnson has rightly identified "levelling up"—boosting prosperity outside the south-east of England—as a focus for his government, but has neglected to explain how this might be done. Instead of devoting his considerable talents to divisive rhetoric, he should focus on boring, serious policies to improve Britain. ■



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Colour vision

A new challenge to France's deep reluctance to talk about race

WHEN GROWING up in La Courneuve, on the unfashionable fringes of Paris, Rokhaya Diallo says she "didn't feel black". The daughter of parents from Senegal and the Gambia, she recalls that "being black was just not an issue, because there were so many of us." It was only as a young adult in Paris, when people began to ask where she came from, that Ms Diallo realised "that they didn't mean La Courneuve. It was really a matter of the colour of my skin."

Today, Ms Diallo belongs to a generation of French writers and activists who are asserting their identity as black in a way that challenges France's sense of itself as colour-blind. This is prompting a complex and heated debate about how, and whether, to think about race. It is particularly sensitive in France because its universalist model assumes that all citizens have equal rights as individuals, not groups. Partly as a rejection of identification methods used under the wartime Vichy regime, it is illegal in France to collect data on ethnic, ra-

cial or religious origin. Officialdom neither counts nor recognises racial minorities. Identity is assumed to be simply French.

Yet the reality of racial discrimination has for years meant that France fails to match up to this ideal. Studies that use proxy measures for race, such as parents' national origin, show that French people with links to the Maghreb or sub-Saharan Africa find it harder to rent housing or get jobs. They are also disproportionately absent from French television studios, boardrooms and government. In the 1980s,

which saw the growth of groups such as SOS Racisme, anti-racism movements often ended up more concerned about social equality than racial identity. Now a new generation is pressing a different sort of racial awakening. This has pushed President Emmanuel Macron to respond—but also to question the way the problem is discussed.

Last month Mr Macron stirred indignation in some quarters of the police force when he acknowledged that people "with non-white skin colour" are more likely to be stopped by the police in France. He also conceded that "being a white man can be an experience of privilege." Commonplace in America, the use of such terms is highly unusual in France. Mr Macron has now promised to launch a "citizens' consultation" on discrimination. In February he will also set up a permanent anti-discrimination platform—online and via telephone and chat—to register and respond to complaints. The idea is to raise awareness of discrimination, and supply tools to fight it.

If Mr Macron has decided to do more about racial discrimination, though, this does not mean that he shares the way that some activists in France seek to steer the debate. A row currently pits "universalists", who prefer to combat discrimination by reinforcing the existing colour-blind model, against those who argue that deep structures of racism can be erased only by "racialising" French society. "France has a theo-

→ Also in this section

28 A political crisis in Italy

29 Germany's Christian Democrats

30 Covid-19 and repression in Turkey

30 Greenland's rare earths

31 Charlemagne: Cyberpunked

critical universalist philosophy which is hermetic to the experience of a large number of French people," says Ms Diallo. "We refuse to talk about race, so we don't have the words to discuss it. This is denial: a refusal to put words on things that we don't want to recognise."

Much of this push comes from students and those familiar with the American campus debate. Often even the vocabulary is missing in French. Being black at Sciences Po, a group at a Paris university, for instance, calls for classes on "*la critical race theory*", as well as "intersectionality" and "decolonial studies". When you hear talk in France about "white supremacy" or "systemic racism", says Thomas Chatterton Williams, an American writer on race based in Paris, "these are American ways of thinking, which derive from a society built on slavery and oppression."

Up to a point, Mr Macron is sympathetic. When campaigning in 2017, he upset conservative French circles by calling colonisation a "crime against humanity". He agrees that more should be done to teach the full picture of French history, and last year asked Benjamin Stora, a historian, to re-examine the archives on France's colonial history in Algeria. Mr Macron draws the line, however, not only at the idea of sidelining controversial figures in history. He also rejects the "ethnicisation" of French society in ways that could be divisive—particularly regarding extreme forms of Islamism—and undermine universalism. "We're not a country like the United States that has lived through segregation," he told Brut, an online platform.

The challenge for France is whether it can accommodate more explicit racial identities within its existing model, in ways that neither crush genuinely felt differences nor abandon the colour-blind ideal. James Baldwin, an American writer, once commented that in France "I was freed of...the crutches of race." Mr Williams echoes that thought today. "I'm a mixed-race black man," he says, "but in France my identity is primarily my nationality. I'm not the first American to feel liberated by stepping out of the black-white binary."

Some, such as Sibeth Ndiaye, Mr Macron's former government spokesperson, suggest that France should at least debate the question of collecting statistics based on ethnic background. It is harder to measure diversity, let alone prove discrimination, when there is no official recognition of racial groups. The legal case for discrimination currently rests on a plaintiff belonging to a "real or supposed" race and on the perception of racism. For universalism to prosper, wrote Ms Ndiaye in *Le Monde* last year, "we shouldn't hesitate to name things, to say that skin colour isn't neutral."

Part of the difficulty of the debate, says Hakim El Karoui of the Institut Montaigne,

a think-tank, is that inflexible defenders of the French model consider that the mere "recognition of difference is a way of contesting that model". It may be that French universalism is more elastic than its rigid guardians believe. "Until the mid-20th century", says Pap Ndiaye, a French historian and author of "*La Condition Noire*", "we spoke very freely about race, even within the universalist idea." It was only after the second world war and decolonisation that talking about race became illegitimate.

Mr Macron's vision of universalism may be more nuanced than his critics allow. He has often talked about France's plural identities. Recently he said: "We should be able to be fully French and to cultivate another belonging." The challenge will be to get this balance right, while ensuring that those who do not feel fully recognised in France can genuinely prosper in it. ■

Italy

Just what they didn't need

ROME

Matteo Renzi crashes Italy's government in mid-pandemic

ITALIANS USUALLY greet their periodic political crises with cynical resignation. But when, on January 13th, the ministers from Italia Viva, a splinter group led by Matteo Renzi, pulled out of Italy's left-populist government, stripping it of its parliamentary majority, the reaction of many was outrage.

Polls suggest Mr Renzi's tiny party has the support of only about 3% of the electorate. Its leader's approval rating is among the lowest of any prominent Italian politician. By contrast, the prime minister, Giu-



The demolition man does it again

seppe Conte, has far and away the highest.

But Italia Viva's senators are enough to make the difference in the upper house. Mr Renzi said his followers would not obstruct two urgent pending bills. It is clear, however, that Italy now faces yet another bout of political instability—and, this time, in the midst of a pandemic and just as it is about to submit to Brussels its plans for spending its share of the EU's recovery funds. "With 500 dead in the country today because of the coronavirus, Renzi can't find anything better to do than bring down the government on a whim," railed one irate Twitter user.

The withdrawal of Italia Viva leaves Mr Conte with the backing of the centre-left Democratic Party (PD), the ideologically heterogeneous Five Star Movement (M5S) and a small, radical left-wing party. The M5S said that pitching into a political crisis at such a time was incomprehensible. Andrea Orlando, the deputy general secretary of the Democrats, called it "a grave mistake—we shall all for pay for it".

Mr Renzi, a former prime minister who abandoned the centre-left Democratic Party (PD) in 2019, was harshly critical of Mr Conte at a press conference to announce the resignations. But he was careful to leave open several possible solutions to the crisis, even including a reshuffled government under the same leadership.

Since Mr Renzi began his offensive last month, critics have argued that his aim is to become the kingmaker of Italian politics. He maintains he is acting for the good of the country. He claims that Mr Conte has kept too much power to himself, citing the prime minister's control of the intelligence services in particular. He has challenged Mr Conte's reluctance to tap the EU's bailout fund, the European Stability Mechanism, for cash to boost Italy's health services. The EU's pandemic recovery funds are yet another bone of contention: Mr Renzi has objected vigorously to the government's plans for spending the money, estimated at more than €200bn (\$240bn).

Francesco Grillo, whose think-tank, Vision, has prepared a study of the recovery funds, says that in this respect Mr Renzi has a good case. The government's blueprint contains "no real view of where Italy wants to be in five or six years' time, nor a clear roadmap to show how it intends getting there," he says. It allocates almost a quarter of the loans and grants it expects from the EU to tax breaks. These are intended to encourage investment that will make Italy "greener" and "smarter". But, argues Mr Grillo, those criteria are loosely defined and not part of an overall strategy.

The direst outcome to the mess would be an election amid a possible third wave of the pandemic. On current polling, that would deliver power to a hard-right coalition that would doubtless want to re-

▶ write Italy's recovery-fund proposal. But few in parliament are keen on a vote, not least because the next election will be held under new rules that will reduce the number of seats by around a third.

A more sanguine view is that an assortment of independents and renegades from other parties could be assembled to join forces with the remaining parties in the coalition to support a new government, led either by Mr Conte or some respected establishment figure. That, however, risks producing an even more fragile, and perhaps disreputable, majority. Parliamentary turncoats expect to be pampered and rewarded for their support. They are like extra-marital lovers, a politician famed for his party-hopping warned Mr Conte: "You have to give them dignity, bring them out into the open and recognise their value. Otherwise, they say good-bye." ■

Germany's Christian Democrats

Three men in a Rhineland boat

COLOGNE AND DÜSSELDORF

What Germany's largest state means for its largest party

ON JANUARY 16TH 1,001 parliamentarians, party functionaries and small-town mayors will open their laptops, log into a virtual congress of Germany's ruling centre-right Christian Democratic Union (CDU) and elect their party's new leader. The winner will instantly become the favourite to succeed Angela Merkel as chancellor once she steps down after an election in September. Yet on the face of it the delegates do not have much of a choice. The three candidates—Armin Laschet, Norbert Röttgen and Friedrich Merz—are all Catholic trained lawyers aged between 55 and 65. Each has struggled to find a distinct message during an interminable campaign drawn out over almost a year by the pandemic. And all three come from the same state: North Rhine-Westphalia (NRW), the most populous of Germany's 16 *Länder*.

NRW's 18m inhabitants—over one-fifth of Germany's total—would make it the seventh-largest country in the European Union. Its 34,000 square km (13,000 square miles) span the urbanised Rhine-Ruhr region, rural Münsterland, the mountainous Eifel and much more. Walloped by deindustrialisation, its rustbelt cities have reinvented themselves as hubs for retail, logistics and other services. Farther east, the small and medium-sized firms of the *Mittelstand* in Westphalia rival anything in Bavaria or Baden-Württemberg for technical specialisation and export prowess. The traditional gulf between carnivalesque

Rhinelanders and dour Westphalians has been complicated by high immigration that has turned NRW into one of Germany's most cosmopolitan states. "NRW is a miniature Germany," says Dennis Radtke, a CDU member of the European Parliament from the Ruhr. "If you can run the state, you can run the country."

For decades NRW was a stronghold of the Social Democrats (SPD), thanks in part to the large coal-and-steel workforce in Ruhr conurbations like Dortmund. But it has mattered at least as much to the CDU. It was partly in what was to become this multi-denominational state that its founding fathers agreed that post-war Germany needed a big-tent Christian Volkspartei (people's party) that could overcome the class and religious differences that had bedevilled Weimar-era politics.

Early meetings in Cologne and Bad Godesburg, near Bonn, set the party's path and determined its name. The "Düsseldorf guidelines", laid out in 1949, shaped the principles of West Germany's "social market" economy. This blend of market capitalism, social protection and labour rights underpinned the *Wirtschaftswunder* (economic miracle) that followed—largely under the leadership of the CDU's Konrad Adenauer, a former mayor of Cologne elected in 1949 as the country's first post-war chancellor, and of Ludwig Erhard, his finance minister and successor as chancellor.

In the 2000s the SPD's grip loosened and NRW started to swing. State elections took on an outsized importance. A crushing loss in 2012 shattered the CDU's morale; a narrow win in 2017 restored it. These results resonate today among the NRW delegates—almost a third of the total—tasked with choosing their party's new leader. For it was Mr Röttgen who led the CDU to that 2012 defeat, an ignominy that poisoned his reputation among party colleagues in NRW and saw Mrs Merkel fire him from her cabi-

net as environment minister. "These are emotions you don't forget quickly," says Florian Braun, a CDU member of the NRW state parliament.

After that loss Mr Laschet, a moderate in the Merkel vein, slowly revived the demoralised party and led it to victory five years later, building a national reputation in the process. Today he leads a broadly successful coalition in NRW with the Free Democrats, a small liberal party. Soon after the CDU leadership was vacated last February Mr Laschet recruited to his campaign Jens Spahn, Germany's popular health minister, yet another North Rhine-Westphalian. As for Mr Merz, he is from the Sauerland, a largely rural part of Westphalia, but has no history in state politics. The most conservative of the three candidates, he draws much of his support from states like Hesse and Baden-Württemberg.

All this helps explain why Mr Laschet ends the CDU campaign as the narrow favourite, ahead of Mr Merz. After a wobbly performance during the covid crisis he polls poorly with voters, but the delegates are a different bunch, often elected officials who want a leader they think will help them keep their jobs. His is a pragmatic conservatism, shaped by the needs of a complex state, focused on bread-and-butter concerns, and with an ear—too acute, say some—for the concerns of industry.

Mr Laschet's backers praise his ability to build bridges and meld opposing points of view, while rivals acknowledge his skill in working across party lines. His jocular, modest Rhenish bearing contrasts with the silky erudition of Mr Röttgen or the flinty arrogance of Mr Merz. If it is hard to spot any fundamental beliefs in Mr Laschet beyond a staunchly Catholic pro-life attitude, that may be no great sin. After all, Mrs Merkel has run Germany successfully for 15 years and no one is quite sure what she stands for either. ■



Laschet, Röttgen, Merz: spot the difference

Covid-19 and repression in Turkey

One man's terrorist

ISTANBUL

Turkey's government goes after civil-society groups

SEBNEM KORUR FINCANCI, a forensic physician, and many other doctors had long insisted there was something dodgy about Turkey's covid-19 figures. Excess deaths across the country far surpassed officially reported deaths from the virus. Case numbers seemed suspiciously low. Vindication came at the end of November, when the government revealed it had stopped reporting asymptomatic infections months earlier. Once it resumed doing so, the case-count rocketed from about 7,000 to over 30,000 a day. (The numbers later dropped, after new lockdowns were imposed.) For her troubles Dr Fincanci, who turned 61 last year, was labelled a terrorist by none other than Turkey's president, Recep Tayyip Erdogan. The head of the Nationalist Movement Party, the president's coalition partner, called for the group she heads, the Turkish Medical Association, to be disbanded.

Mr Erdogan and his nationalist allies now have a convenient weapon against pesky doctors and other such subversives. Under a law passed by parliament on December 27th, the government will have the power to overhaul or shut down civil-society organisations, including local branches of foreign groups like Human Rights Watch or Amnesty International. The law allows the interior ministry to remove board members who face terrorism charges, freeze their assets, replace them with its own appointees and carry out inspections, all in the name of "combating terror financing". In case that is not enough, the government can ask the courts to ban the organisations altogether.

Few countries have suffered as many terrorist attacks as Turkey in the past five years. But few governments have invented as many terrorists as Mr Erdogan's. Tens of thousands of people, including Kurdish politicians, teachers, journalists and senior members of Amnesty have been arrested on spurious charges since an abortive coup in 2016. More than 600,000 have been placed under investigation for alleged links to a movement led by Fethullah Gulen, an exiled Islamist preacher, that spearheaded the coup. Hundreds of academics were sacked from their jobs and charged with spreading "terrorist propaganda" for signing a petition urging the government to suspend security operations against Kurdish insurgents in Turkey's south-east. Most recently, Mr Erdogan has accused stu-

MOST PEOPLE sniggered when Donald Trump proposed buying Greenland in 2019, but he had a point. The world's biggest island has a rich helping of rare-earth minerals, and the superpowers want them.

These 17 elements, ranging from scandium to lutetium, lurk in the depths of the periodic table and turn up in all things electronic. The renewable-energy revolution will also rely on them for power storage and transmission. On the darker side, weapons—including nuclear ones—need them too.

A new open-pit mine at the top of Kuannersuit, a cloud-rimmed mountain near the settlement of Narsaq in the south of the island, may provide a goodly chunk of the rare earths needed to ditch fossil fuels. So believes Greenland Minerals, actually an Australia-based company, which has been angling for the



There's gadolinium in them thar hills

dents at one of the country's best-regarded universities of links to terrorist groups, after they had the nerve to protest against the president's appointment of one of his loyalists as their rector. Police have detained at least 45 of the protesters. Some of them say they were beaten and threatened with rape while they were in custody.

Dr Fincanci, who has also faced terrorism charges over the Kurdish peace petition (she was sentenced to 30 months in prison, pending appeal, and has been forced to retire from academia), says the government needs the new law to continue ruling by fear and to act with impunity.

Greenland

Cloud mining

An icy country considers its economic future

excavation rights for the past decade.

Greenland's environment ministry has given a tentative go-ahead. A majority of parliamentarians have already declared themselves in favour of digging. In early February the townsfolk of Narsaq will hear representations from the island's government; though a dependency of Denmark, Greenland enjoys self-government in most areas except defence and foreign relations. A consultation phase is to last, provisionally, until mid-March.

Residents of Narsaq welcome the opportunity to learn more and to have their say. Urani Naamik ("No to Uranium"), a community lobby, has strong support. Nobody wants (mildly) radioactive dust, an inevitable by-product, drifting down to settle on their town and pastures. Many worry about the lake of waste—a sludge of chemicals and discarded rock fragments—that mining would leave on top of the mountain.

But Greenland's politicians are in a quandary. The country's two largest parties both want full independence from Denmark, which currently provides half the territory's annual budget. But they would then need to be self-sustaining. Greenland would depend on fish, tourism, fresh-water sales and minerals. The last is by far the most valuable.

Christian Schultz-Lorentzen, editor of Greenland's *Sermitsiaq* newspaper, says a bigger long-term issue is who gets the mine's spoils. Shenghe, a Chinese conglomerate, is the largest shareholder in Greenland Minerals. The Danish government, in a frenzy of Atlanticism, earlier managed to stop Chinese companies from investing in the expansion of two airports on the island. Will it preserve Greenland's rare earths for NATO?

"Civil-society groups are supposed to be a check on state power," she says, speaking after a vigil for the roughly 300 Turkish doctors who have died of covid-19. "Now the state has become a check on civil society. The state is no longer accountable."

The doctor seems undeterred, and continues to be a thorn in Mr Erdogan's side. His government, she says, is still covering up the scale of the pandemic. According to the health ministry, the virus has killed just over 23,000 people in Turkey, including over 1,319 in the week ending on January 10th. She believes the true number may be at least twice as high. ■

Charlemagne | Cyberpunked

A botched launch of a video game provides a lesson for European business



IT IS EASY to be optimistic about the future of Europe when running through a dystopian hellscape, machinegunning police and decapitating pedestrians with a samurai sword. Such opportunities come thanks to “Cyberpunk 2077”, a Polish video game, launched before Christmas after a decade of development. It sold 13m copies at up to \$60 each in its first ten days, with buyers tempted by its mix of hyper-violence, women wearing inexplicably few clothes and a one-armed terrorist played by Keanu Reeves. Pre-launch hype turned its Warsaw-based creator, CD Projekt, into the country’s most valuable listed company and a rare example of European business succeeding at the frontier of a 21st-century industry, rather than coasting on a reputation built up in the century before. Even the in-game currency provides something for Europhiles to cheer: in Cyberpunk lore, the main currency, “eddies”, is based on the euro. Society may have collapsed into a living nightmare, but at least the EU’s single currency lived on.

What should have been a rare technology victory for European business soon turned into a farce, however. The game was launched while still littered with bugs, much like the actual euro. Performance was so poor on older consoles that Sony, the world’s biggest console manufacturer, took the rare step of pulling the game from its stores. One scene gave an unfortunate reviewer an epileptic seizure. CD Projekt issued grovelling apologies. Its share price halved as complaints and refund demands poured in. The paper billionaires created among the Polish company’s management became paper millionaires once more. The peculiar cocktail of success and embarrassing failure of “Cyberpunk 2077” is an allegory for Europe’s video-game industry at large. It also says something about Europe’s economic place in the world.

Start with the positives. Had a Polish film studio put out a film that grossed the best part of \$1bn in just a few weeks, as “Cyberpunk 2077” managed to do, it would be churlish to complain if some of the acting was clunky and the plot had holes. CD Projekt is far from alone. Ubisoft, its French peer, is behind popular series such as “Assassin’s Creed”, which allows players to vent their bloodlust across the rooftops of historic Europe. A host of other smaller developers are scattered across the bloc, from Bucharest to Helsinki via Berlin. Game-designers in Poland and France find

their efforts on bestseller lists for the same reason Swedish pop stars do: they have a knack for knowing what people like. In an industry worth \$140bn annually, roughly three times global box office for films, this is a useful skill to have.

Yet Europe’s success in the sector has its limits. European companies are dwarfed by American and Chinese rivals. The two biggest American competitors, Electronic Arts and Activision Blizzard, are roughly three and six times bigger respectively than their largest European peer. Any company showing signs of growing to a serious size is swiftly gobbled by an American or Chinese rival. Microsoft bought Mojang, the maker of “Minecraft”, for \$2.5bn in 2014. Tencent took control of the Finnish mobile-gaming company Supercell in 2016 in a deal valuing the group at \$10bn. Capital is always relatively scarce in Europe compared with America, but especially when it comes to video games, points out Matti Littunen at Bernstein, a broker. Often continental investors have no interest in the genre.

Just as Europe failed to produce its own Amazon or Facebook, so too has it failed to control the platforms that dominate video games. These are controlled either by hardware sellers, such as Microsoft and Sony, or American distributors such as Valve, which owns the world’s biggest PC-game store, Steam. The companies that did succeed in these previous land grabs, such as Microsoft, Google and Amazon, can be ambitious in a way that European rivals are simply unable to match. It is these giants that are set to dominate new markets, such as the rise of cloud gaming, with games streamed—à la Spotify, a rare European tech success—rather than bought individually, as they are now. People’s attention is a lucrative, finite resource and one that European companies are ill-placed to mine, because of previous failings. Europe’s younger technology companies will pay for the sins of their fathers.

Steady eddies

Perhaps Europe should be happy for its businesses to be niche players in a world dominated by American and Chinese firms. Being owned by others is not the end of the world. Asset-stripping in the creative industry is a dumb idea: there is little point buying a creative company, then firing everyone. True, the quality of jobs in gaming can be overstated. (At its worst, it can be well-paid grunt work, ensuring that a horse’s digital testicles shrivel in the correct manner on a chilly day.) But video games are a growing industry and, crucially for a bloc with increasingly divergent economic prospects, relatively well spread across the continent. As long as some jobs and investment stay, why should anyone care?

Yet this attitude jars with the goals of Europe’s leaders, who are desperate to make the union a proper superpower. The EU has proved capable of regulating businesses, but incapable of helping to build them. It should start by paying future-proof industries more attention. Instead of being cherished, sectors like video games are forgotten: eclipsed by traditional industries, which have the ear of national politicians; dismissed as too nerdy by the luvvies who give the creative sector its clout. If a more dirigiste Europe is inevitable, then the EU should at least focus its efforts on industries with a bright future, rather than helping older ones cling on. Much like the haphazard launch of “Cyberpunk 2077”, Europe’s video-game sector is still a success, but it has the potential to be a lot better. Unfortunately, in the minds of Europe’s lawmakers, 20th-century industries on which the continent built its wealth—cars, chemicals, banks—are still king. Unless that changes, come 2077, there may be no eddies to go around. ■

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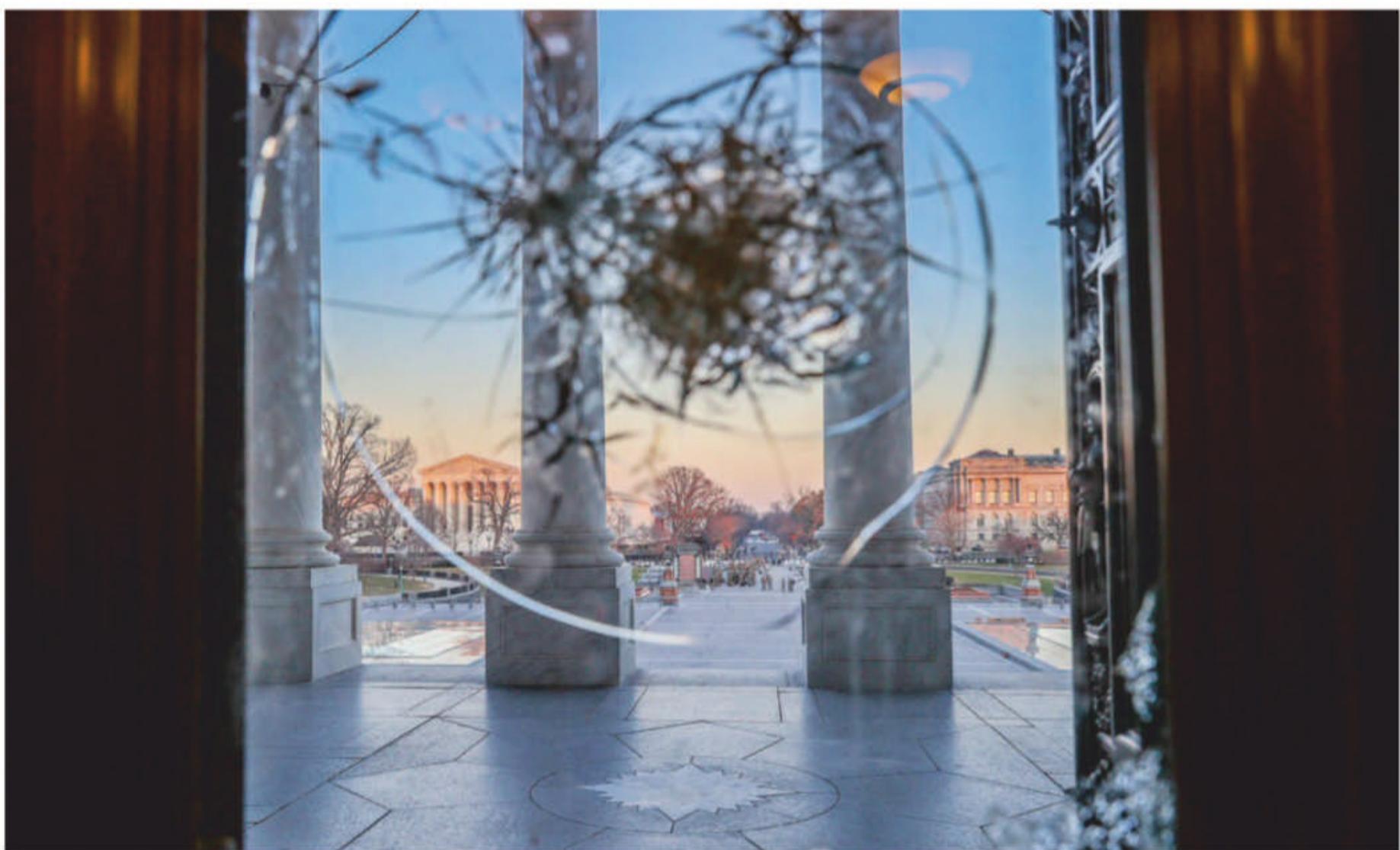
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Donald Trump's presidency

The final chapter

WASHINGTON, DC

Congress has impeached Donald Trump for his incitement of a mob attack on the Capitol. What happens next?

OF ALL THE democratic norms President Donald Trump has broken during four years in the White House, none is as important as the peaceful transition of power. The photos, videos and accounts that have emerged since the ransacking of the Capitol on January 6th include footage of rioters beating a police officer with a flagpole as a crowd chanted "USA" and crushing another officer repeatedly in a door. Yet the violence, which resulted in five deaths, was nearly much worse. Quick-thinking police officers distracted the mob from breaching the debating chambers long enough to whisk every lawmaker to safety. Some of the rioters, chanting "Hang Mike Pence" and "Where's Nancy?", had violent designs on both the Republican vice-president and the speaker of the House—the first and second in the line of presidential succession.

In the final days of Mr Trump's administration, Congress will be consumed with working out how to penalise the president. The House of Representatives, which is controlled by Democrats, quickly drew up

an article of impeachment accusing the president of "incitement of insurrection". It passed on January 13th, one week after the attack on the Capitol. Some Republicans, after encouraging or standing by mute as the president attacked the democratic process for months, have shaken consciences. Ten of them joined all 222 Democrats on the vote.

Liz Cheney, the third-ranking Republican in the House, was one of them, declaring in a statement issued the night before that "there has never been a greater betrayal by a president of the United States of his

office and his oath to the constitution". Kevin McCarthy, the Republican leader in the House, who objected to certification of Joe Biden's election victory even after the attack on the Capitol, declined to whip opposition to the measure. Several Democrats say that some of their Republican colleagues confessed privately that they voted no because they were in fear of their lives. Having pledged to end "American carnage" when he was inaugurated, Mr Trump will depart ignominiously: the only president to have been impeached twice. The indelible image of his administration will be that of a mob vandalising Congress in a bid to overturn a fair election.

What happens from here, however, is uncertain. Upon impeachment, charges against the president are tried in the Senate, where a two-thirds majority is needed for conviction and removal from office. Yet Mr Trump will be leaving office anyway on January 20th, when Mr Biden is inaugurated. The Senate is adjourned until January 19th. An earlier session might have been called if members had agreed to it unanimously but Mitch McConnell, the Senate majority leader, could not bring that about. Even if he had, completing the trial while Mr Trump is in office would require record-breaking speed, and not give the president much time to defend himself.

This presents a constitutional edge case without precedent: can a president be convicted of impeachable offences after he has ➤

Also in this section

[34 Social media and speech](#)

[35 Murder rates jump](#)

[36 Minor-league baseball](#)

[37 The Texas legislature](#)

[38 Lexington: Conservative consciences](#)

► left office? Although not legally proscribed, this is also untested. Congress ended the Watergate impeachment inquiry soon after Richard Nixon resigned in 1974, feeling its purpose moot. Some lawyers reckon that continuing the trial once Mr Trump has left office might be unconstitutional.

There are compelling reasons to proceed anyway and let the Supreme Court sort that out. The first would be to establish that presidents may not commit impeachable offences without consequences during their lame-duck periods. The second would be to disbar Mr Trump from holding federal office again, preventing a possible comeback presidential bid in 2024. That would give Republicans an opportunity to rid the party of Trumpism, hopefully stop its worrying flirtations with authoritarianism and allow it to return to being a constitutional, conservative opposition. “To my Republican colleagues who have been saying, we need to come together, we need to heal, we need to be reconciled after last Wednesday, I remind them: There’s a spiritual teaching that there’s no reconciliation without repentance,” says Chris Coons, a Democratic senator from Delaware.

Mr Trump’s first impeachment trial, held just one year ago over his pressing the Ukrainian president to find dirt on Mr Biden and his son Hunter, ended in acquittal because of near-unanimous opposition from Senate Republicans (Mitt Romney was the lone aisle-crosser). Their desire to defend the president after the assault on the Capitol will not be so dogged. The odds of a full conviction still seem long: with the newly sworn-in Congress, at least 17 Republicans would need to defect. Yet Mr McConnell, the soon-to-be Senate minority leader, has let it be known that he might be open to impeachment. Where he goes many of his caucus may well follow.

Democrats who want more certain and immediate punishment for Mr Trump, and the historic dishonour of being the first sitting president to be removed from office, have suggested two hastier constitutional routes. The first is the invocation of the 25th Amendment, which allows the vice-president and a majority of the cabinet to immediately remove Mr Trump from power. This is doomed. When Democrats passed a resolution urging Mr Pence to try that strategy, he refused, writing that “I will not now yield to efforts in the House of Representatives to play political games at a time so serious in the life of our nation”.

The other is the resuscitation of a section of the 14th Amendment to the constitution that permanently bars those who violate their oaths of office by engaging in “insurrection or rebellion” from ever holding federal office again. This clause was designed to prohibit the election of Confederate rebels after the civil war, and has been almost entirely ignored since. This is the

most uncontested option for ousting Mr Trump, or from preventing him from running for president again. Nonetheless, some Democrats think it could be used more widely. Cori Bush, a leftish Democratic representative, has introduced a resolution, co-sponsored by 47 other Democrats, citing the same clause, which seeks to censure and possibly expel the Republican congressmen who voted not to certify Mr Biden’s victory.

As for Mr Trump, his steadfast allies in Congress are showing clear signs of insubordination. The Twitter account he used to keep Republican dissenters in line has been muzzled. And the emerging evidence from public-opinion polling suggests that his base is souring on him too. Our latest survey, conducted with YouGov, shows that Mr Trump’s overall approval rating has dropped from 42% to 39% in the span of a

single week (and among his supporters in the recent election from a messianic 93% to a mere 83%). One in six of his voters now say that they supported the violent assault on the Capitol, a worrying minority, but much less than the 45% of Republicans who thought it justifiable in the immediate hours after news broke.

Yet there are concerning remnants of the epistemic rot that Mr Trump and his abettors have wrought: 81% of his supporters say that they have little to no faith in the fairness of the presidential election—the Big Lie that instigated the entire fiasco. And a remarkable 74% of Trump voters believe the conspiracy theory that Antifa, a left-wing group, was involved in the Capitol assault. Republicans in Congress may, in the twilight of Mr Trump’s presidency, embark on an exorcism for their party. Other demons may haunt them for longer. ■

Tech and politics

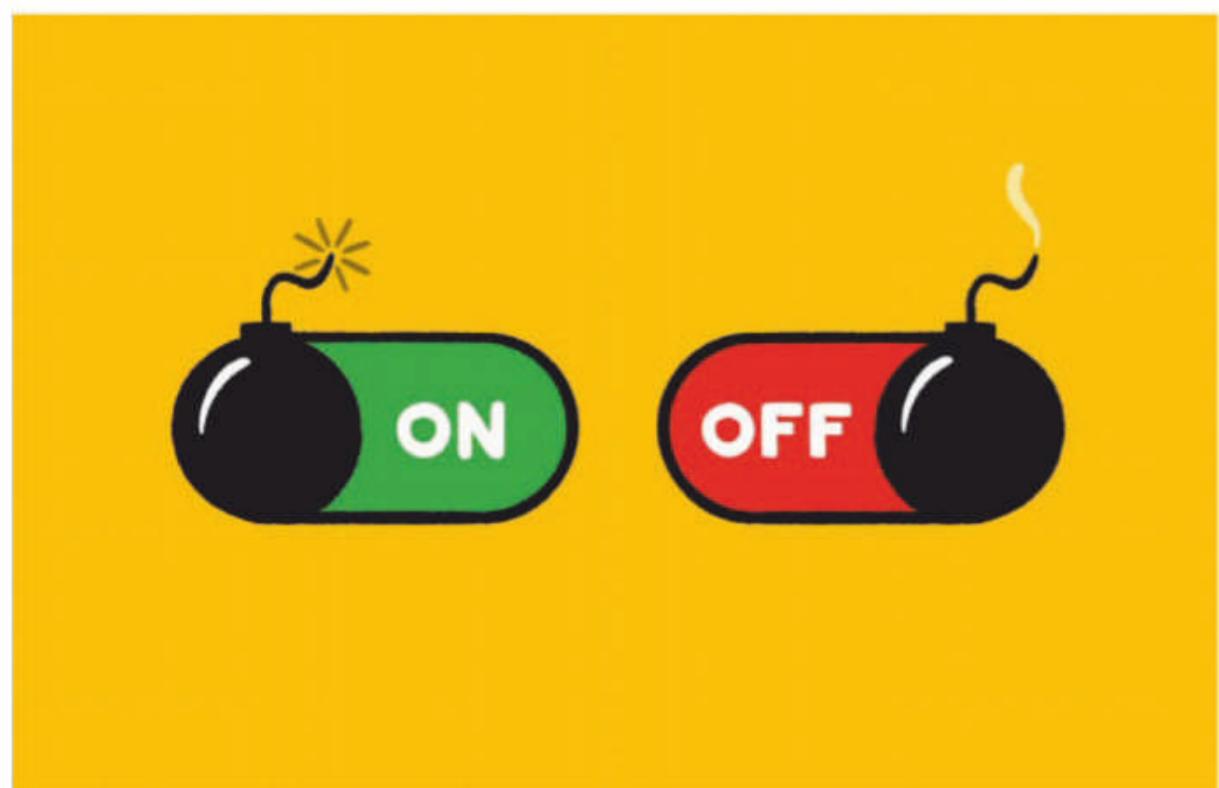
Said the spider to the fly

The banishment of Donald Trump from social-media platforms underlines the concentration of power online

PARLER, A SMALL but rapidly growing social network, is an unlikely candidate for liberal sympathy. Pronounced “parlour”, it gained popularity mainly with right-wing Americans fleeing what they saw as the lefty tendencies of Twitter and Facebook. Yet alarm at the company’s fate has crossed America’s political divide in a way that suspending the president from Twitter and Facebook has not.

On January 8th, after the two better-known sites banned President Donald

Trump, Parler jumped to the top of Apple’s app store in America, nearly quadrupling downloads in a day. The same day Google removed the app from its store for Android phones, citing its weak moderation policy, followed the next day by Apple. So did other providers of important back-end services, with names like Twilio and Zendesk, that few outside the tech industry have heard of. The end came when AWS, Amazon’s cloud-computing arm, which provides the infrastructure used by millions of ▶▶



► services and websites, also pulled the plug. Inaccessible as an app on either Android or iOS devices, Parler and its roughly 12m accounts disappeared from the web too.

The firms have a legal right to cut ties with Parler. And Section 230 of the Communications Decency Act allows them to remove any “objectionable” content if it is done in good faith. But their actions give the lie to the argument that if users do not like one social network’s policies, they can just go somewhere else. It is unlikely that the two other big cloud services, run by Microsoft and Google, will want Parler anywhere near their servers. Even though in wiping Parler from their infrastructure they may well be removing illegal incitements to violence, potentially shielding themselves from liability, these companies are “wielding unchecked power over key arteries of the internet,” says Lina Khan, an antitrust scholar at Columbia Law School.

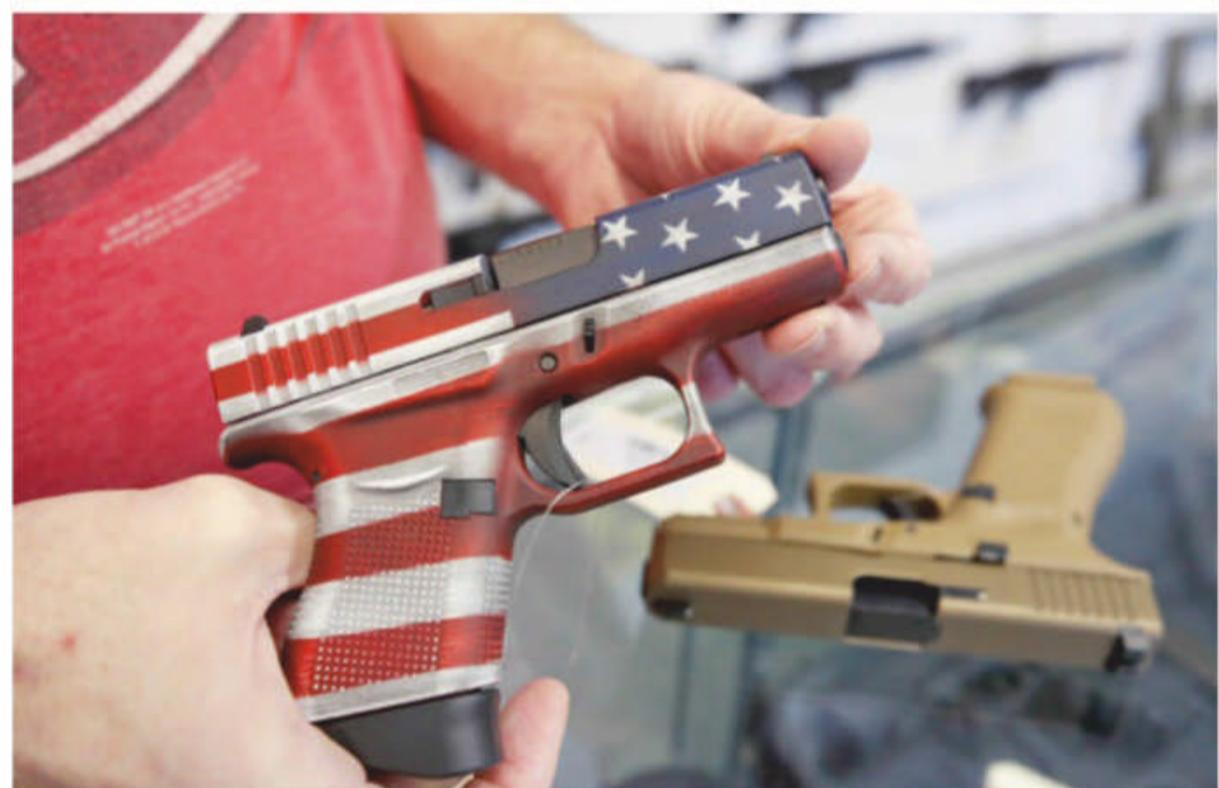
The debate surrounding the awesome power of tech companies to shape what people see online has long focused on consumer-facing platforms such as Facebook and Twitter. Yet, in recent days, many previously obscure firms have found their names included in these discussions. These include Stripe, a payment-processor that said it would stop working with the Trump campaign; Salesforce, which blocked emails sent by the Republican National Committee; and Shopify, a Canadian firm that provides online shopfronts and removed two stores connected with Mr Trump. That is in addition to bans from Reddit, Instagram, Snapchat, TikTok, Twitch, YouTube, Pinterest and Discord, social-networking firms which have all taken action against Mr Trump’s accounts or hashtags such as #stopthesteal. Even Peloton, which makes pricey internet-connected exercise bikes, issued bans.

The role of social networks, payment-processors and infrastructure providers as the police force of the internet is not new. Gab, a far-right social network, was dropped by GoDaddy, which registers domain names, after it became clear that an anti-Semitic mass-shooter had used the service to broadcast hateful content (it had long before been barred from app stores). Cloudflare, a famously neutral infrastructure firm that helps protect websites from cyber-attacks, last year booted out 8chan, an online forum, for its role in other mass shootings. In 2017 it pulled the plug on the “Daily Stormer”, a neo-Nazi website. “I woke up in a bad mood and decided someone shouldn’t be allowed on the internet. No one should have that power,” Matthew Prince, the company’s boss, wrote at the time. It is difficult to exist on the internet without the support of these companies.

Few tears were shed over sites known to host extreme far-right actors. But the banning of Mr Trump and of Parler make even

their detractors uncomfortable. It puts some on the left in the unfamiliar position of celebrating corporate power to determine what people can say and much of the right in the unfamiliar position of lamenting it. The fallout will be louder calls to regulate internet companies—not just from American politicians but from leaders around the world. Politicians from Germany’s Angela Merkel to Russia’s Alexei Navalny have expressed dismay at the way

Mr Trump was banned by networks. Facebook itself has long called for more regulation. That is likely to come in this Congress. Even before the events of the past weeks, both parties agreed on the need to reform Section 230, which became law 25 years ago, when the web was in its infancy. A clearer set of rules, set by legislatures rather than Silicon Valley executives, would be enthusiastically welcomed—not just in America but everywhere else, too. ■



Violence in cities

Where bullets fly

CHICAGO

America is experiencing the worst recorded increase in its national murder rate

EVEN FOR a city used to gun violence, the events on January 9th in Chicago were terrifying. A lone man, probably psychotic, bragged in videos on social media of how he planned to murder strangers. Then, over several hours in many places, he shot seven people—a Chinese doctoral student, a security guard, a teenage girl, two elderly women and two others—picked seemingly at random. Three of the victims died before police killed him.

Such serial attacks are rare. Much more common, in cities everywhere, are retaliatory murder by small gangs. Some compete for drug markets, but often shootings have no end beyond a young gunman asserting his status or settling a perceived slight. Arne Duncan, a former federal education secretary who now works on tackling violence in his home town, says much of it is extremely local: between one-third and one-half of all shootings in Chicago hap-

pen in just 7% of its residential blocks.

That should make doing something easier, as officials know where to concentrate resources. Yet their efforts are failing. After some years of fewer killings, last year was “extraordinarily tough”, he says. Chicago saw over 770 murders, 50% more than in 2019, and around 3,000 people shot and wounded. Carjackings more than doubled. Eddie Bocanegra, who works with young men most at risk, says killers, many of them teenagers, have grown more ruthless. He describes a victim shot 21 times with an automatic rifle. He blames increased violence on more lethal weaponry, including magazines that hold dozens of rounds.

It is not just Chicago. Rates of gun violence are rising in other cities too, after falling since the early 1990s. Thomas Abt of the Council on Criminal Justice, in Washington, says data so far for 2020 suggest “the largest single-year increase in homicides ►

► ever reported in the us." A study by his group of 21 big cities counted murders up (year-on-year) by 42% last summer, then by 34% in the autumn. Jeff Asher, an analyst based in New Orleans, cites FBI data for cities with fewer than 10,000 residents, where murders leapt by 30%. In all the FBI counted 16,425 murders, five for every 100,000 people, in 2019. Figures for 2020 will eventually show big a rise from that.

Violence really picked up in late spring, after the pandemic took hold, the economy slumped and, especially, after the killing by Minneapolis police of George Floyd, an African-American man, in late May. Richard Rosenfeld of the University of Missouri, in St Louis, points to a simultaneous "abrupt increase" in killings across cities. National rather than local factors evidently drove the murder rate last year.

Harder to trace is exactly why this happened. Did protests against police violence lead to forces pulling back, which in turn led to more murders? Did temporary reductions in jail populations in the early weeks of the pandemic allow newly released men to commit crimes? Did school closures push up crime, as they do in the summer holidays? Why did property crime slump last year, whereas violence soared?

Part of the explanation may be a boom in firearm sales, especially of handguns (which are usually bought for security, not recreation). Jurgen Brauer of Small Arms Analytics, which tracks industry sales, counts 22.7m handguns and long guns sold last year, a record, and 63% more than in 2019. He notes that availability of weapons is associated with higher rates of violence. Those were legal sales, but criminals may own legal weapons, or buy or steal them.

Mr Rosenfeld sees other mechanisms in play. The police grew less effective as officers fell ill with coronavirus, were quarantined or were diverted, for example by protests. Those still patrolling also practise social distancing. "That reduces the kind of face-to-face contact that can be effective," he says. Police are most helpful if they prevent retaliation, stopping petty disputes escalating into shooting wars, but that requires a heavy presence on the ground. The widespread loss of trust in police after the Mr Floyd's killing "widens the space for so-called street justice", he says.

Mr Duncan points to micro-measures to push back against the gloom. His group works with rappers in Chicago, for example, to spread "rules of engagement" between gangs, telling members "You are not a man if you shoot into crowds or at children." Borrowing from conflict resolution experts, he also promotes non-aggression pacts and "peace treaties" between small gangs. Such efforts are welcome, but will take time. Meanwhile, America's mayors must hope that the murder spike is just that, rather than a return to old ways. ■



Minor-league baseball

Trouble on the farm

How baseball represents American society in miniature

MINOR-LEAGUE baseball clubs, the more than a hundred small, independent teams—some, like the Albuquerque Isotopes, with wonderful names—have long had a symbiotic relationship with their major-league counterparts. Since the 1960s most have been affiliated with a major-league club in what is called the farm system. Major-league clubs loan their prized young talents to a minor-league club, pay their salaries (a relative pittance, given that Congress has exempted minor-leaguers from minimum-wage laws because of major league lobbying) and lend their name and prestige to marketing, as the New York Yankees once did for the Trenton Thunder. In return the small clubs provide a supportive training ground, allowing young players to develop and refine their skills against competition of a similar age, without the pressure that exists at the major-league level.

This has been changing, as major-league clubs use their influence to control, centralise and consolidate the minor leagues. That process took a step forward last month when the majors invited the minnows to join a new minor-league system. About a quarter of small clubs, mostly in Appalachia and the rural West, have been cast out of the farm system, and are likely to wither.

The stated reason for the realignment is to streamline and modernise training for young players, who will become enormously valuable to the major-league

clubs if they blossom into stars. Yet it has also caused widespread outcry at the billionaire owners eviscerating a folksy institution solely to cut their costs.

The realignment is likely to disrupt thousands of jobs in the same regions hit by deindustrialisation over the past few decades. The likely result is that the sport's wealth and power will be increasingly concentrated in the major league, which derives much of its revenue from media rights and technology.

Beyond illustrating the power of superstar economics, the relationship between the majors and minors mirrors other trends. Although no longer the country's most popular sport, baseball remains a unifying symbol of Americana, from the College World Series in Omaha to the sandlot diamonds of the South Bronx. Despite their brand as keepers of the national pastime, major-league clubs are in the cosmopolitan city centres that have outgrown and outpaced the rest of the country in recent decades.

This is a pity. If a young fan of the Idaho Falls Chukars (an 80-year-old minor-league club facing probable bankruptcy) loses a connection to the game, that can only exacerbate regional and cultural divides. Nearly 40 years ago, the French-American intellectual and baseball fan Jacques Barzun said that "Baseball still reflects our society, it's just that our society has changed." Were he alive today, it seems unlikely that he would revise that view.

Texas politics

Stars and gripes

DALLAS

The Texas legislature is back in session and must deal with challenges that are as large and diverse as the state

WHEN THE Texas legislature convened on January 12th, the state House opened its first session with prayer, the pledge of allegiance to the American flag, and the pledge of allegiance to the Lone Star flag. The 140-day session, which takes place every other year, will be filled with plenty more prayers and promises. Texas, like other states, is grappling with the human and economic toll of the pandemic, but also faces challenges of its own.

The stark economy will rule out new, ambitious proposals. On January 11th the state comptroller estimated that Texas faces a \$1bn shortfall, stemming from falling sales-tax revenue and its ailing oil-and-gas industry, which has contributed to a higher unemployment rate in the state than in the nation. However, the \$1bn hole is five times smaller than predicted over the summer. Quick cuts to state agencies and tax collections from online sales have helped, but the biggest saviour has proved to be Washington, DC. Already Texas and its local governments have received \$13bn through the CARES Act, and more state aid is likely with Democrats controlling the Senate. Texan leaders like Governor Greg Abbott, who made a habit of railing against the Obama administration, may find it wise to be less hostile this time round.

The state's troubles can be put into three buckets: those that legislators will take up and are essential priorities, those they will not address but should, and those they will address but shouldn't. The main priority is public education. In 2019 the legislature passed a popular public-education bill, committing \$6.5bn to education. It also passed a \$5.1bn to lower property taxes, which are often used to pay for schools.

The newly-elected speaker of the Texas House, Dade Phelan, insists that public education will not be given short shrift. That is good news. Measures such as more funding for full-day pre-kindergarten, incentivising teachers to work in poorer schools, and extending the school year, are even more necessary than they were when passed in 2019, says Todd Williams of the Commit Partnership, an education non-profit. A year of learning has already been lost with the pandemic, according to Michael Hinojosa of the Dallas Independent School District. In the autumn of 2019 only 46% of Texas 8th-graders (13-14-year-olds) were proficient in maths, and by last autumn it had dropped to 33%. Another prior-

ity will be the expansion of broadband, whose patchiness the pandemic has underscored. Texas is one of only six states that lacks a statewide broadband plan, which deprives it of valuable federal funding, according to Tom Luce, the founder of Texas 2036, an economic policy non-profit.

Then there are the issues that the legislature should address, but won't. The most glaring one is an overhaul of health care. Texas has the highest uninsured rate of adults and children in the country—nearly 20%—because it declined to extend Medicaid under the Affordable Care Act. "We had a public-health crisis prior to the pandemic," says Evan Smith of the *Texas Tribune*. "And because coverage is tied to employment, the number of people without coverage has spiked." The pandemic has underscored the hardship in rural areas. In the past ten years, almost one in five of the nation's rural hospital closures took place in Texas, complicating treatment for covid-19 and vaccine distribution.

Although conservative Oklahoma and Missouri expanded Medicaid last year, Republican-controlled Texas has resisted, arguing that the cost is too great (although the federal government would pick up 90% of it). "The state's top leadership is not showing a real openness to an expansion of Medicaid," reckons Joe Straus, the Republi-

can former speaker of the House, who now supports the change. State Republicans may feel that the fact they kept their grip on the legislature in November, despite many predicting that the Democrats would take the state House, is proof that they do not need to take dramatic action.

Finally there are the issues that the legislature will take up that would be best left alone. Chief among them is a proposal to ban taxpayer-funded lobbyists, such as those representing mayors' offices and city councils, which is aimed at Democratic cities and counties. "The power of state government...is being used to strip power from local government," says Jason Sabo of Frontera Strategies (a lobbying firm). In past legislative sessions, the Capitol has also seen epic battles over social issues—from abortion to transgender bathrooms—and divisive proposals could flare up again this spring, as Republican politicians try to score points before next spring's primary run-offs. Yet these would distract from the many problems ordinary Texans are facing.

The coronavirus has brought the state plenty of challenges, but it has also presented it with an opportunity. "Texas's relative positioning has improved meaningfully as a result of covid," says Robert Kaplan, president of the Federal Reserve Bank of Dallas. Businesses and individuals, including Elon Musk, have moved in from higher-tax states, including California. Yet future population growth will also require investment in order to become even more competitive long-term. Texas Republicans still seem loath to invest more in areas such as education and health care. That is a conversation that this legislature is unlikely to want to have this session. Put it in the category of "won't, but should." ■



How you Phelan, Dade?

Lexington | Conscience of some conservatives

The Republican Party launches an overdue civil war over Donald Trump



TO PARAPHRASE Samuel Johnson, nothing concentrates the mind like the prospect of being hanged. And so it has proved inside the Republican leadership. A week after Donald Trump's MAGA mob erected a gallows besides the Capitol reflecting pool then invaded the building, the president's party is for the first time seriously reviewing its loyalty to him. Liz Cheney—the number three Republican in the House—was among ten in her party to vote to impeach Mr Trump. Mitch McConnell, the Republican leader in the Senate, has let it be known he might be supportive. In that case Mr Trump—the first president to have been impeached twice—could become the first to be convicted and disbarred from office.

It is hard to exaggerate how dramatic a turnaround this already is. Although inciting the attack itself was worse than anything Mr Trump has done, it revealed nothing fundamentally new about his character. And his newly emboldened Republican critics did not merely stomach his earlier abuses—of ethics rules, migrant children, and so on—but vociferously defended them. Mr McConnell has had more power to check Mr Trump than anyone and has barely tried. Ms Cheney dismissed the leaked recording that led to his first impeachment—in which he coerced his Ukrainian counterpart to invent a corruption case against Joe Biden—as a “political set-up”. Up until the riot, and perhaps still, most Republican politicians expected him to be their presidential nominee in 2024. This history of supplication makes the nascent effort to purge Mr Trump and his destructive politics as astonishing as it is welcome. It also suggests how hard it will be.

To start with the obvious barrier to Republican reform, most of the party's voters appear to be against it, which is why Mr Trump's critics enabled him for so long. After the insurrection, almost half of Trump voters said they stood with the rioters. Even if the president is ousted, his main means of keeping his party in line—the threat of a primary challenge—may therefore endure. America has a history of rabble-rousers, but none has previously come close to achieving Mr Trump's personal grip on millions of voters.

If his grasp does weaken, however, as he becomes less visible or ineligible, there is little to suggest the Republican base could easily be turned back to a more constructive conservatism. Mr Trump has defined himself against his party's conventionally conservative

leaders—apparently the lynch mob's first target—almost as much as against Democrats. Below the level of Ms Cheney and Mr McConnell, he has also changed the Republican establishment—such that 147 Republican House and Senate members voted to overturn the election even after the attack on the Capitol.

He has promoted its most anti-democratic elements, in particular the Tea Party faction, whose bigotry and demonising of their leftist opponents presaged his own. One of its members, Senator Ron Johnson of Wisconsin, recently told Lexington that what distinguished Trump voters from the left was that while the former “love America with all their hearts” Mr Biden and many Democrats “don't really care for this country”. After your columnist suggested this was untrue, Mr Johnson, a staunch proponent of Mr Trump's election-fraud conspiracy theory, insisted, also falsely, that: “Biden rallies were protests which turned to riots in the streets.”

This was absurd even before the attempted MAGA coup. More recent additions to the Republican bench can sound positively deranged: especially the two QAnon admirers, Marjorie Taylor Greene and Lauren Boebert, in the House. With their divided base and divided elite the Republicans are splitting into two coalitions. One is large, Trumpist and incompatible with democracy; the other anti-Trumpist, anxious, and of uncertain size.

This is a crisis with deep roots. The modern conservative movement always contained contradictions: its love of limited government was belied by its support for supersized defence; the religious right was often illiberal. Such tensions were nonetheless harmonised by the fuzzier values Ronald Reagan imbued the movement with: realism, patriotism and prudence. Yet that settlement had eroded long before Mr Trump; the right's policy agenda had become captured by vested interests and its values by pessimists. Over the past four years it has collapsed. The ideological contradictions have ballooned, as Mr Trump has slashed taxes, splurged on defence and lionised religious crackpots. Meanwhile he has substituted for Reagan's harmonising values an ever-increasing animosity to the other side, personified by his own behaviour, and leading to the January 6th eruption.

This history suggests a necessary condition for renewal on the right may be failure. The Reagan revolution was fomented in the wilderness. Its ingredients included political space and a slow-witted Democratic opponent, grown complacent with power. Therefore the right's most astute critics, Never Trump Republicans, mostly wanted to see it hammered in November. Yet it seems that path to creative destruction has been blocked. Extreme polarisation limits the potential losses of either party. And the Republicans are additionally sustained by the advantage their heavy rural vote gives them in the Senate and electoral college. This anomaly—which Daniel Ziblatt, a political scientist, calls “constitutional welfare”—means they have cause to think they are winning even when they are losing. It also amplifies the party's most remote, culturally aggrieved and therefore MAGA voices. It is undemocratic, the ultimate barrier to reform on the right and presently insoluble.

Out, out damn spot

This is cause for realism; but not despair. Expunging Mr Trump from Reagan's party is a more basic condition for progress. And thanks to the belated bravery of ten Republican House members and perhaps Mr McConnell it is imaginable. If they succeed, it will be their life's work; Republicans and Democrats alike should back them. Mr Biden liked to say the general election was a battle for the soul of America. It is now being waged in the Republican Party. ■

**Biden and Latin America**

A shift of gears

MEXICO CITY AND SÃO PAULO

A post-populist president will encounter a region where populism has recently flourished

IN 2013, after WikiLeaks revealed that the United States' National Security Agency had bugged the phone of Dilma Rousseff, then Brazil's president, Joe Biden called to apologise. A year later the American vice-president went to Brazil for a World Cup football match bearing a gift: declassified documents shedding light on abuses by Brazil's military dictatorship of 1964-85. Ms Rousseff had herself been tortured.

Ms Rousseff called Mr Biden "a seductive vice-president". Other Latin American leaders found him less so. Otto Pérez Molina, a former president of Guatemala, rues the day that he bowed to pressure from him to prolong the life of CICIG, a UN-backed graft-fighting agency. He expressed this regret in 2015 from a military prison, where he awaited trial on corruption charges. CICIG supplied the evidence.

Once Mr Biden has the top job, it would not be surprising if his interest in Latin America waned, given other demands on him. The only memorable vignette about

the region in Barack Obama's new memoir is his confession to "smiling and nodding" through a long dinner in 2011, thinking about the war in Libya while Chile's president droned on about wine exports.

Still, Mr Biden will probably pay heed. He was Mr Obama's point man for Latin America, visiting 16 times. Regional emergencies, from mass migration to Venezuela's tightening dictatorship, will require his attention. He does not have Donald Trump's bullying style. He will promote the rule of law and efforts to fight climate change, concerns that Mr Trump largely ignored. This year Mr Biden is due to host a triennial "summit of the Americas".

Latin America has changed since his vice-presidency. Weak economic growth

has undermined the region's self-confidence. The pandemic has killed 541,000 people in Latin America and the Caribbean, second only to the death toll in Europe, and caused the worst economic slump in more than a century. The corrupt are winning the war on corruption. Anger at a broken social contract has led to unrest and the election of populist presidents. Venezuelans are fleeing their country, putting strain on its neighbours. Central America's exodus, paused by the pandemic, has resumed.

Democracy is in retreat. The Bertelsmann Foundation, which ranks countries' democratic strength on a ten-point scale, finds that the scores of seven democracies in Latin America have fallen by 0.8 points or more since 2010. Recently Peru's Congress unseated the second of two presidents within 30 months. Nayib Bukele, El Salvador's president, has laid the groundwork for dictatorship. Elections in 2021, including in Ecuador, Peru and Nicaragua, could bring populists to power or consolidate authoritarians' rule.

When Mr Trump took office in 2017, Latin American governments suffered a "fear of coming to his attention", says a former adviser to his administration. But many grew to like him, largely because he left them alone, unless they allowed migrants to stream into the United States. His interest in promoting democracy did not extend beyond the left-wing "troika of tyranny"—►

→ **Also in this section**

40 Ford leaves Brazil

— Bello is away

► Cuba, Nicaragua and Venezuela. Jair Bolsonaro of Brazil and Andrés Manuel López Obrador of Mexico, populists of the right and left respectively, felt a kinship with him (Mr Bolsonaro is an unabashed fan). Both waited a month to recognise that Mr Biden had defeated him.

Bidenworld thinks it wrongheaded to confine democracy promotion to three countries. It shares the pre-Trump consensus that the neighbourhood's stability depends on the rule of law, a strong civil society and fairer capitalism. It will seek more humane ways to control migration than bullying governments to block migrants as they pass through their countries.

Mr Biden wants eventually to resume allowing asylum-seekers to apply in the United States. Now the Trump administration forces those who reach the border to remain in Mexico. Mr Biden is expected to unwind Mr Trump's pacts with the three countries of the Northern Triangle—Guatemala, Honduras and El Salvador—whereby the United States can send migrants back. That will be a slow process. A loftier goal is to make the Northern Triangle a better place to live in. Juan Gonzalez, who will join the National Security Council, was a Peace Corps volunteer in the highlands of Guatemala, origin of many migrants. Mr Biden wants to spend \$1bn a year to improve conditions in Central America.

He will have to use sticks as well as carrots. Corruption is worsening in the Northern Triangle. Guatemalan lawmakers chased out CICIG; legislators shut down MACCIH, its counterpart in Honduras. Mr Trump did not protest. This month American prosecutors named Honduras's president, Juan Orlando Hernández, as a co-conspirator in a drug-trafficking case (he denies wrongdoing). The case shows the limits of spending on security and prosperity while the rule of law is weak, says Eric Olson of the Wilson Centre, a think-tank.

Mr Biden will resume the fight for better governance. American ambassadors will press governments to appoint honest judges and officials. Mr Biden's administration may propose the establishment of an anti-graft agency for all of Central America, which would support prosecutors and attorneys-general but be less intrusive than CICIG and MACCIH. One lesson of Mr Trump's successful bullying over migration is that the United States has great leverage in the region.

Mr Biden's approach to the tyrannical troika will be less punishing, giving them fewer excuses for misrule. Like Mr Trump, he regards Venezuela's Nicolás Maduro as a tyrant. But he is likely to sabre-rattle less, work with other powers more and seek ways to alleviate the humanitarian crisis.

Antony Blinken, Mr Biden's nominee for secretary of state, helped normalise relations with Cuba when he was an adviser

Carmaking in Brazil

Driven away

SÃO PAULO
Why Ford Brasil is shutting up shop

IN 1928 HENRY FORD built a factory in the Amazon rainforest. He planned to grow rubber trees, make tyres and teach Brazilians Utopian ideals at a Midwest-style company town called Fordlândia. It lasted 17 years. Pests killed the trees and vice doomed the town. But car culture thrived in Brazil. Ford stayed, its profits fattened by industry-promoting subsidies from the government.

On January 11th Ford Brasil said that it will close its factories, laying off 5,000 workers. Although the decision is partly a result of Ford's global woes, it also shows the weakness of Brazilian manufacturing. "It's a blow to Brazil's notion of being a modern nation," says Joel Wolfe, the author of "Autos and Progress: The Brazilian Search for Modernity".

In the 1950s Juscelino Kubitschek, a statist president, built thousands of miles of motorway. Military dictators in

the 1970s built roads in the Amazon, filling the jungle with settlers to fend off foreign influence. Luiz Inácio Lula da Silva, who as a child left the poor northeast in the bed of a pickup and later worked in a car factory in São Paulo and led a trade union, became president in 2003. Tax breaks worth billions of dollars in the 2000s brought more carmakers, which supplied a growing middle class. Its members included autoworkers who "put their kids in private school", says an ex-director of Mercedes in Brazil.

But the industrial engine is faulty. Bureaucracy is oppressive and workers' productivity is relatively low. Brazilians sum up the burden as "Brazil cost". It is one reason why China and Mexico out-export Brazil. Internal demand crashed in a recession in 2014-16. With a manufacturing capacity of 5m cars a year, Brazil put plates on 1.9m in 2020, when both supply and demand were hurt by the pandemic.

Ford would probably have exited anyway. It has been losing money in Brazil since 2013. In 2018 it announced a global plan to focus on pickups, which are made for the South American market in Argentina, and electric cars. "There's no debate about sustainable mobility" in Brazil, says Cassio Pagliarini, a consultant who spent 25 years at Ford. He predicts that other carmakers will shutter plants, too.

Miguel Torres, the head of a carworkers' union in São Paulo, lambasted Ford for "deepening the social tragedy" caused by the pandemic. He called on politicians to press the carmaker to change its mind. They would do better to reduce Brazil cost. That could truly modernise the country.



Brazil is in the rear-view mirror

to Mr Obama. Mr Biden will cautiously renew that policy, easing restrictions on remittances and tourism. The Trump administration's decision this week to restore Cuba to the list of state sponsors of terrorism, alongside Iran, Syria and North Korea, raises the political costs of rapprochement. Mr Obama had removed it in 2015.

Climate change will be a new source of rancour. Mr López Obrador, who champions Mexico's state oil monopoly and has spurned American renewable-energy projects, will face green pressure from Washington. So will Mr Bolsonaro, who has allowed destruction of the Amazon rainforest to accelerate. Mr Biden wants to

create a \$20bn fund to protect it, but Brazil, which interprets such initiatives as threats to its sovereignty, has so far rejected the idea. Relations between Mr Biden and Mr Bolsonaro, who praises the regime that tortured Ms Rousseff, are likely to be strained.

For him and some other leaders in the region, the change of gears in Washington may cause whiplash. Some will say the United States is in no position these days to lecture other countries. But, says an adviser to Mr Biden, the failure of attacks on American democracy shows the value of strong institutions. If the United States can overcome such assaults, it may be able to help its neighbours do the same. ■



Vaccination in the Gulf

Made in China

DUBAI

Two leaders in covid-19 vaccination are relying on a Chinese-made jab—hoping for both political and public-health benefits

ASIDE FROM the ubiquitous masks, visitors to Dubai would be hard-pressed to know there was a pandemic raging. Bars and malls are busy. Hotels that were four-fifths empty last spring hit 70% occupancy in December. Tourists have flocked to Dubai to escape lockdowns at home. A recent spike in daily infections—they have more than doubled since November—has not dented the sense of normality. By spring that perception may be a reality: Dubai seems well on its way to widespread covid-19 immunity.

The United Arab Emirates (UAE), of which Dubai is part, ranks second in the world in vaccinations per head. By January 13th it had administered almost 13 doses for every 100 residents, behind only Israel (see chart on next page). Since the vaccines require two doses, the number of people fully inoculated is lower. Still, the UAE aims to inoculate half the population by April. Bahrain, another Gulf country, ranks third, with almost six doses per 100 residents. Even that is double the rate in America.

There are obvious reasons for their early success. Both are small countries: Bahrain has fewer than 2m residents, the UAE fewer than 10m. Centralised, well-staffed health-care systems have coped well during the pandemic. Residents of both countries can register for a jab by app. Many Western states have detailed rules that set a pecking order for vaccinations, which can slow distribution; Bahrain and the UAE offer them to all-comers. “We have enough available for everyone,” says Dr Waleed Khalifa al-Manea of Bahrain’s health ministry.

Perhaps the biggest difference is that Bahrain and the UAE rely on a vaccine made by Sinopharm, a state-backed Chinese firm. Early on they adopted a product that

elsewhere has met scepticism. The move has speeded up their push for herd immunity. It will also pay political dividends, deepening ties with China and positioning the UAE, a regional power, for an ambitious sort of vaccine diplomacy.

Known as BBIBP-cov, the vaccine is one of two developed by Sinopharm. China broke with protocol last summer by offering its citizens the experimental jab, unlike Western vaccine-makers, which waited for trials to show their products were safe and effective. Many countries have been reluctant to approve BBIBP-cov because it lacks reliable trial data.

Despite an inauspicious beginning, it is gaining credibility—largely thanks to Gulf countries. The UAE began late-stage trials in July with 31,000 volunteers. Bahrain started its own trial in August. Both authorised it in December after declaring it 86% effective. Yet they have not published data to support their findings; officials in the Gulf say it is Sinopharm’s decision. “We’re part of this study, but we don’t actually have the right to disclose this type of information,” says Dr al-Manea.

It seems unlikely that Sinopharm will submit its vaccine to a stringent national regulator. Instead it is being scrutinised by the World Health Organisation (WHO), which could grant it emergency authorisation by March. Some countries remain sceptical: in the Philippines, for example, there are reports of reluctance to take the ►

→ Also in this section

- 42 A Saudi city with no cars—or roads**
- 43 Uganda’s authoritarianism**
- 44 Animating Africa**

► vaccine. Scientists in Brazil announced on January 12th that another Chinese vaccine, manufactured by Sinovac, was only 50% effective, far below the 78% initially reported. The data, the first from late-stage trials, had been delayed for weeks.

There are few reservations in the Gulf about BBIBP-Corv. Partly this is due to public trust in governments with a reputation for being well-run. Scores of Emirati officials, among them the health minister and the ruler of Dubai, have posted photos of themselves receiving the vaccine. Both countries have fared well during the pandemic. The UAE has logged 723 deaths from covid-19, and Bahrain 356, which (as a share of population) ranks them well below countries both in the West and in the Arab world. Testing is widespread and fast.

It helps to be a police state with little tolerance for dissent. The Emirati government has condemned “rumours” about vaccines and warns of punishment for spreading them. Local newspapers carry stories about happy residents queuing up for jabs; there are rather fewer articles asking questions about vaccine-trial data.

Bahrain and the UAE are also offering the Pfizer-BioNTech vaccine, which has won approval from Western regulators. But they have much less of it. In Dubai it is available only to the old and to key workers (the rest of the population should be eligible by April). Still, that could assuage any concerns from expats. Some residents, though, say they prefer the Sinopharm jab because it is based on an inactivated strain of the SARS-CoV-2 virus, a long-established way of making vaccines, rather than the new mRNA technology used by Pfizer and other Western manufacturers.

Abu Dhabi, the UAE's capital, aims to be a hub for distributing vaccines across the region. It has opened a big new storage facility and is in partnership with SkyCell, a Swiss firm, to produce refrigerated shipping containers that can keep doses cold in transit. Dubai's Emirates airline is working

with Pfizer to distribute that company's vaccine. The UAE is also conducting trials for Russia's Sputnik V jab, which so far has little to recommend it beyond President Vladimir Putin's endorsement.

But the UAE's closest relationship is with China. Later this year it will move from administering Sinopharm's vaccine to manufacturing it. That has fuelled talk of vaccine diplomacy in a region where access to inoculations will be uneven. Egypt needs enough jabs for its 100m people, twice the population of the entire Gulf. Lebanon, which is in effect bankrupt, expects to receive just 60,000 doses of vaccine from Pfizer next month. A surplus of

Sinopharm doses in the UAE could lead to its adoption widely across the Middle East (in December the government donated 100,000 doses to Egypt).

That would please China, a desirable outcome for the Emiratis. Long a Western partner, they have sought in recent years to diversify their relationships, particularly with China. State-run telecoms firms in the Emirates have awarded 5G contracts to Huawei, which is blacklisted by America. Military ties are growing as well, with the UAE fielding Chinese-made attack drones in Libya. The UAE's embrace of Sinopharm will bring them closer still: in this relationship there is no social distancing. ■

Saudi Arabia

The Line in the sand

DUBAI Muhammad bin Salman's emissions-free city faces some big obstacles

IT IS PERHAPS the mother of all off-plan sales. The prospectus makes a seductive pitch to weary city-dwellers trapped in polluted concrete jungles. Why spend years of your life stuck in traffic or crammed into public transport? Urban planners would no doubt make different choices if they were free to start from scratch. That, at least, is the thinking behind The Line.

The proposed city within Neom, a high-tech development planned for Saudi Arabia's north-west coast, would carve a 170km-long (106-mile) ribbon across the desert (see map). There would be no fights over congestion charges or parking regulations because there would be no cars, nor even streets for cars to drive on.

Instead it would be an urbanist's dream, with residents able to reach whatever they need within a five-minute walk. For the average person that is a distance of around 400 metres, shorter than two blocks in Manhattan but apparently long enough for everything from schools to clinics and parks. The brochure is silent on the weather: summer temperatures in the region hover around a not-so-walkable 40°C.

Perhaps heat is a surmountable obstacle, since the laws of physics seem to be. Should any of its 1m potential residents wish to venture farther afield, longer journeys will be a pleasure: “ultra-high-speed transit” should limit even the longest trip to a mere 20 minutes. If passengers are willing to pull a few G's while accelerating, that would require speeds of up to 510kph, about 25% faster than Japan's fastest bullet train, which is still being tested. All this would be powered, in the world's biggest petro-state,



by renewable energy with zero carbon emissions.

First announced in 2017, Neom—a portmanteau of “neo” and *mustaqbal*, Arabic for “future”—remains something of a blank canvas. There is talk of robot workers, flying cars and glow-in-the-dark sand on the beach. Foreign consultants eagerly lap up contracts to draft fanciful schemes.

In the real world, though, little of this has advanced beyond PowerPoint slides. There is an airport, and palaces where Saudi royals can summer: King Salman has holidayed in Neom for the past few years. The project is still many years away from attracting millions of residents and contributing significant sums to the Saudi GDP.

Supporters praise the kingdom for thinking big. Critics call it a white elephant, of which the Gulf states already have plenty. Some locals who live in the area are excited about development. Others have clashed violently with police sent to evict them. And, at least for now, those police are humans who arrive the old-fashioned way: in cars.

Hot Shots

Covid-19, vaccination doses administered per 100 people, selected countries, at January 13th 2021*





Sticky authoritarianism

The ghetto strikes back

KAMPALA

Uganda's violent election has exposed divisions of age and class

IN A POOL hall in Kampala, the Ugandan capital, a group of boxers and nightclub bouncers are discussing elections. They were recently taken to meet an army general, who offered them money to wear t-shirts of the ruling party, the National Resistance Movement (NRM), and fight rowdy opposition supporters in the streets. The sum was not enough, they thought. Then disappointment turned to fear when a well-known champion boxer who had publicly backed the NRM was gunned down by security agents in the night, amid rumours that he had fallen out with his erstwhile patrons. Politicians view the urban poor with contempt, says a bouncer. "When they see them in the ghetto smoking weed, they think that they are useless," he complains. "But they come to realise they are useful when it is time for elections."

Ugandans went to the polls on January 14th, with results due after *The Economist* had gone to press. Officials will almost certainly declare victory for Yoweri Museveni, who has been president since 1986. But the election has been defined by the rise of Robert Kyagulanyi, better known as Bobi Wine, a 38-year-old musician and opposition candidate who has faced arrest, obstruction and gunfire on the campaign trail. Like the disgruntled boxers, he spent his youth hustling in the ghetto, sometimes sparring in the ring himself. His pop-

ularity brings to the fore generational and class fissures, and the shortcomings of an economic model that has brought growth but few jobs.

Those trends are not unique to Uganda. In the 1980s, under pressure from international lenders, many African governments enacted pro-market reforms. In time, with debt cancellation and soaring commodity prices, economies grew. But few countries graduated from farming and mining into more productive activities, like manufacturing. Many young people found precari-

ous work in providing services, often informal ones, like selling second-hand clothes or riding motorbike taxis (see chart).

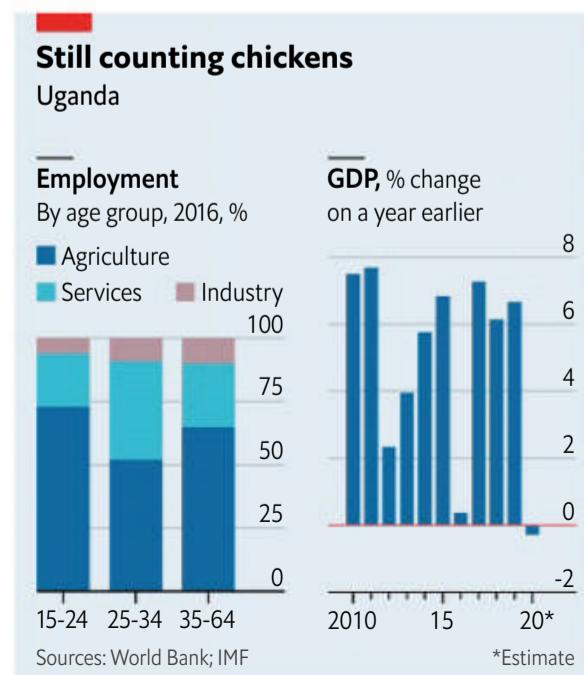
Mr Museveni, a former Marxist, fought his way to power just as the cold war was ending. He soon embraced the new market orthodoxy, privatising state firms, floating the shilling and opening up to trade and foreign investment. Over his 35 years in office, poverty has fallen, growth has averaged 6% and the inflation rate has rarely reached double figures. But the proportion of Ugandans working in industry has shrunk. The economy today creates formal jobs for barely a tenth of the 700,000 young people who reach working age every year.

The remainder get by as best they can, in farming, odd jobs or petty trade. Many migrate to Arab countries to work as security guards and maids. In the towns and cities, where populations have grown sevenfold under Mr Museveni, the sting of injustice is sharpened. The residents of Kamwokya, a poor quarter of Kampala, need only stroll up the hill to find the city's most glamorous shopping mall. It was in those unpaved streets that Mr Wine grew up, styling himself the "ghetto president" in songs upbraiding the powerful. "We come to express exactly what's on the poor man's mind," he sang.

Though this new politics is quintessentially urban, it has trickled out to small markets where dealers bring goods—and ideas—from the city. Grievances are often local. Faridah Kange, an activist for Mr Wine in the eastern district of Budaka, says people there are furious that the government is chasing them out of wetlands, where they started growing rice after cotton co-operatives collapsed. Such outspoken dissent unsettles some older Ugandans, who remember the instability and civil war of the past. "Those who have never got education, they cause all this commotion," says Aksoferi Karegnat Kulany, the chairman of the NRM Elders' League in mountainous Kapchorwa. "They want shortcuts to getting things."

In Mr Wine's party, the National Unity Platform (NUP), the hustlers' revolt has found common cause with sections of the middle class, such as recent graduates. But it is only in the central Buganda region, in which Kampala lies, that the established opposition has decamped en masse to the NUP. The NRM still saturates politics in the villages, where it is hard for other parties to organise. Lauben Bamwesigye, a farmer in the west, says he hears Mr Wine's message only when the young folk visit from town at Christmas. "They came, they preached the gospel, and they went back," he jokes.

Mr Museveni is backed by the rich, who look to him to protect their interests. Many large firms are owned by foreigners or Ugandan Asians, grateful to the man who welcomed them back after their expulsion ►



▶ by the dictator Idi Amin. Critics say the tight nexus between politics, security and business is increasingly controlled by brokers from Mr Museveni's ethnic group, especially his own family, who award contracts, control access and grab resources. In 2018 an ex-politician from Hong Kong was convicted by an American court for paying \$500,000 to Sam Kutesa, the foreign minister (and father of Mr Museveni's daughter-in-law), to secure favours for a Chinese company. Ugandan officials denied the payment was a bribe.

The state is also a conduit for foreign aid. Even as covid-19 relief money has flowed into the budget, so spending marked as "classified expenditure" has flowed out of it. Much of this money went to the army and the president's office.

Intensifying repression is straining old relationships. America is assessing options to reduce assistance in the event of more violence, and congressmen have called for sanctions on some security chiefs. Tibor Nagy, America's senior diplomat for Africa, expressed concern on January 12th after Uganda blocked access to social-media platforms just days before the vote. But Mr Museveni has presented himself as a bastion of stability and sent thousands of Ugandan troops to a peacekeeping mission in Somalia. "Maybe we are a bit overwhelmed by a region which is falling apart," muses a Western diplomat in Kampala. "What happens if Museveni falls?"

The choice between stability and justice is a false one, not only in Uganda but in many African countries where young populations chafe against sclerotic systems. Economic discontent has animated movements from the hip-hop activists of Y'en a Marre, in Senegal, to the leftist populism of the Economic Freedom Fighters in South Africa. In Sudan and Mali, street protests have helped topple presidents. The problem is not just bad leadership. Changes in trade and technology are making it harder to pull off an industrial revolution. In the meantime, frustration festers.

As a young man, Mr Museveni helped Uganda out of "a deep ditch", says Miria Matembe, a former minister, but now he has "a total obsession with power". To preserve it he relies ever more on money and violence. Ugandan security forces shot at least 54 people dead in November, during protests sparked by the brief detention of Mr Wine. The victims were motorbike drivers, chapati sellers, carpenters, mechanics and others, almost all hustling in the city's informal economy. Two days before the vote armoured cars drove through Kampala, soldiers peering from gun turrets, while helicopters hovered overhead. Mr Museveni has been fighting wars all his life, against brutal despots, messianic rebels, foreign warlords and Islamist extremists. His final war is on the ghetto. ■

Animating Africa

Move over, Superman

JOHANNESBURG

New platforms are bringing African comics to a broader audience

FOR ZIKI NELSON it began with TV cartoons: "X-Men" and "Spider-Man". These led to "Archie" and "Asterix" comics, then Japanese anime and manga. But as he devoured animated work from elsewhere, something was missing. "We had this African heritage and no one was telling stories about where we're from."

That is changing. New platforms are bringing African animators to a global audience. One is Kugali, co-founded in 2017 by Mr Nelson with a fellow Nigerian, Tolu Foyeh, and Hamid Ibrahim, a Ugandan. It sells comics from across the continent and creates its own animations. In December Kugali announced a landmark deal with Disney to make "*Iwájú*" (The Future), a sci-fi series imbued with Yoruba culture.

Kugali is part of a small but vibrant industry. As in many areas of African popular culture, Nigerian brands are prominent; others include Comic Republic and Vortex Corp. But animators are thriving elsewhere, too. Afrocomix, an app for reading comics, was made by Leti Arts, a video-game developer based in Ghana and Kenya. In 2019 "Mama K's Team 4", written by Malenga Mulendema, a Zambian artist, and co-produced by a South African studio, became Netflix's first African-made animated series. Etan Comics is the publisher of the first Ethiopian superhero comic books, "Jember" and "Hawi".

These superheroes do not just look different. Whereas many American superheroes derive their powers from galactic or scientific sources, the facul-

ties of African ones often have spiritual provenance. "Strike Guard", by Ayodele Elegba, a Nigerian artist, is the story of a murdered student whose body is thrown into the grave of Ajagbeja, a Yoruba deity, from whom the reincarnated hero gets his strength. Juni Ba's comics are rooted in Senegalese myths and legends.

Others draw on the hustle of urban life. "Kwezi", a South African comic, features a self-absorbed social-media influencer who reluctantly uses his powers for good. In "Razor-Man" a mechanic-turned-superhero tries to avenge his father's death amid corruption and repression in Zimbabwe.

Comics also confront difficult subjects. "Lake of Tears", set among the treacherous fishing industry on Lake Volta in Ghana, depicts child trafficking. "*Un Voyage Sans Retour*" (A Journey Of No Return) by Gaspard Njock, a Cameroonian artist, charts the dreams and dangers of migration to Europe. "Zana", set in a future in which apartheid never ended, raises questions about race relations in South Africa today.

African comic artists have been sketching for decades. But digital platforms and cheaper software are making it easier for them to make a living. The pandemic has nudged comic-buyers towards digital versions with fatter margins. A new generation of readers want characters they can relate to. Mr Nelson says that conversations "about race and identity are inspiring people to seek out new stories." When it comes to comic sales, curiosity is a superpower.



Mama K's team



Royalty in Indonesia

Strutting sultans

SINGAPORE

Defunct princely families are making a comeback

SUAIB SYAMSUDIN SJAH recalls how uneasy he felt as his extended family began to chant on the fateful day. They had gathered by a sacred spring on a beach on the island of Halmahera to discover who among them would become *kolano* (king) of the Lolodans, a local ethnic group. Mr Suaib was worried that he would be chosen. As they recited a holy mantra, the spirit of Mr Suaib's great-grandfather, the last king of Loloda, possessed an elderly relative, who put on the dead king's robes and picked up his sceptre. He approached each eligible descendant in turn, passing over them until he arrived at Mr Suaib, to whom he did indeed give his ancestor's blessing.

Mr Suaib has been *kolano* of Loloda for four years now. The crown "is a burden for me", he says. The job comes with many responsibilities but few perks. The stipend from the provincial government is not so generous that he can quit his day job, as a policeman. He works in a city six hours by boat from his kingdom. But his subjects

would rather a "weekend sultan" than none at all. When the *kolano* visits, "there's a euphoria that you can feel among the people," says Ronal Tuandali, chief of the local council of a village in the kingdom.

At least Mr Suaib has peers with whom to commiserate. For centuries the Indonesian archipelago was ruled by myriad Hindu rajas and Muslim sultans. By 1914 some 340 of these principalities had become protectorates within the Dutch East Indies. During the struggle for independence, many petty potentates were killed for col-

laborating with the Dutch, or fled. Later most had their land seized. By this century the few aristocrats who held on to their palaces had become glorified caretakers of "run-down tourist attractions", writes Gerry van Klinken of the University of Queensland in Australia.

In 1998 Indonesia's strongman of more than 30 years, Suharto, was overthrown. Like just over half of Indonesians, he was from the island of Java. To cement his control, he had suppressed local identities and crushed revered institutions elsewhere in the archipelago. After his fall, many communities began to revive old rituals and forms of governance, encapsulated by the word *adat*, or tradition. Ex-royals, embodying a sense of place, fitted perfectly into this revival, Mr van Klinken notes.

Some began dusting off their old regalia and reclaiming their prerogatives. Others had to be begged by their would-be subjects to move back into the boarded-up palace, or scarcely remembered their claim. (A local historian had to be enlisted to trace the descendants of the last king of Loloda, who died in 1915.) Bayu Dardias of Gadjah Mada University suspects there are well over 100 village rajas across the country today. He counts 35 sultanates and kingdoms that are influential at district level or higher (see map on next page). Most sultans have no formal role or rights, but many have political ambitions. At least four royals hold po-

Also in this section

46 Child abuse in the Philippines

47 Kyrgyzstan's controversial president

48 Implacable Indian farmers

48 Afghanistan's bored young

50 Banyan: Booby-trapped Taiwan



political office, including a provincial governor and two vice-governors.

Changes in the structure of government after Suharto's fall created incentives to revive sultanates. In 1999 parliament devolved much authority from the centre to localities, turning Indonesia into one of the world's most decentralised countries, says Marcus Mietzner of Australian National University. The regions' share of government spending rose rapidly, from 16% in 2000 to 50% in 2017, according to the World Bank. Politicians lobbied for provinces to be split into ever more administrative units, each entitled to its own slice of these riches. Between 1999 and 2013 more than 200 new districts were formed.

Politicians seeking local office quickly realised that the backing of a sultan would lend them prestige and legitimacy. Ethnic activists also saw value in having a sultan on side. Struggles between Malays and Dayaks, the two main local ethnicities, over control of newly autonomous districts in West Kalimantan province prompted Malays to revive three long-extinguished local sultanates, in the hope that these potentates would serve as symbols of their identity and cause.

Two lucky royals have even succeeded in reviving their kingdoms in a semi-formal sense. Hamengkubuwono X, the sultan of Yogyakarta, was elected governor of the "special administrative region" of the same name in 1998. In 2012 the national parliament, at his behest, decreed that he and the ruler of a neighbouring principality would be governor and deputy governor respectively for life, and that those posts would be passed on to their heirs.

Sultans often win praise for defending *adat*. Fadriah Suaib, an artist from Ternate, an island in North Maluku province, is willing to overlook the local royals' occasional snobbery and abuse of their standing. "I still believe that having a sultan is very important," she argues. "Continuing the tradition, cultures and customs and norms—it can only be done by the sultan."

The royals' peculiar status raises some awkward questions. In Yogyakarta, Mr Bayu writes, "The democratically elected parliament rarely criticises, let alone challenges, the sultan." "The governor must be

accountable," declares Princess Wandansari, sister of the sultan of nearby Surakarta. "What if he makes a mistake? But how can a sultan go to prison?"

The authority sultans have accrued is in part a reflection of popular disillusionment with elected politicians. Take Loloda. Residents complain they have not been sufficiently compensated for land being mined for gold. Mr Ronal says they have repeatedly complained to the company concerned, and to the provincial government, to no avail. The experience has shaken Loddans' faith in the system, says L.G. Saraswati Putri of the University of Indonesia. They have turned to the *kolano* for help. He, in turn, has declared that the land in question belongs to his kingdom. ■

Child abuse in the Philippines

Sex with 12-year-olds

A push to raise the age of consent is nearing fruition

IT IS PERFECTLY legal in the Philippines—but almost nowhere else—for an adult to engage in consensual sex with a preteen. For as long as the country has had an age of sexual consent, it has been fixed at 12, among the lowest in the world (see chart).

The Philippines is a deeply religious, largely Catholic country. It remains the only place in the world, other than the Vatican, where divorce is illegal (except for Muslim Filipinos). The low age of consent is not a sign of sexual liberalism, but the reverse: it is a holdover from the patriarchal mores instilled by Spanish colonialists, who had little compunction about men marrying young girls.

Campaigners see a link between the age of consent and the many sexual horrors suffered by Filipino children. More rapes are committed against children than adult women. Roughly one child in five has experienced sexual abuse of some sort. The abuse of children for dissemination online has grown rapidly recently, especially dur-

ing covid-related lockdowns last year.

Pressure groups for children have long campaigned to raise the age of consent, as a simple way to combat all this. It would mean that sex with young teens was illegal by definition, making rape much easier to prosecute. It would also spare children the trauma of cross-examination in a courtroom, the prospect of which discourages many victims from coming forward, says Alberto Muyot of Save the Children Philippines, a charity. And since parents or relatives often play a part in the sexual exploitation of children, it would allow the authorities to charge the perpetrators even when the victim did not want to.

After years of shilly-shallying, politicians are at last taking the idea seriously. In December the House of Representatives passed a bill raising the age of consent to 16, by a vote of 207-3. A similar bill is making its way through the Senate. The president, Rodrigo Duterte, who will also have to approve any reform, is not expected to object. He claims to have been abused by a priest as a child himself.

Congress had shrugged off previous attempts to raise the age of consent on the ground that the country already had laws to deal with sexual abuse. But the legislators leading the current effort, says Bernadette Madrid, who runs the Child Protection Unit at the Philippine General Hospital in Manila, have young children of their own. "It speaks to them emotionally, not only intellectually," says Dr Madrid.

What is more, the internet seems to be exacerbating the problem. In 2014 some five in every 10,000 Filipino internet addresses were used for child sex abuse, according to International Justice Mission, a Christian charity. By 2017 that proportion had jumped to 69. An analysis of cases of possible online abuse referred to authorities abroad by American, British, Canadian and Nordic law-enforcement agencies between 2010 and 2017 found that the Philippines received nearly nine times as many referrals as the second-ranked country, Mexico, and 47 times as many as the next ►

Young adults

Age of consent, 2020



► South-East Asian country, Thailand.

The factors that contribute to this state of affairs are normally seen as reasons to be optimistic about the Philippine economy. English is widely spoken, enabling easy communication with the outside world. Internet access is widespread and inexpensive. And the Philippines' legions of migrant workers mean the country has an extensive network of payment and remittance services. Widespread poverty and a lack of opportunity outside the big

cities, meanwhile, provide an incentive for online abuse.

Raising the age of consent is only the beginning, campaigners say. Passing the law will be relatively easy; changing people's attitudes will be harder. Many parents still see corporal punishment as a good way to discipline children, even though it's illegal, points out Isabelle Ereñeta of Child-Fund, another charity. "These things take a really long time to change when it's so deeply ingrained in our culture." ■

hard-won political freedoms that make Kyrgyzstan stand out in a region of autocrats. The use of force in politics is "very alarming", says Maksat Janibekov, a 30-year-old resident of Bishkek, the capital, referring to the mobs that have helped persuade many of Mr Japarov's rivals to stand aside. Mr Janibekov was among protesters marching on election day against Mr Japarov's plans to strengthen the presidency. In a referendum held alongside the election, 81% of voters approved his proposal to shift various powers back from parliament to the president, undoing changes adopted after the revolution in 2010 to prevent a return to the rule of strongmen. Mr Japarov also intends to scrap the clause in the constitution limiting the president to a single term, another safeguard against power-hungry leaders.

Mr Japarov shrugs off suggestions that he is a dictator-in-waiting: "I'm a democratic person." In his victory speech he sounded a conciliatory note, saying he had "no malice or hatred in his heart" and urging rivals to unite behind him. More ominously he also declared, "The minority should submit to the majority."

Mr Japarov will need all the consensus he can muster if he is to make a success of the job. The pandemic has prompted a surge in unemployment. Foreign investors were spooked by mob attacks on businesses during the unrest in October. Russia and China, the region's dominant powers, are also upset by the tumult. Organised crime and corruption are blights that he insists he will fight, but he has been accused of complicity in both—a claim he dismisses as a political smear. It will take a couple of years to fulfil his promise of better lives for his people, Mr Japarov warns. With two of his predecessors in exile and another in jail, the stakes are high. ■

Kyrgyzstan's election

Steppe one

BISHKEK

Sadyr Japarov is elected president in a landslide

A CAMPAIGN ADVERT for Sadyr Japarov, the newly elected president of Kyrgyzstan, shows him galloping across a snowy expanse on a white steed, coattails flying in the slipstream. The message is clear: Mr Japarov is a knight in shining armour (or at least in traditional Kyrgyz garb, which he wore on the campaign trail), racing to save the turbulent Central Asian nation, which has seen three popular uprisings in 15 years, including one this past autumn that put him on the path to power.

"I'm not going to repeat the mistakes of previous administrations," Mr Japarov told *The Economist* in his campaign headquarters at midnight on election day, January 10th. Preliminary results showed him romping home with 79% of the vote, albeit on a turnout of less than 40%. It was venality and injustice that had caused past leaders to be overthrown, he said. "Why repeat those mistakes? I'm going to rule fairly."

Yet Mr Japarov participated in one of those discredited governments, toppled in 2010. Moreover, his recent rise involved all manner of legal contortions. He was serving a prison sentence for kidnapping—a conviction he says was politically motivated—when protests first broke out over a tainted election presided over by his predecessor, Sooronbay Jeyenbekov, in October. A mob freed Mr Japarov, and helped propel him first to the prime ministership and then to the job of acting president, when Mr Jeyenbekov resigned. (An ally briefly took over that role while Mr Japarov campaigned, as the constitution requires.)

"Ordinary people, especially young people, believe in me. They entrust their fates and the fate of the country to me," said an exhausted Mr Japarov, sipping tea as euphoric campaign staff hustled about. His habit of invoking "the people", his careful cultivation of a mass following through so-

cial media and the thuggishness of some of his devotees have drawn comparisons to Donald Trump, which he rejects with a good-natured laugh: "I don't consider myself a populist. I hate populists."

"He's good, honest and just. He's suffered for the country and the people," gushes Elzad Junusov, a supporter. "He really is a man of the people," he adds. He whips out his phone to show photos of himself visiting Mr Japarov in prison. Mr Junusov says he has been a fan since Mr Japarov led a rabble-rousing campaign for the nationalisation of a Canadian-run gold mine nine years ago. Although that movement brought Mr Japarov to national prominence, he has backtracked on the idea since coming to power.

To his critics the new president is a dangerous demagogue, likely to roll back the



Don't mention the p-word



Agriculture in India

Ploughing on

DELHI

The Supreme Court suspends farm reforms, but farmers keep protesting

THE STEAM and smoke that billow through the encampments that circle India's capital are even thicker than the city's wintertime smog. Hundreds of thousands of angry farmers descended on Delhi seven weeks ago. Stopped at the borders, they pitched tents, blocked traffic, sharpened slogans—and began to cook. Mobile generators power giant automated chapati-making machines. Vats of steaming mustard greens hiss at January's chilly dampness. To mark Lohri, a regional festival, the protesters built the usual bonfires, throwing in copies of the three farm-reform acts that Narendra Modi, the prime minister, rushed through parliament in September. Their leaders say they will stay put until the three laws are revoked.

On January 12th they almost got their way. The Supreme Court issued an “extraordinary order of stay of implementation of the farm laws”. The chief justice, Sharad Arvind Bobde, is presenting the judiciary as an impartial mediator, but would clearly like the farmers to go home. “While we may not stifle a peaceful protest,” he said, he nonetheless hoped that the court’s order would be “perceived as an achievement” by the farmers and that their leaders would “convince their members to get back to their livelihood.”

The Supreme Court did not say how long the suspension would last, or what the legal justification for it was. Instead, it named a committee of four experts to ponder the worthiness of the laws. All four of

its members, however, have already made statements in defence of the reforms.

The farmers welcomed the suspension, but said it was not enough to persuade them to disperse. They have vowed to drive their tractors into Delhi on January 26th, in a rival cavalcade to the annual Republic Day parade presided over by the prime minister. Mr Modi’s Bharatiya Janata Party (BJP) towers over national politics, having won a second term in government in 2019 with the biggest majority in 35 years. But whereas rival parties trouble it very little, protest movements like that of the farmers, or the people who demonstrated against discriminatory new rules on citizenship a year ago, are different. They are harder both to anticipate and to face down.

The cheery but determined faces in the camps have attracted sympathy from across the country, despite the complexity of the policies involved, and the relative wealth of the protesters, most of whom come from the states of Punjab and Haryana, where farmers’ incomes are more than twice the national average. Agronomists and economists are in nearly uniform agreement with the thrust of the new laws, which do away with restrictions on where and to whom farmers can sell their crops, and seek to make it easier to invest in storage and distribution, in particular. These new freedoms should benefit farmers in the long run.

But the protesters are worried that Mr Modi’s allies in big business will find a way to game the new system. They also fear that the changes presage the shrinking or scrapping of especially generous subsidies for those growing wheat and rice, the main crops in Haryana and Punjab, despite the government’s assurances to the contrary. The government has managed to inflame matters further by claiming, without any evidence, that many of the protesters are really Sikh separatists, working to undermine the state. BJP functionaries have been circulating old pictures of Sikhs waving secessionist placards, falsely asserting that they are part of the current protests.

The Supreme Court appears to be trying to help the government out of this impasse, by providing the farmers with a face-saving victory that may dampen the protests without necessarily undoing the reforms. It is not clear how soon its committee will report, whether it will recommend any changes and what weight its findings will carry. The government must hope that the protests in the meantime will lose momentum. It was recently saved from surprisingly big and persistent demonstrations against the citizenship law by the advent of covid-19. But the farmers, with their generators and communal kitchens, look ready for a long stay. Whatever the Supreme Court’s intention, its ruling has done little to clear the air. ■

Afghanistan’s bored young

A war over Battlegrounds

KABUL

A popular video game has sparked a moral panic

IN A BASEMENT webcafé in Kabul, Kazem Rahimi directs a scurrying armed figure around his screen. Scouring his sunlit online world, he hunts for rivals to shoot, while chatting to fellow players on a headset. Just a few miles outside the city, genuine fighting of a similar sort is an everyday occurrence, as Taliban guerrillas battle the Afghan security forces. In Kabul itself, bombs and assassinations are common. Yet for Mr Rahimi, the game is a form of escapism. He enjoys the teamwork and it improves his English, he explains. Moreover, he is jobless, so has little else to do.

The game Mr Rahimi is playing, “PlayerUnknown’s Battlegrounds”, has been a global hit. It is mostly used as a smartphone app, not in dim underground gaming dens but in bedrooms and living rooms. It racked up worldwide sales of around \$2bn in the first nine months of 2020.

But in Afghanistan the popularity of the game, known as PUBG (pronounced Pub-G), has caused a moral panic. Mobile-phone operators estimate that around 100,000 Afghans play it at once at peak times. Many also do so in the wee hours, when the internet is fastest. The game is thought to take up a huge chunk of national mobile-data traffic. The closure of schools and universities because of covid-19 seems to have supercharged its popularity.

Critics worry that it is further desensitising a generation already exposed to constant violence and is keeping young stu-

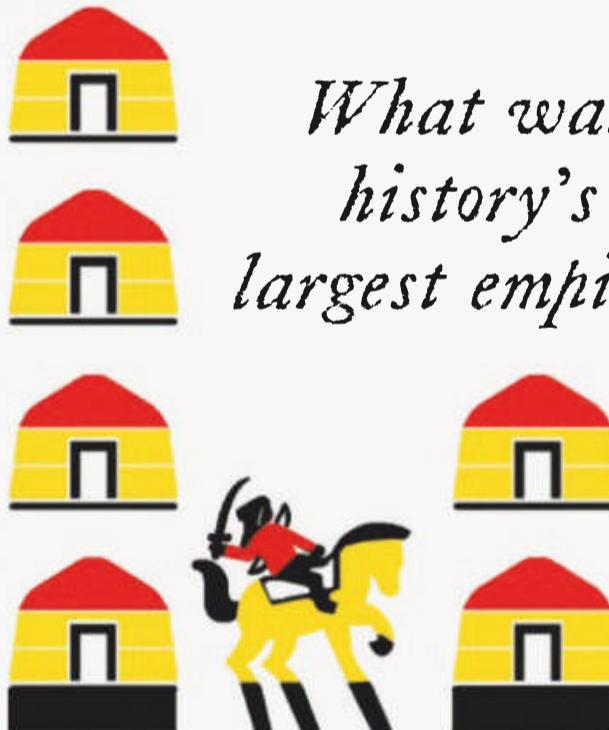


Coals to Newcastle

The 3,495 numbers that tell the story of humanity

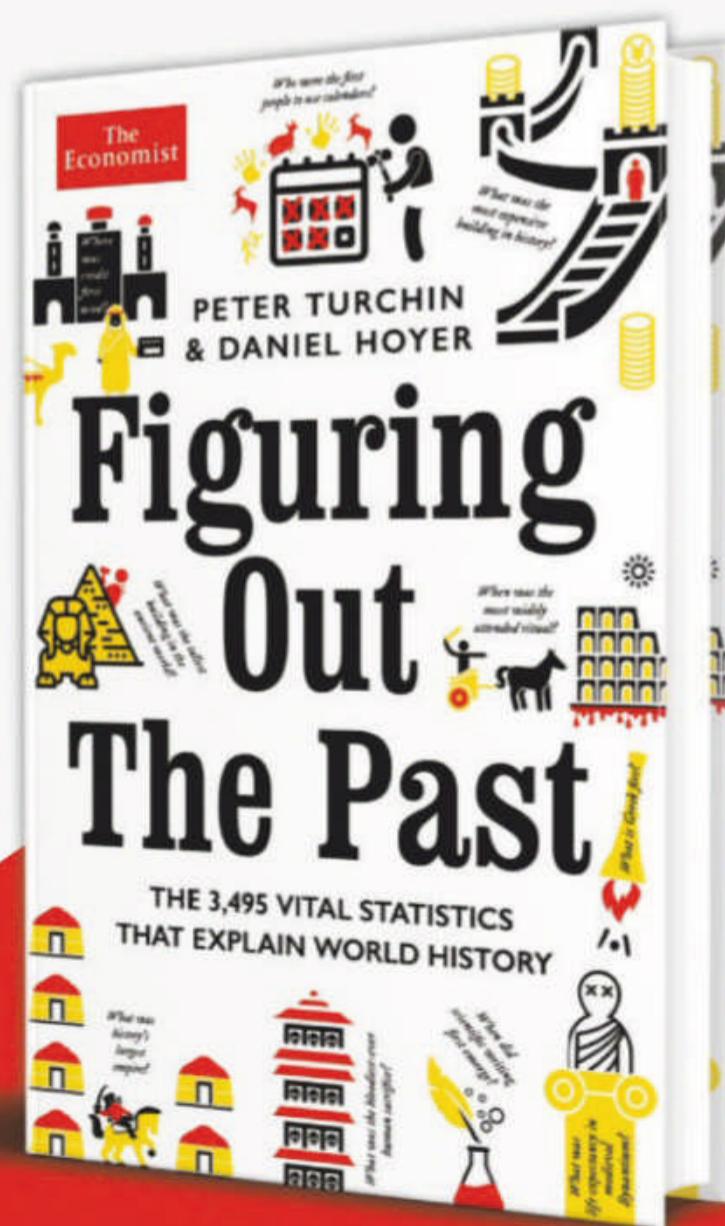


*Who were the
first people to use
calendars?*



*What was
history's
largest empire?*

*When was the most
widely attended ritual?*



►dents from their studies. Freshta Karim, an educationist who runs a mobile library, says she cut the internet in her home to stop her nephews playing. "It looked so real, and for us, it looks more real because the war is going on," she says.

The Ministry of Haj and Religious Affairs has piled in, declaring the game harmful to mental health and warning that it could create a violent mindset. On December 17th the telecoms regulator said it was banning the game, though it gave little indication of how it would enforce a ban or what the penalties for breaching one would

be. It says it is discussing with telecoms firms how to put the ban into effect.

Mohammad Reza, a regular player sitting next to Mr Rahimi, is dismissive of the ban. "Is PUBG the real problem with Afghanistan?" he says, rolling his eyes. The country, he and his friends say, has far more serious troubles, and young people in particular face grave difficulties. Kabul has precious few parks or recreational facilities, and the risk of violence on the streets makes parents reluctant to let their children go out. While the intractability of the 40-year civil war makes the future look-

grim enough, the UN estimates that four in ten young Afghans are neither working nor studying. A dispiriting number think their only hope of a better life is to flee to Europe.

Zakria Ayubi, who runs a gaming den in Kabul, says PUBG offers a welcome distraction. One of his friends, an unemployed law graduate, plays through the night and sleeps all day. "He says, 'I have looked for jobs and there's nothing. What more can I do?'" The ban infuriates Mr Ayubi. "What has the government done for us? They try to ban PUBG, but can you see any services from the government for young people?" ■

Banyan Bonfire of the protocols

Have departing American officials left a booby trap for Taiwan as well as Joe Biden?

TECHNICALLY SPEAKING, the United States has not had diplomatic relations with Taiwan since it initiated them with the People's Republic of China, in 1979. But diplomats or no, America promises to maintain close economic and cultural ties and provide arms "of a defensive character". It also reserves the right to come to Taiwan's aid in the event of any coercion against the island nation (presumably by China, which threatens force to reclaim what it insists is part of the motherland). This much is laid out in the foundational text governing bilateral ties, the Taiwan Relations Act, passed by Congress the same year. But crucially, these links, close as they are, have all supposedly been "unofficial".

That word is a figleaf, says Douglas Paal of the Carnegie Endowment for International Peace, who is a former head of America's de facto embassy in Taipei. The leaf has grown over time and hides much that goes on so as not to give China unnecessary grounds for pique. A thicket of dialogues has sprouted between officials of the two countries, and the boundaries of the unofficial have been cautiously stretched. Only a decade ago were the Stars and Stripes first raised outside the American Institute in Taiwan (AIT), an embassy in all but name. (Taiwan even now refrains from flying its national flag outside its equivalent office in Washington.)

President Donald Trump's administration seemed to want to tear the figleaf away. Mr Trump himself cares not a jot about Taiwan (though as president-elect he made waves by taking a congratulatory phone call from his Taiwanese counterpart, Tsai Ing-wen). Yet his administration housed appointees whose fervent support of democratic Taiwan is the flipside of their Manichaean view of

the evils of China.

Poking China in the eye is part of the mission. Hence the easing of rules that prevented Taiwanese and American officials visiting one another's offices. In 2019 the AIT's director, Brent Christensen, held a press conference with Taiwan's foreign minister, Joseph Wu, in his ministry. Last year Mr Christensen's counterpart, Hsiao Bi-khim, made a well-publicised call on an assistant secretary of state, David Stilwell. In August the health secretary, Alex Azar, became the highest-ranking American official to visit Taiwan since 1979.

Nothing, however, tears at the figleaf as much as a brief statement on January 9th by the outgoing secretary of state, Mike Pompeo. In it, he declared all constraints on contacts between American and Taiwanese officials to be "null and void". America had imposed such constraints to "appease the Communist regime in Beijing", he said. "No more."

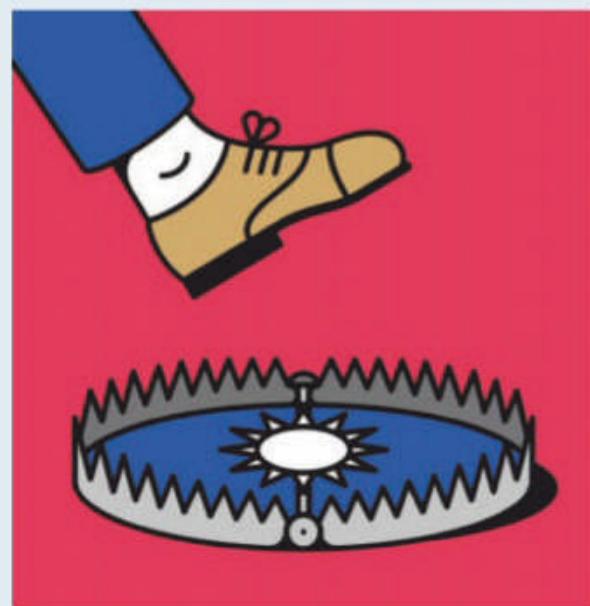
Mr Stilwell has argued that the unshackling of constraints is the culmination of a considered review of a rag-tag set of protocols (many of which are unwrit-

ten). Yet Asia hands in Washington, both Republican and Democratic, say it is a booby trap for President-elect Joe Biden. Either he embraces the move, in which case he starts off on the wrong foot with China, or he gets flak at home for not standing up for gallant little Taiwan.

Worse, Evan Medeiros, a former head of policy on China and Taiwan for Barack Obama who is now at Georgetown University, sees Mr Pompeo's move as a trap for Taiwan, too. Over the past few years China has increased its bullying of Taiwan with military posturing and diplomatic isolation. Crossing China now might prompt it to conduct even more air sorties or pick off Taiwan's remaining diplomatic allies. If you really care about Taiwan, argues Mr Medeiros, you should not expose it to more military pressure.

That is a risk that many of Taiwan's leaders seem happy to take. On social media Ms Hsiao and William Lai, the vice-president, have cheered Mr Pompeo's declaration. In the past they flirted with the idea of Taiwan's declaring itself formally independent from China—a move China threatens would lead to war. To advance the cause of independence there is "no briar patch they wouldn't jump into", one Asia hand observes.

By contrast, the president, Tsai Ing-wen, is more cautious. She has refrained from commenting on Mr Pompeo's ruling. Not least, says her ally Wang Ting-yu, co-chairman of parliament's foreign-affairs and national-defence committee, Taiwan should give Mr Biden room to complete the transition, which is also a sensitive time for President Xi Jinping of China. Taiwan does not want to be a "troublemaker", Mr Wang says, but a reliable partner of America's. One, in other words, that will don a figleaf when required.





Village elections

Why bother counting?

The West once dreamed of democracy taking root in rural China. The Communist Party is making doubly sure it does not

“I LIKE WINNING better than losing,” America’s then president, Bill Clinton, told villagers in China in 1998 as they prepared to elect their community’s leader. In a gentle prod to his hosts, he added: “But whenever there is an election and the people decide, everyone wins.”

At that time, Western leaders were excited by China’s new and much-vaunted experiment with rural democracy. It would, they hoped, lead to broader political change. Today it is election season once again in the countryside. But the Communist Party is making it clear that the days of dalliance with modest political freedom in villages are over. The biggest effort in decades is under way to make sure the party’s candidates win, unopposed.

Seeding democracy was not the party’s plan when it introduced elections in the countryside in 1988. Corruption was rampant among rural party bosses. Many were incompetent. The party feared that farm-

ers’ anger would foment unrest. Making village leaders more accountable could help keep the lid on, officials thought. But, to the party’s chagrin, its stooges did not always win. In the 2000s Chinese leaders re-emphasised that (appointed) party secretaries, not elected committees, still had the final say in villages. In the West, dreams gradually faded of democracy spreading upwards through the system. But every three years, as the law decreed, villages still held elections, and, occasionally, snubbed the party’s preferred candidates.

Late in 2020 rural residents began voting for their leaders once again. It is a process that will take months to complete, with different places conducting polls at

different times. In this cycle the party is pulling out all the stops to get its way.

To the 550m people who live in rural China, the results can matter. Decisions made by village bosses can have an enormous impact on people’s livelihoods. In particular, they wield power over the use of land, which is officially under “collective” control—none of it is privately owned. In some villages it is pooled for large-scale farming or industrial purposes.

In 2018 the party began calling for all-out efforts to implement a system it describes as *yijiantiao*, or “carrying across one shoulder”. This refers to the way that farmers suspend two loads on either end of a pole across their backs. In this case the loads are the two parallel structures that run China’s villages: the elected village committees and the party committees. The party wants memberships of both committees to be the same, and to be led by a single person: the village party secretary.

In some places, local officials—with the party’s blessing—have long been practising the *yijiantiao* model. A five-year plan for “rural revival”, published in 2018, said it was being implemented in around one-third of China’s more than 500,000 “administrative villages” where the committees reside (there are 2.6m other “natural villages” that fall under their aegis). That year the party issued regulations saying ►

→ Also in this section

52 Dissent in Hong Kong

53 Chaguan: The stigma of covid-19

► that the system should become the norm. After the elections now under way the party wants at least half of village leaderships to be of the *yijiantiao* variety. Doubtless eager to impress, some places are aiming much higher. Township officials are being told their performance evaluations will depend on how well they do at ensuring targets are met. Red banners have been put up in streets saying *yijiantiao* will "strengthen the party's overall leadership".

This requires some sleight of hand. The election law says that "no organisation or individual may designate, appoint or replace any member" of elected committees. But localities have introduced rules that all but ensure the village party secretary gets the concurrent job of village chief. Commonly, the village's party members (usually just a small fraction of the population) choose a party secretary and other members of the party committee—ie, endorse the choice made by higher-ups. Next, a member of this committee organises the election for the post of village chief. Finally an election is held in which every adult villager may vote. The party secretary wins.

A tighter vetting system typically ensures that no one stands against him (village leaders are rarely female). It involves consulting official organs in the local township, including the police. These can block the candidacy of a wide range of people. The south-western city of Kunming, for example, has a list of ineligible types called the "seven forbiddens and 15 unsuitables". Among the forbiddens are "politically two-faced" people. A propaganda video explains this with an illustration of a man dreaming of a protest for freedom and democracy. The unsuitables include those with "strong religious feelings": a cartoon shows people bowing to a Jesus-like figure.

Local regulations also commonly bar those who have been involved in "illegal" petition campaigns for the redress of a local injustice; petitioning is routinely treated as criminal. In Guangxi province there are bans on candidates who have received training in grassroots politics from any organisation abroad. A few years ago the government allowed some Western groups to provide such help.

Also banned are those with links to "black and evil forces". This is a sweeping term used to describe everything from criminal gangs to unauthorised religious sects and clan networks. In 2018 the party launched a three-year campaign to sever such forces' connections with grassroots political structures. It declared victory late last year, claiming it had "severely punished" 3,700 "village overlords" (as powerful leaders operating without heed to the law are known), and sacked 41,000 offenders from village committees.

Democracy is not entirely dead. Some local regulations say ordinary villagers'

Dissent in Hong Kong Masked defiance

HONG KONG

To show support for the democracy cause, some don yellow masks

ON THE STREETS of Hong Kong, few traces remain of the turmoil in 2019 when tear gas, rubber bullets and stand-offs between police and pro-democracy demonstrators were an ever-present hazard. Especially since June, when China imposed a draconian security law on the city, few people have dared to protest openly. Yet defiance is still visible. On the metro, in wet markets and in trendy cafés, some wear yellow masks.

Yellow is the colour of the city's democracy movement: during the upheaval, protesters commonly wore yellow helmets or carried yellow umbrellas. Even before the security law was enacted, the pandemic and tighter policing had dampened enthusiasm for mass gatherings. But covid-19 has offered a new opportunity for showing discontent. The government made mask-wearing in public compulsory. Businesses began



Soon to become a scarce commodity?

views should be solicited when choosing the party secretary. The law still says that the winner of an election for village chief needs at least 50% of the vote, and that 50% of registered voters have to cast their ballots for an election to be valid. But that is a low bar, especially when many do not register. Since the 1990s, many working-age villagers have moved to cities. Migrants can return to vote or appoint a proxy, but why bother when it looks stitched up? The same turnout is required to force a village chief to step down. But when the chief is also the party secretary, a recall requires daring. In Guangdong province, residents of Wukan village grabbed world headlines

making and selling bright yellow ones.

Many of them are discreetly printed with the letters FDNOL. This stands for "Five demands, not one less", which was a popular chant during the turmoil. "I wear yellow masks first and foremost to express my political stance, rather than to protect myself from covid-19," says Ellen, a piano teacher in Hong Kong.

The yellow-mask industry is part of what is commonly called the "yellow economy". This refers to businesses that are deemed supportive of the democracy cause. Some people deliberately choose such firms when eating out or shopping. "I like to support pharmacies that sell yellow masks, so if I walk past one, I'll go in to buy some medicine, cosmetics or masks," says one 50-year-old woman.

Some companies have banned their employees from wearing yellow masks at work. On January 11th a judge ordered three people wearing them to leave his courtroom. But Hong Kong's chief justice, Andrew Cheung, defended those who sport yellow. "Hong Kong is a free society," he said. "There should be absolutely nothing wrong...with wearing clothes or face masks of any colour."

His words are unlikely to reassure yellow-mask suppliers. In November Yellow Factory, a big maker of them, closed after newspapers backed by the Communist Party accused the business of violating the security law. Yellow Factory's masks were sold in boxes bearing the words "Get better soon Hong Kong, resist the pandemic of our times." This echoed the slogan "Liberate Hong Kong, revolution of our times", a rallying cry of protesters that the government now deems illegal. Many say yellow masks are becoming harder to find.

when they rose up against their party boss in 2011 and held free elections. The party eventually clamped down there, harshly.

The party clearly expects the current elections to produce the results it wants: it has changed the rules this time to allow village chiefs to serve for five years instead of three. Officials argue that, for one person carrying two loads, a five-year term will make it easier to implement plans without being fettered by frequent polls. Some state-owned media have aired concerns that concentrating so much power in the hands of one person may result in rash decisions going unchecked. But that is a problem for later. The party is out to win. ■

Chaguan | The stigma of covid-19

A year into the pandemic, ordinary Chinese are strikingly accepting of harsh virus controls



ON JANUARY 10th an office worker surnamed Zhou was diagnosed with covid-19 in Xicheng, a district of Beijing. For officials under orders to keep the virus out of China's capital, this single case was grim, career-threatening news. They responded with a vigour that some other countries reserve for wartime invasions. As is the norm when anyone in China tests positive, Ms Zhou's movements for the previous ten days were made public, down to noodle bars where she ate and train lines that she took. Internet users fumed that she had twice visited Shijiazhuang, a drab city of 11m people in the next-door province of Hebei, which has seen more than 400 virus cases since the new year. She should have stayed at home, or at least avoided the metro, netizens growled.

Almost 100 of Ms Zhou's close contacts and thousands of workers near her office were swiftly tested. Authorities tested and quarantined her neighbours in Gu'an, a Beijing commuter town just inside Hebei. On January 12th officials took still sterner measures. Roads out of Gu'an were sealed and 500,000 residents told to quarantine for a week. Several cities in Hebei province, including Shijiazhuang, its capital, have been locked down to quell outbreaks. Some 22m people have been trapped at home.

In Beijing, growing fears of a second wave have led to ever-tighter rules. These range from the irritating—some pharmacies stopping over-the-counter painkiller sales, to prevent people hiding fevers—to the heartbreaking. Chinese New Year, which this year falls on February 12th, has been, in effect, cancelled for government workers: they may not travel home to see families around China. Almost every movement in the city must be registered by scanning a health code with a smartphone, whether visiting a shop or catching a taxi. After commuters spent hours snarled at highway checkpoints into the capital, social media described inventive workers skating down rivers frozen by the coldest winter in years. New rules duly banned skating into Beijing.

Such restrictions are burdensome, indeed a bit sinister, but effective. At the time of writing, Beijing has detected 44 cases of covid in the past month, after millions of tests. For comparison, London is finding more than 8,500 new cases a day. Foreign chaos prompts head-shaking disbelief from Chinese, who ask if it is true that some Westerners refuse to wear face masks. China's strict vi-

rus controls are rarely criticised, even in private. Indeed, a common grumble is that rules are not being enforced harshly enough.

A lazy explanation for this virus exceptionalism is that people in China do not care about personal freedoms or privacy. That is unfair to citizens of a large country with complicated views towards authority. Instead, a year into this pandemic, a simpler difference stands out. Lots of ordinary Chinese take covid-19 seriously in a way that is not always true in the West. In particular, the idea of catching it inspires real fear, even dread. The reasons include politics and propaganda, economics, culture and history.

Intrusive virus controls have their own, self-reinforcing logic. In China, each individual case disrupts many lives. Beijing's worst outbreak to date started in a wholesale food market last summer, infecting at least 368 people. Its first officially diagnosed patient, on June 11th, was Tang Jingzhi, the owner of a noodle shop. Interviewed this week on a stroll through his local park, Mr Tang, an amiable 52-year-old Beijinger, recalls how he reported a low-grade fever to local doctors, only to be called back later that night. "When I arrived the fever clinic was sealed off, all the doors and gates were closed and they greeted me in protective suits."

Weeks of treatment followed. Chinese netizens spread false rumours that he had visited an infected city in the north and had covered his tracks by using an unregistered smartphone. Happily, doctors and virus-control officers confirmed that he had fallen ill after buying salmon for his ten-year-old son at the market in Beijing. Still, his restaurant was closed for two months, leaving him to pay staff salaries from savings. His wife and son were quarantined for three weeks, then avoided friends until school started in September, fearing their reactions. State media commended Mr Tang for reporting his illness, easing his return to society. He praises China's government for its virus control and "cannot fathom" Western responses to covid-19. In China, people understand that society is safe only when all play their part, he says: "If I am irresponsible and harm other people, it may come full circle and hurt me." China is an ageing society and not yet rich, he adds. Serious illness is feared because it can cause financial ruin.

In China, shame is a powerful tool

A prominent psychologist, Lu Lin, reports that a study of 1,000 covid patients found about a third suffering from depression and anxiety long after recovery. Research continues into the precise role played by social stigma and discrimination, says Professor Lu, the president of Peking University Sixth Hospital. But he cites real-life cases, such as that of an old woman who was excluded from a dancing club even after she had shaken off the virus. Some social pressure can be useful. "For young people, you should not think just of yourself, you should think of your community," he says.

Official media have played up the deadly nature of covid-19, while striving to erase memories of disastrous early cover-ups in Wuhan, where the virus first emerged. In part, propaganda chiefs want to demonstrate the superiority of modern Communist Party rule. In part, they are drawing on older traditions. An outbreak of bubonic plague during the civil war in 1947 saw party workers in the north-east recruit villagers with a "patriotic hygiene" campaign involving compulsory vaccinations and fines for failing to report deaths. Further back, in the last days of the Qing dynasty, reformist officials fighting plague in Manchuria in 1910-11 linked modern medicine with national rejuvenation, stressing the need to quarantine "irresponsible" migrant workers and make them wear face masks. In China, the urge to control has deep roots. ■

Democracy

Madison's nightmare

Political theorists have been worrying about mob rule for 2,000 years

LIBERALS HAVE become lazy when thinking about the mob. They have celebrated “people power” when it threatens regimes they disapprove of, in the Middle East, say, while turning a blind eye to the excesses of protesters who they deem to be on the right side of history—in Portland, Oregon, for example. In August 2020 a mainstream publisher, Public Affairs, produced “In Defence of Looting: A Riotous History of Un-civil Action” by Vicky Osterweil.

The invasion of America’s Capitol by mobs of President Donald Trump’s supporters on January 6th was a reminder of the danger of playing with fire. It is naive to assume that mobs will be confined to the “nice” side of the political spectrum; the left-wing kind by their nature generate the right-wing sort. It is doubly naive to expect that mobs will set limits; it is in their nature to run out of control.

Political philosophers have been making these points for more than 2,000 years. Pre-modern theorists never tired of warning that, given the chance, the “many-headed monster” would trample the established order. Even liberal thinkers worried that democracy might give rise to “mobocracy”. They argued that the will of the people needed to be restrained by a combination of constitutional intricacy (individual rights, and checks and balances) and civic culture. The wiser among them added that the decay of such restraints could transform democracy into mob rule.

The first great work of political philosophy, Plato’s “Republic”, was, in part, a med-

itation on the evils of mob rule. Plato regarded democracy as little more than mob rule by another name—perhaps without the violence, at least at first, but with the same lack of impulse control. He compared the citizens of democracies to shoppers who see a “coat of many colours” in a market and buy it only to discover that it falls apart when it has been worn a couple of times. He noted that democracies are hard-wired to test boundaries.

Plato also argued that democracies inevitably degenerate into anarchy, as the poor plunder the rich and profligacy produces bankruptcy. Anarchy leads to the rule of tyrants: a bully can appeal to the mob’s worst instincts precisely because he is ruled by his own worst instincts. He is, as it were, the mob in the form of a single person. For Plato the only viable alternative to mob rule was the rule of a caste of guardians: philosopher kings trained from infancy to control their emotions and put wisdom before instinct.

Aristotle, Plato’s great pupil, distinguished between three legitimate forms of government: kingship, aristocracy and democracy. He argued that they each have their dark shadows: tyranny, oligarchy and mob rule. He then outlined the ways in which these virtuous forms of government evolve into their opposites: democracy becomes mob rule when the rich hog the society’s wealth. A more practical thinker than Plato, Aristotle argued that there were two ways of preventing democracy from degenerating into mobocracy: mix in elements of

kingship and aristocracy to restrain the will of the people; and create a large middle class with a stake in stability.

The following centuries saw only a few innovations in thinking about the mob. Machiavelli speculated that clever princes might be able to profit from chaos if they could forge the mob into a battering-ram against a decaying regime. Mostly elites were content with demonisation. They invented a slew of fearsome names for the people—the “beast of many heads”, the “swinish multitude” and the *mobile vulgus*, or changeable crowd, which gave rise to the term “mob”. They also invented cynical ways of diverting its anarchic energies, most notably Rome’s bread and circuses. But this changed with the French and American revolutions, which were based on contrasting approaches to mob rule.

Two revolutions

Initially many celebrated the “people power” of the French revolution. In response to the tumult Wordsworth wrote: “Bliss was it in that dawn to be alive/ But to be young was very Heaven!” But many changed their minds when they discovered that, far from unleashing man’s natural goodness, the revolution had set free his inner demons. Those who stuck with the revolution despite the guillotine and the Terror did so on two grounds: that the old regime was responsible for the violence because it created so much pent-up hatred; and that you cannot improve the world without bloodshed. Tom Paine, a British radical, remained a true believer despite the fact that he was imprisoned for ten months during the Terror and only escaped with his life because the chalk mark indicating he should be executed was placed on the wrong door.

The French Revolution also produced a robust conservative critique of mob rule—first in Edmund Burke’s “Reflections on the Revolution in France”, published before the worst of the Terror, then in a flood of ➤



► works. Burke recognised that the mob has a collective psychology that makes it uniquely dangerous. It is a "monstrous medley of all conditions, tongues, and nations". It relishes wild abandon—"horrid yells", "shrilling screams" and the "unutterable abominations of the furies of hell". It gets so carried away with its own righteous bloodlust that even normally decent people can be transformed into monsters. He predicted that the revolution would end in the massacre of thousands (including the king, queen and priests) and the rise of a dictator who could restore law and order. The cycle of mass protest followed by violence followed by dictatorship set a pattern for subsequent revolutions in Russia (1917), Cuba (1958) and elsewhere.

The American revolution succeeded where the French revolution and its progeny failed because it was based on a considered fear of "the confusion and intemperance of a multitude". "Federalist No. 55", written by either James Madison or Alexander Hamilton, is particularly sharp on the way that ill-designed institutions can turn even sensible citizens into a baying crowd: "Had every Athenian citizen been a Socrates, every Athenian assembly would still have been a mob".

The Founding Fathers argued that democracy could avoid becoming mobocracy only if it was hedged with a series of restraints to control the power of the people. Power was divided between the branches of government to make sure that nobody wielded too much. Citizens were given extensive constitutional rights. Senators were given six-year terms to insulate them from fads. They were also initially appointed by state legislatures rather than directly elected. Supreme Court judges were appointed for life, ensuring they cannot be removed by people from other branches.

Alexis de Tocqueville added his own worries about mob rule in "Democracy in America". For him the constitution alone is not strong enough to save democracy from

the mob. A vigorous civic culture rooted in self-governing communities (he was particularly keen on New England's townships) and a self-reliant and educated population are also necessary. So too is a responsible elite that recognises that its first duty is to "educate democracy".

The march of democracy

The 19th century saw the world's ruling elites reconciling themselves to the fact that democracy was the wave of the future. How you dealt with this wave depended largely on your attitude to the mob. Optimists thought that extending the franchise was not only right but also a way to tame the mob. Benjamin Disraeli thought that voting would help assimilate people: just as owning property makes people more sober, so exercising democratic rights converts them into responsible citizens.

Pessimists held that delay was the best way to avert the mob. Most members of the British ruling class favoured introducing democracy in measured stages because they made a sharp distinction between the respectable middle- and upper-working classes, who would vote responsibly because they owned property, and the unrespectable classes, who, as well as being propertyless, were, in their opinion, addicted to drink and licentiousness. J.S. Mill argued in favour of a "variable franchise": "one person at least one vote, and up to three or four votes according to education". Walter Bagehot, editor of *The Economist* from 1861 to 1877, and a man who worried obsessively about the breakdown of social order, added a new solution: use the monarchy as a theatre that would simultaneously entertain the masses and distract them from the real wielders of power.

This sort of pessimism has been out of fashion for a long time. The second world war and the defeat of Nazism led to an era of democratic self-confidence, and the fall of the Berlin Wall to one of democratic euphoria. But a few pessimists continued to

warn that democracies might well degenerate into mob rule if they neglected the health of their political institutions and civic culture. Seymour Martin Lipset, an American sociologist, echoed Aristotle's view that a healthy democracy requires broad-based prosperity. Harvey Mansfield, a political philosopher, reiterated Tocqueville's worry that civic decay might corrupt democracy. Samuel Huntington warned that "democratic overload", with too many interest groups demanding too much from the state, would lead to democratic disillusionment as the state failed to live up to its ever-escalating promises.

In recent years the pessimists have grown in number. The experience of countries such as Egypt during the Arab spring confirmed warnings that, without strong institutions in place, democracy would succumb to mob rule. The election of Mr Trump, a reality-TV star, raised profound questions about the health of America's political regime. Can democracy survive if television channels make billions of dollars by peddling misinformation and partisanship? Or if wealthy people can invest vast sums of money in the political process? Or if society is polarised into a super-class and a demoralised proletariat? Recent events suggest that the answer is "no".

The age of democratic naivety died on January 6th. It is time for an age of democratic sophistication. Democracies may well be the best safeguard against mob rule, as liberal democrats have been preaching for centuries. But they can be successful only if countries put the necessary effort into nurturing democratic institutions: guarding against too much inequality, ensuring that voters have access to objective information, taming money in politics and reinforcing checks and balances. Otherwise the rule of the people will indeed become the rule of the mob, and the stable democratic order that flourished from the second world war onwards will look like a brief historical curiosity. ■



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Business and technology

Bearing fruit

NEW YORK

The pandemic has ushered more robots into factories, warehouses and back offices. They are here to stay

MARY BARRA, boss of GM, took to the virtual stage on January 12th to launch BrightDrop. The carmaker's new logistics division will peddle such unsexy things as delivery vans and autonomous electric pallets for use in warehouses (see subsequent article). Hardly stuff to set pulses racing.

Suppress your yawn, for Ms Barra's announcement is the latest sign of a quiet but powerful revolution. "The convergence of software and hardware seen in the carpeted parts of enterprises is now seen on factory floors in every industry we serve," says Blake Moret, chief executive of Rockwell Automation, a giant of the industry. His firm runs a full-scale manufacturing facility at its Milwaukee headquarters, to prove that automation enables it to make competitive products despite America's high labour costs. Its share price has risen by 28% in the past year, nearly twice as much as the S&P 500 index of big American firms. Other purveyors have done even better.

Bosses have boasted of automating their operations for years without an awful lot to show for it. Covid-19 has spurred

them to put their money where their mouths are. Hernan Saenz of Bain, a consultancy, reckons that between now and 2030 American firms will invest \$10trn in automation. Nigel Vaz, chief executive of Publicis Sapient, a big digital consultancy, says that the downturn offers bosses the perfect cover. "The unrelenting pressure for short-term financial results from investors has temporarily been suspended," he says. "Firms are not just going back pre-pandemic, but completely reimaging how they work," says Susan Lund, co-author of a forthcoming report from the McKinsey Global Institute, a think-tank. A recent survey by the institute's sister consultancy found that two-thirds of global firms are doubling down on automation.

Aye, robot

Robots are the most prominent winner. Robo Global, a research firm, predicts that by the end of 2021 the worldwide installed base of factory robots will exceed 3.2m units, double the level in 2015. The global market for industrial robotics is forecast to rise

→ Also in this section

- 58 A chill in China Inc
- 59 Pre-emptive antitrust
- 59 Electronic cars
- 60 Bartleby: Creatures of habit
- 61 Post-Trump social media
- 61 TikTok's other rival
- 62 Brand lessons from Rizla
- 63 Schumpeter: Refashioning Zara

from \$45bn in 2020 to \$73bn in 2025.

"We have had a catbird seat during the pandemic," says Michael Cicco, the head of the American operations of Fanuc, a Japanese robot-maker. With supply chains whacked, manufacturers were forced to find ways to build flexibility, he says. Companies reshoring production have sought to offset the high cost of human labour with the engineered sort. And robots are becoming much more capable. The most dexterous can now pick delicate objects such as individual strawberries.

Fanuc has seen a surge in demand for material-handling equipment and "collaborative robots", designed to interact with people. These "cobots" are particularly useful in e-commerce, which covid-19 has given a huge boost. The pandemic has, on one informed estimate, led consumer-goods firms to increase buffer stocks by around 5%. To counter this, firms are snapping up robots for use in warehouses, made by companies like GreyOrange and Kiva (which Amazon acquired in 2012 to assist its e-commerce fulfilment).

Right now cobots help with social distancing. But, says Dwight Klappich of Gartner, a research firm, robots that move goods to workers will be a boon for post-pandemic productivity, too (as well as for the morale of humans, by sparing their weary feet). Luke Jensen of Britain's Ocado, an online grocer and robotics pioneer, insists that his low-margin industry must find ways of fulfilling the recent surge in ▶

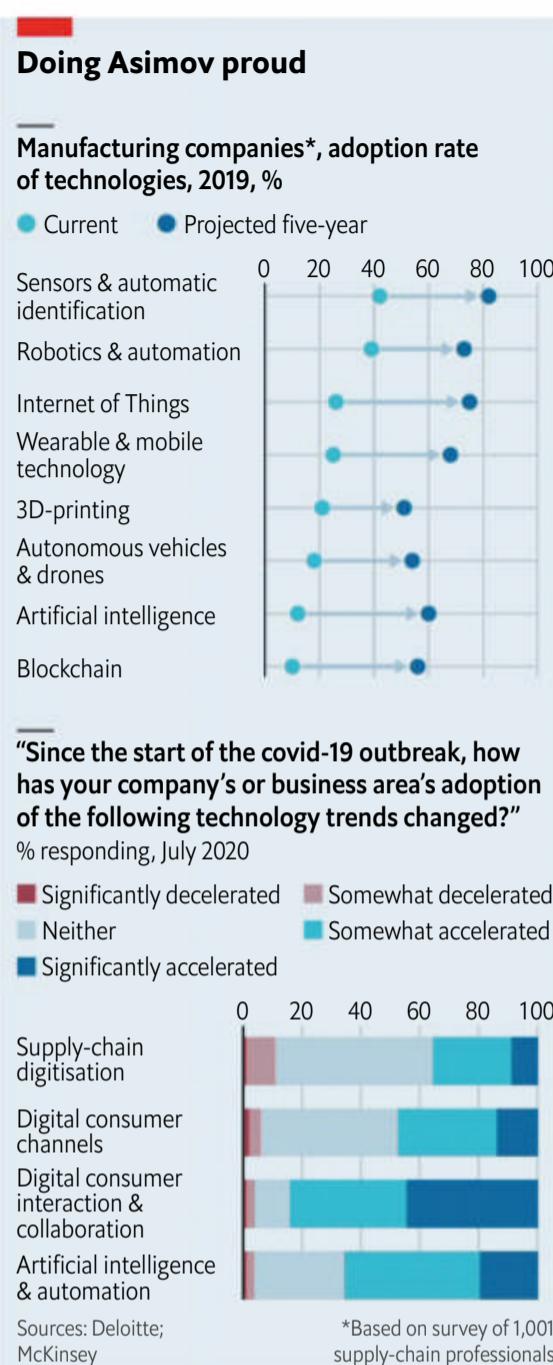
▶ online orders with less labour. His firm already serves the bulk of its British customers from just three highly automated sites. Kroger, a big American grocer, is now expanding its roll-out of Ocado equipment both in warehouses and at its retail outlets.

A survey of supply-chain executives published on January 13th by Blue Yonder, another consultancy, found that the share of firms with fully automated fulfilment centres may rise by 50% within a year. And, as Sudarshan Seshadri of Blue Yonder puts it, "Automation is just the table stakes." The pandemic's bigger long-term impact may be a fuller embrace by firms of data their operations generate, and predictive algorithms to help guide real-time decisions.

Stuart Harris of America's Emerson, a big automation firm, says that "pervasive sensing"—which combines AI and clever sensors—helped his company's revenues from remote monitoring grow by 25% last year. Emerson's clients range from a Singaporean chemicals factory to a Latin American mine. Peter Terwiesch of ABB, a big Swiss-Swedish industrial-technology firm, also reports a boom in remote-operations systems, from marine vessels to paper mills. His firm's annual sales of such products have doubled to \$400m from pre-pandemic levels. Drishti, an American startup, has come up with a way to apply artificial intelligence (AI) and computer vision to analyse busy video streams of workers on assembly lines. Marco Marinucci of Hella, a big German car-parts supplier, says his firm used Drishti's kit to analyse and fix problems at a high-volume assembly line. This allowed its throughput to rise by 7% last year. Publicis Sapient automated the inventory forecasting of a division of a big European retailer which found itself repeatedly out of stock amid the change in consumption patterns during the pandemic. The consultancy's software allowed its client to prevent shortages of its top 100 items 98% of the time.

It isn't just production floors and warehouses that are being automated. So are back offices. By one estimate, America's health-care system could save \$150bn a year thanks to automation of paper-pushing. Allied Market Research, a firm of analysts, predicts that the global sales of process-automation products will balloon from \$1.6bn in 2019 to nearly \$20bn in 2027. In December UI Path, a trailblazing Romanian startup in the area, filed for an initial public offering. It may start with a market value of \$20bn. On January 12th Workato, an American rival, said it has raised \$110m in fresh funding.

Last year Alibaba, China's biggest e-emporium, unveiled the results of a more ambitious project, code-named Xunxi ("fast rhino"). Alain Wu, who runs Xunxi, explains that this involved digitising and integrating whole value chains—from pro-



duct design, parts procurement and manufacturing to logistics and after-sales service. This allowed merchants on Alibaba's e-commerce platforms to fulfil customised orders within days while eliminating excess inventory. Time from production to delivery was reduced from several months to a fortnight.

Sceptics note that history is littered with examples of supposedly world-changing technologies that beguiled bosses, only to fail to live up to the promise. (Remember the blockchain?) Once covid-19 has been defeated, companies' enthusiasm for new technologies may subside. Those that have missed the opportunity to automate—as many have because they were busy trying merely to survive the pandemic recession—will lose the cover that Mr Vaz speaks of.

Optimists counter that this time really may be different. In the past the biggest returns to automation accrued to giant, well-capitalised firms. Today advances in technology and business models allow smaller ones to enjoy similar benefits. That should increase demand for clever systems—and in time reduce their cost further. And so on, in a virtuous, fully automated circle. ■

Corporate China

A chill descends

HONG KONG

From Jack Ma to extraterritorial laws, Beijing throws its weight around

WHEN AMERICA slammed sanctions on Huawei, barring its firms from supplying the Chinese telecoms-gear titan on national-security grounds, China's state media predicted this would spur innovation in the local technology industry. In time, it may well do. For now, much of the innovating is taking place within the Chinese state, as it toys with a new system of control over Chinese business.

On January 9th the Ministry of Commerce struck back against American sanctions. It said it may force Chinese firms to stop complying with "unjustified extraterritorial application of foreign legislation" (in Beijing's eyes, virtually all of it is). It also let companies sue foreign and domestic firms that have complied with some foreign sanctions for compensation.

This is part of a broader trend, as the Communist regime adopts a more muscular stance towards the private sector. In November it halted the \$37bn flotation of Ant Group, the payments affiliate of Alibaba, China's biggest e-commerce giant, days before it was due to list in Shanghai and Hong Kong. That month the State Administration for Market Regulation (SAMR), set up in 2018 from three regulators, issued rules to rein in e-emporiums. In December it opened an antitrust probe into Alibaba. On January 10th the Communist Party's body for political and legal affairs vowed to take trust-busting more seriously.

The antitrust build-up has spooked investors—Alibaba's share price is down by a quarter since October. Beijing's new stance creates more uncertainty for business in two other ways.

First, who is in charge of one of the world's biggest companies? Jack Ma, the tycoon who co-founded both Alibaba and Ant, has not been seen in public since he likened Chinese state banks to pawn shops three months ago. He owns just 4.8% of Alibaba and stepped down as chairman in 2019, but is thought to control strategic decisions. Even if he does resurface soon, as other AWOL tycoons have in the past, after showing contrition and "assisting" investigators, the episode sends a chilling signal.

The blowback could destabilise Alibaba. Like many mainland tech firms, it uses an offshore legal structure that lets foreigners invest in Chinese assets that would otherwise be off limits. Regulators have tolerated the arrangement, without fully endorsing it, for two decades. But last

month SAMR fined Alibaba and Tencent, another online behemoth, for not seeking approvals for past acquisitions. A sustained regulatory onslaught could raise doubts about the viability of these complex foreign-ownership arrangements. This would spook outside investors even more.

The other immediate source of instability is the battle between the superpowers over their extraterritorial legal reach. In 2019 the commerce ministry dabbled with this by creating a list of “unreliable entities”. It has yet to be filled with prominent foreign companies. Rumours that it would include HSBC, a British bank that played a role in an American investigation into Huawei, turned out to be wrong. If the ministry acts more decisively this time, its proposed measures could pose an impossible dilemma for Western multinationals in China: either face fines in America for breaking sanctions, or end up in a Chinese court. Wang Jiangyu of the City University of Hong Kong imagines that the new rules will force global businesses to do some-

thing they would love to avoid: take sides.

The measures are a mixed blessing even for Chinese firms, which they are meant to help. Many could, it is true, seek damages from partners. But some may be damaged themselves, such as mainland banks operating abroad which have heeded Uncle Sam’s sanctions over the years to avoid fines and maintain access to the dollar-clearing system, the backbone of global finance. Those that have had to shut Hong Kong accounts for blacklisted Chinese companies and individuals could come under fire. Carrie Lam, Hong Kong’s leader, who has overseen a crackdown on pro-democracy activists, has said cash is piling up in her flat because American sanctions prevent her from putting it in a bank.

In the short run, says a trade lawyer in Washington, the Ministry of Commerce rules are “more likely to sow discord than actually help Chinese companies”. This is not exactly conducive to innovation. Nor is the long arm of the Chinese state, especially as it grows ever longer and stronger. ■

Antitrust in America

Visa-free travel

Trustbusters force a big incumbent to back off from an upstart rival

IN EARLY 2019 an executive at Visa, a giant payments firm, sketched a picture of an island volcano. He scribbled the current capabilities of Plaid, a Silicon Valley fintech firm founded in 2012, in “the tip showing above the water”. The startup, which has developed a platform connecting consumer accounts at more than 11,000 banks to financial apps, was offering services like “bank connections”, “account validation” and “asset confirmation”. But he warned of the “massive opportunity” beneath the surface. Plaid could expand into fraud detection, making credit decisions and, scariest of all, payments infrastructure.

This opportunity for Plaid looked like a threat to Visa. Ten months later, in January 2020, Visa announced that it would acquire its putative rival for \$5.3bn. This sum was more than 50 times the revenue Plaid earned in 2019 (though a modest lift for a company with a market capitalisation of over \$46bn). Al Kelly, Visa’s boss, described the deal as an “insurance policy”.

These details—volcano sketch and all—were included in the complaint America’s Department of Justice filed in November, when it sued to block the deal. The acquisition, the DOJ said, would snuff out a competitor in the debit-card business, in which Visa has a market share of around 70% and profit margins

nudging 90%. In 2019 Visa earned around \$4bn in profits. On January 12th the DOJ announced that Visa had pulled out of the deal, rather than continue to trial, which was scheduled for June.

The trustbusters’ intervention bears some striking similarities to the anti-trust suits that have been filed against Facebook. Two separate legal challenges, one mounted by a bipartisan coalition of attorneys-general in 46 states and another from the Federal Trade Commission (FTC), centre on its acquisitions. They alleged that the technology titan maintained its monopoly in personal social-networking by systematically buying up potential competitors—notably Instagram in 2012 and WhatsApp in 2014.

In its defence, Facebook said that the government “now wants a do-over”, which would, as the company has put it, send “a chilling warning to American business that no sale is ever final”. The FTC’s complaint fails to mention that the antitrust authorities cleared the Instagram and WhatsApp deals at the time.

The move to block the tie-up of Visa and Plaid implies a new trustbusting approach taking shape in America. Henceforth the authorities will probably try to nip Facebook-like arguments in the bud pre-emptively by stymieing attempts by powerful incumbents to swallow upstart competitors. Explosive stuff.

Carmakers and big tech

Steel and silicon

Detroit loses out to virtual Vegas as cars go electric—and electronic

THE ANNUAL Consumer Electronics Show (CES) in Las Vegas used to be a jamboree for gadgets you can put in your pocket or hang on your wall. This hasn’t been true for a few years. As vehicles morph from a lump of mechanical engineering to a digital platform for mobility services, and motor shows wane in importance, carmakers have sought new venues to showcase their wares. At this year’s (virtual) CES, which opened on January 11th, they once again joined makers of smartphones, smart toilets and smart dog flaps in showcasing their smartest tech.

CES has risen in significance because vehicles are changing. Bosch, a parts supplier, noted at the show that a typical car had 10m lines of code in 2010; today it has 100m. This month Ford had to idle a factory in Kentucky for a week owing to a global shortage of semiconductors that deprived it of the chips its cars run on.

Electrification of transport will speed up the transformation of vehicles into electronic devices. Battery power requires a new electronic architecture that will come with better integration of hardware and software, and improved connectivity. Harman, a car-tech firm, envisions a “third living space” between home and work, using the development to plug a connectivity gap and offer new in-car services, such as interactive concerts and gaming.

In other ways, though, cars remain a ►



Coming to an Apple store near you?

▶ metal box. Although electrification has reduced barriers to entry in the car business—which were formidable for capital-intensive metal-bashing—vehicles are still best made by firms that can manufacture at scale and with a trusted brand.

As a result, car firms are wracking their brains over how much of the software that runs their vehicles' new electronic functions they should develop in-house and how much to outsource to tech firms. At CES Daimler showed off Hyperscreen, a new touchscreen dashboard for its luxury electric models. Mary Barra, boss of GM, de-

livered a keynote speech reiterating the Detroit stalwart's electric and electronic plans. In the autumn GM said it would invest \$27bn in electric cars by 2025 and launch 30 new models. Ahead of CES it unveiled a new logo, repainted blue to evoke clean skies and with its "M" made to look a bit like a plug. This week the firm made more announcements about its plans for electrification, including details about its BrightDrop electric delivery van and new electric Cadillacs (as well as, inevitably, a flying-car concept).

Tech firms, for their part, are mulling

mobile hardware. Apple's flirtation with electric cars exemplifies the complexities of the relationship. Rumours that it intended to make electric vehicles first surfaced in 2014. Two years later, when the trouble and expense became clear, it dropped the idea. On January 7th a news report of talks with Hyundai to build an Apple car sent the South Korean carmaker's share price up by nearly 20%. Hyundai acknowledged it was in early discussions with the iPhone-maker. Apple has yet to comment. Just as carmakers look to Vegas, it seems, big tech is headed the other way. ■

Bartleby Creatures of habit

The lockdown has caused both good and bad changes of routine

HABITS CAN be slow to form. But when they do, they can become entrenched. When workers headed home during the first lockdown of March 2020, they probably thought the break would last for a month or so. Had that been true, old routines would soon have resumed.

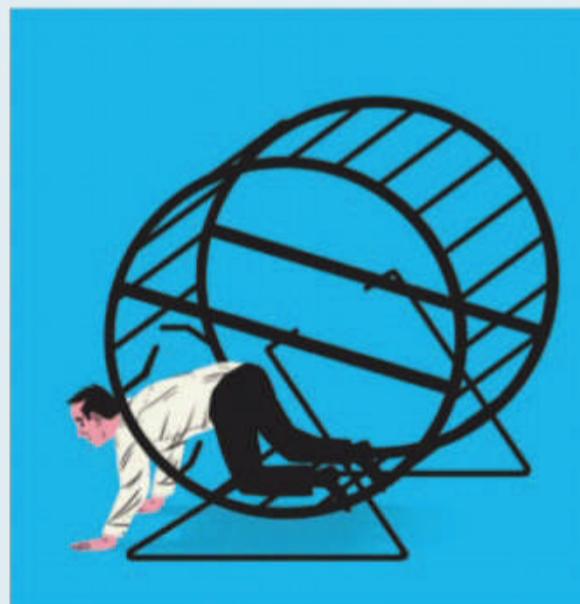
It is now ten months since many employees have made a regular commute into the office. New routines have taken root and those will be much harder to break. Some of these new habits are bad, and they may stem as much from managers as from workers.

Asana, a maker of office software, commissioned a survey of more than 13,000 knowledge workers (defined as those who mostly work at a computer) across eight countries. It found that, on average in 2020, employees were working 455 hours a year more than their contracted requirement, or around two hours a day. That overtime had almost doubled relative to 2019. And much of the excess may not have been necessary; workers complained about the amount of time they spent in meetings and video-calls, or in responding to messages.

Perhaps this forced communication is the result of manager anxiety. Fearful that remote workers will be tempted to slack, they have monitored their teams like an anxious parent who has taken a toddler to a swimming pool.

Or managers may have felt the need to look busy, prompting them to call more meetings than before. They may have trapped themselves in a cycle of futile activity—corporate hamsters on a wheel. Many managers complain of "Zoom fatigue", as they drag themselves from one video-call to another, often keeping other participants waiting as they try to wrap up the previous meeting.

This bad news has a silver lining. Get



rid of the needless meetings and productivity should improve. Perhaps managers will make it their new year's resolution to ask the question, "Is this meeting really necessary?" Bartleby's Law is that 80% of the time of 80% of the attendees at meetings is wasted. The lockdowns have provided ample evidence to corroborate your columnist's hypothesis.

Research suggests that executives may spend 23 hours a week in meetings. Cut that time in half and think of how much more might be achieved. And that will be just as true when people return to the office as it is when they work from their kitchen table. The pandemic could provide a wake-up call on meeting futility.

The best habit developed during the pandemic has been flexibility. The ritual of the daily commute and the standard working day has been abandoned. And with it, the curse of "presenteeism"—the idea that, unless you are constantly visible, you are not working. Self-isolating workers have shown they will happily get on with their work, even when not under the beady eye of their boss.

A survey of personnel chiefs by Gartner, a research firm, found that 65% planned to allow employees flexibility on their working arrangements, even after vaccines have been distributed. They predicted that around half the workforce would want to return to the office, for at least part of the time.

Permitting this flexibility makes perfect sense. When lockdowns end, many workers may relish the chance to escape from their homes and see their colleagues in the flesh. They will be even happier if they can arrive at 10am one day, and 8.30am the next, if that suits their domestic requirements. And if they decide to work at home on Fridays, they will no longer feel as guilty as they might have done before the pandemic. The office can be a refuge, not a prison.

Employers will also take advantage of the new flexibility. Silvina Moschini, who runs TransparentBusiness, a workforce-management company, says that firms will change the way they scale up their operations, relying far more on freelancers, contractors and vendors than on full-time employees.

Handling a combination of remote workers and freelancers will require managers to acquire new habits. Ms Moschini says the key will be to develop "empathetic leadership" that understands the varied working conditions of team members. This might involve sending small gifts; at the start of the lockdown, she sent slippers to her team so they could feel comfy (mentally as well as physically) working from home.

Contacting workers should not be a matter of a rigid schedule but rather akin to the sentiment that prompts children to check in with elderly parents every so often. Friendly, informal contacts are a new habit that managers must still hone.

Social media in America...

Capitol gains

Banning Donald Trump is unlikely to hurt social networks' business

ON JANUARY 7TH, a day after a mob of his supporters stormed the Capitol in Washington, leaving five people dead and America shaken, Donald Trump had the sixth-most-popular account on Twitter, with nearly 90m followers. A day later he had none. The outgoing president was permanently booted off his social-media platform of choice for inciting violence.

Free-speech advocates—including Angela Merkel, Germany's chancellor and no Trump fan—bristled. So did investors. Twitter's share price has fallen by around 10% since @RealDonaldTrump's expulsion. That of Facebook, which suspended his account "indefinitely" on its main social network and Instagram, its sister photo-sharing app, has also dipped.

This looks like an over-reaction, at least by the stockmarket. Social-media firms' ad-sales departments may be glad to be rid of the troll-in-chief. Before being displaced by "coronavirus" last year, "Trump" was the most blocked keyword by online advertisers, loth to have their logos appear alongside content that might repel customers.

Twitter's algorithms prioritise tweets that generate greatest engagement. Mr Trump's were highly engaging, to put it mildly, and often ended up at the top of users' feeds. This coveted online real estate is sold through automated auctions. If many potential bidders block "Trump", this may depress prices. With Mr Trump gone, says Mark Shmulik of Bernstein, a broker, this ad inventory becomes more valuable.

Twitter may experience a decline in engagement in the short term. People who came to the site to gawp at Mr Trump's latest outrage, and stuck around to read about

movies or sports (or some lesser dust-up) may not return with the same frequency. But the upside of being more brand-friendly may offset losses from the Trump dump. The share price of Snap, which also suspended the presidential account, jumped on the news. Twitter's remains well above pre-Trump levels (see chart).

For Facebook, Instagram and YouTube, which blocked Mr Trump's account on January 12th, the impact is probably going to be negligible. Their monthly users (2.6bn, 1bn and 2bn, respectively) are more numerous and more global than Twitter's (300m).

A bigger concern is whether muting Mr Trump undermines social-media firms' claim that they are impartial platforms, and thus shielded from liability for what their users post, rather than publishers, who do not enjoy such protections. That is why they have been careful to couch their decision in the language of process and consistency with their own rules.

Even before the latest outrage, the firms had been stepping up moderation efforts, without giving up claims to platformdom. They employ tens of thousands of moderators between them to wade through toxic posts and remove those that break their terms of service. They have tried to limit the spread of misinformation around elections and other febrile times. Facebook has a semi-independent oversight body to hear appeals to disputed moderation decisions.

The social-media giants may welcome clearer rules, the need for which enjoys bipartisan support in America. These would raise barriers to entry for upstart rivals; Parler, a newish social network popular among American right-wingers, was boycotted into oblivion when it showed itself unable, as well as unwilling, to excise dangerously inflammatory content (see United States section). If muting Mr Trump engenders greater regulatory clarity, the thinking goes, so much the better for deep-pocketed incumbents. As an added bonus, it earned them rare plaudits from Democrats, who are about to take unified control of the federal government. ■

...and in China

Feuding film stars

BEIJING

Kuaishou takes on TikTok and its Chinese sibling

"**W**e aim to be the most customer-obsessed company in the world," declares the opening line in the 700-page prospectus from Kuaishou, a Chinese video app. The firm, launched a decade ago by a former software engineer at Google and another at Hewlett-Packard, boasts more than 250m daily active users, up from an average of just 67m in 2017. Kuaishou is expected to hit a valuation of around \$50bn when it goes public next month in Hong Kong. That would lift it above better-known social-media titans like Twitter (worth \$37bn).

Kuaishou's revenues have soared in recent years, reaching 25bn yuan (\$3.6bn) in the first six months of 2020, up by nearly half on the previous year. Just over two-thirds of this came from what the firm calls "live-stream gifting". It hosted nearly 1bn live-streaming sessions in that period, taking a cut on "tips" that viewers shower on their favourite live-streamers. A tip can be as small as 10 fen (1.5 cents) or as generous as 2,000 yuan. Performers film themselves singing, dancing, otherwise prancing or just sunbathing. (Pornography is strictly prohibited.) New stars can expect to fork half of their tips over to the platform.

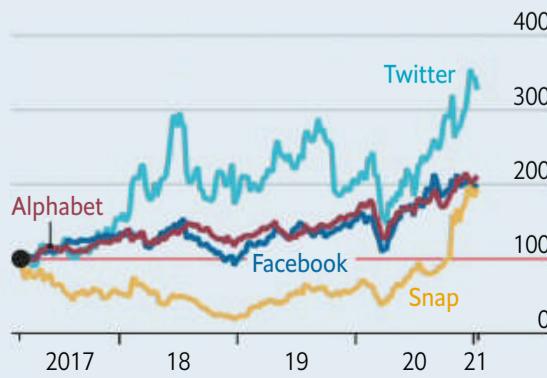
Amid this exuberance two threats loom. The first comes from China's increasingly hands-on regulators (see earlier article). In November they mandated that video apps like Kuaishou impose daily and monthly limits on the amount that users can tip live-streamers. Moreover, to prevent impressionable minors from being coaxed into sponsoring cunning broadcasters, platforms have been instructed to perform tougher background checks on users with such tools as facial-recognition technology. Bureaucrats in Beijing have yet to work out precisely what Kuaishou's daily and monthly ceilings ought to be. But growth will probably slow down once the details are hashed out.

Douyin, TikTok's Chinese sister app and Kuaishou's arch-rival, is better insulated from the regulatory crackdown. Like Kuaishou, it operates a live-streaming business. But unlike its competitor, it earns most of its revenues from online ads, which the new rules do not affect. For comparison, adverts accounted for just 28% of Kuaishou's revenue mix in the first half of 2020. The company may now try to raise that share. To do so Kuaishou will have to overcome the somewhat outdated percep-

Presidential terms and conditions

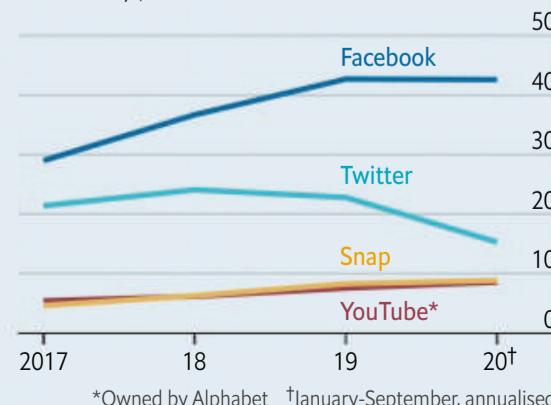
Share prices

March 3rd 2017=100



Annual revenue per registered user

Worldwide, \$



tion that its users are disproportionately folk living in small cities and rural areas with less money to buy advertised wares.

The second threat is the potential for a price war between Kuaishou and Douyin. For both platforms, user growth is largely a function of the appeal of their video content, which in turn depends on the calibre of the producers behind it. A race to the bottom, whereby each firm lowers its "take rate" on tips and ad sales to lure popular broadcasters from the other app, would depress margins.

At the moment neither company has a particular incentive to shatter the cosy duopoly, points out Jeffrey Young of Grandly Asset Management, a broker. But the possible arrival of a big competitor—not inconceivable in China's effervescent e-economy—could disrupt this equilibrium, Mr Young suggests.

Despite its domestic challenges (or maybe because of them), Kuaishou is proceeding apace with its global ambitions. The international version of its app, Kwai, claims "tens of millions" of users in markets from Brazil and Colombia to Malaysia and Vietnam. It still lacks the name-recognition of TikTok, though that may prove to be a blessing in disguise. Kwai has thus far avoided the sort of political scrutiny that its better-known rival has attracted in many foreign markets. ■

Brands

Rolling in it

Marketing lessons from a packet of Rizla

IT IS HARD to imagine a simpler product than a cigarette paper: small, rectangular, with no moving parts. So cheap it is often given away. And replaceable; desperate smokers have been known to tear out Bible pages as substitutes. It has none of cigarettes' glamour (though, these days, some of their stigma). No wonder Rizla, which produces 45bn rolling-papers a year and dominates the industry, attracts little attention as a marketing phenomenon. Yet it is one of a few brands, like Coca-Cola, Google, Jacuzzi or Tupperware, whose name ("Got a Rizla?") defines the product.

That is because a simple packet of Rizlas exhibits many of the qualities—history, design, consistent quality and values—that marketing gurus consider hallmarks of enduring brands. Flip open the cover and you find a lesson in how to remain relevant. Aptly for a business long associated with the counterculture, the tutorial is a wry summary of the dark arts of marketing.

Start with history. Long ago Rizla may have realised that if you lack an illustrious heritage, you could invent one. "The Original...since 1796", as the underside of its packets' lids still boasts, refers to a time when Napoleon Bonaparte supposedly granted the Lacroix family of south-western France a licence to supply rolling papers to French troops, according to Rizla's website. This may well be nonsense. A museum in Angoulême, the Lacroix ancestral seat, calls this historical "fantasy" and says that until 1860 the family manufactured paper but not for cigarettes. Its history of the clan says it was not until 1867 that Léonide Lacroix created the brand. A spokesman for Imperial Brands, which owns Rizla, says the story is widely recognised to have been told through the generations. "It's a heritage we inherited when we acquired the Rizla brand in the 1990s," he says. The discrepancy notwithstanding, Napoleon is now part of Rizla folklore.

Or take design. Rizla's name and its cross logo are cryptic clues, which also date back to the 19th century. *Riz* is French for rice, as in the paper. *La* is the first syllable of Lacroix. The second, *croix*, is French for cross—and symbolised by a gold one appended to the name. For Rizla fans the logo is iconic. A former marketing executive recalls emblazoning it on the heel of wellies that the company distributed at music festivals, so that the imprint would stand out in the mud. Rizla does not advertise to its customers that they can use its papers to smoke marijuana as well as tobacco; that would break the law in many countries. But it doesn't have to: pot-heads do it themselves, by plumping for its king-size papers (which the company insists are only produced to emulate ultra-long cigarettes).

Consistent quality is another trait, and a must to ensure that the claim on the packet—"Keep Rolling with the World's No. 1"—remains true. Being owned by Imperial, a global tobacco giant valued at £15.5bn (\$21bn), helps. Rizla is a sleek industrial machine, producing almost all of its papers at a big factory in Wilrijk, a suburb of Antwerp in Belgium. Reels of paper, now made of wood pulp rather than rice, are layered with gum, cut into strips, packaged and shipped to about 100 countries. It is highly automated. Ties to Imperial, owner of Golden Virginia tobacco used for rolling, offer a structural advantage that rivals lack.

The trick is to tap its parent's deep pockets while promoting values that appeal to roll-your-own smokers who like to think of themselves as individualistic iconoclasts. One is attention to detail, which users obsess over. The papers come in six thicknesses, from 12.5 grams per square metre (in silver packets) to 26.5g/m² (liquorice).

The second value, irreverence, is more ephemeral. Brice Barberon, who took over as Rizla's boss in March, speaks of the "tri-

bal element" to rolling your own cigarette. "The kind of blend you will choose, the kind of paper, the way you roll it, how much tobacco you put in, there is a kind of ritual in it that our consumers like...that brings people together." Brits favour green packets (17.5g/m²). The Dutch, orange (20g/m²). The French, Micron (12.5g/m²).

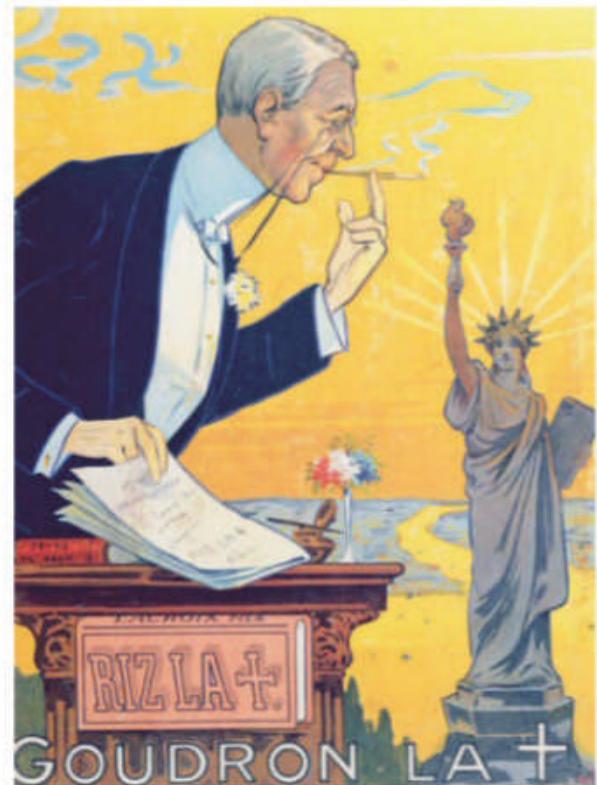
Tribes share a lingo, musical tastes, pastimes, memes, clothing and a sense of humour. That is a great way to reach them. A former executive says that Rizla once used models dressed as border guards with high heels and handcuffs as part of a "show me your papers" campaign. With that comes the most effective, and cheapest, form of marketing—word of mouth.

Going from paper to digital

For all its guile, Rizla faces challenges ahead, notably the rise of upstarts that use less subtle social-media campaigns to build a new kind of cult following, especially among pot-smokers. They include Raw, started by Josh Kesselman, a shaggy-haired American entrepreneur who instructs his 1.7m followers on Instagram how to roll the perfect joint ("if you pack it too tight, it can't run right").

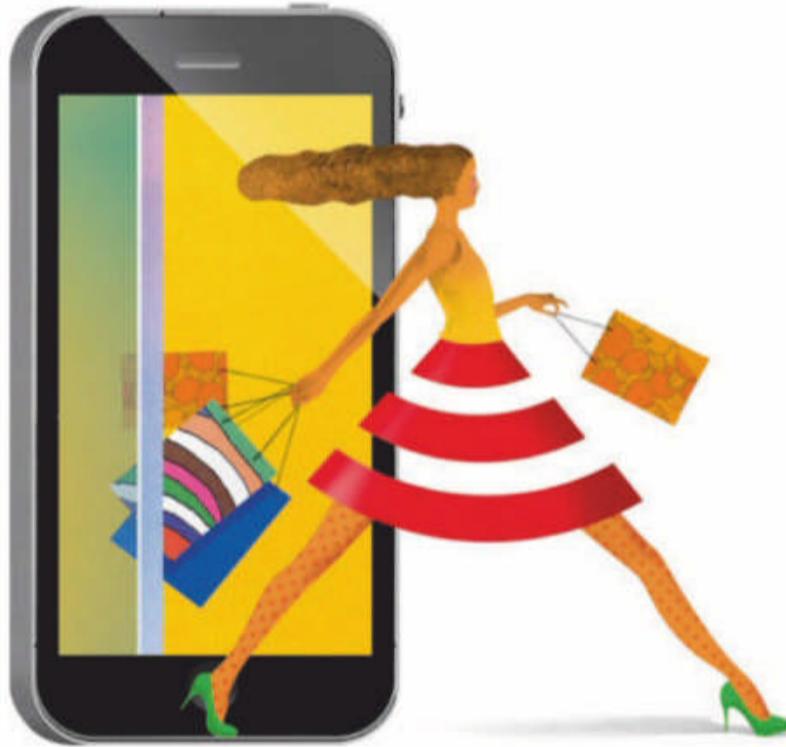
Vaping presents another problem. Though smokers are trading down to roll-your-own cigarettes during the pandemic, sales growth in the longer term is expected to weaken. Rizla is diversifying. Coinciding with the European Union's ban on menthol cigarettes, it now sells "flavour cards" that infuse a packet of cigarettes with the taste of menthol within 60 minutes.

The biggest risk, though, may be thinking it must change too much. It has a market position to protect, but also a heritage. This may not quite date back to 1796 but is, these days, real enough. Rizla's competitors can, at best, hope to fake it. ■



Schumpeter | Refashion model

Can the owner of Zara tailor its business to fit online shoppers?



IT HAD BEEN closed, on and off, for much of the past year. Now signs on the blacked-out windows of the Zara shop on the Champs-Elysées, the Spanish brand's early outpost in the French capital, announce it will not re-open even after covid-19 passes. Disappointed fashionistas are redirected to the label's website for all their value-for-money sartorial needs. Alternatively, they can stroll two blocks down the avenue, where another Zara shop opened a few years ago. There are three more within a half-hour's walking distance in central Paris.

Peppered city centres and malls with more outlets used to be the obvious strategy for apparel retailers seeking new customers. Inditex, Zara's owner and the world's biggest purveyor of fast fashion, grew from fewer than 750 stores at the turn of the century to around 7,500. But trends come and go in business as they do on the catwalk. In 2020, for the first time in its two-decade history as a listed company, Inditex finished the year with fewer shops than it had 12 months earlier—and suffered its first quarterly loss. Up to 1,200 outlets are in the process of being axed, compared with 300 planned openings. Inditex, the most admired firm in the sector, has not run out of ambition. Instead, Zara is chasing its young clientele to where they spend the most time: on their phones, shuffling between Instagram and TikTok. The shift to online sales, which has been turbocharged by lockdowns, will require some agile refitting of the way fashion brands do business.

Much of what it takes to flog a polka-dot dress for \$27—the average selling price for the Inditex family of brands, which also includes thriftier Bershka and posher Massimo Dutti, among others—is the same in store or online. The product must be desirable, and available at the right time, right size and right price. For the bean-counters, though, the transactions are as different as sequins and flannel. Shops are giant bundles of fixed costs, starting with rent and staff, which turn profitable only once you shift enough product through them—the idea is to stack it high and sell it cheap. Websites and warehouses cost much less to run. But because retailers cough up to deliver each package, the more they sell the more such variable costs add up.

On the surface, shifting sales online looks alluring. Gross margins are a bit leaner than in shops, where it is harder for buyers to

compare prices than on Google. But at the same time an online-only retailer has none of the expenses associated with stores, such as shop assistants' wages and rental payments. So online sales can end up more profitable overall. The wrinkle for established retailers is that their website often serves customers who would once have rung up the tills in physical stores, leaving them emptier. Unless at least some shops are closed, says Aneesa Sherman of Bernstein, a broker, retailers risk having to cough up new variable costs of online fulfilment while continuing to incur the fixed costs of legacy bricks and mortar.

Inditex's signal that it is reducing its store numbers is a wake-up call in the industry. Bosses dislike shutting shops. Attendant lay-offs irk politicians; write-downs and forgone sales can annoy investors. But where Inditex goes, others follow. The Spanish group has grown faster than rivals, such as Sweden's H&M or America's Gap. It surged ahead by outsourcing more of its production close to its main European market, which allowed it to respond faster to fashion trends and maintain leaner stock. Fresher inventory led to fewer end-of-season markdowns and fatter profits. Even as rivals have emulated it, Inditex has managed to keep operating margins at a plump 17%. Those of Fast Retailing, the Japanese parent of Uniqlo and the only rival to match Inditex's sales growth in recent years, are a third lower.

Few doubt Inditex will meet the target, set in June, of raising the share of online sales from 14% of the total in 2019 to at least 25% by 2022. Having arrived late to the cyber-party, Pablo Isla, the company's boss since 2005, has the zeal of a convert. His plan envisages hefty investment: over \$3bn will be spent by 2022 to boost online capabilities and make sure stores and websites work seamlessly together. New technology, such as RFID chips, tracks where items are, allowing Inditex to fulfil an order from either a shop or a warehouse. It is testing an app to tell shoppers if a particular item in a particular size is available in a given outlet—and even on which of the outlet's racks to find it.

These investments ought to be easy to fund from Inditex's healthy balance-sheet and profits—certainly easier than for other retailers, which have their backs against the wall after a dud year. The Zara brand is strong enough to attract shoppers to its own app; lesser marques rely on intermediaries such as Zalando or Amazon, which crimps margins. Inditex has short leases on its stores, giving it more room to haggle over rents, or make rent payments more flexible by linking them to shops' sales.

Prêt-à-cliquer

Being an online champion inevitably brings its own headaches. Amazon is a far more fearsome competitor than H&M. Barriers to entry are low. Maybe one in three garments sold online is returned, a much higher proportion than in shops, where they can be tried on (though nudging buyers to leave unwanted frocks in stores, as Inditex does, helps cut postage costs and increase the likelihood the item can be sold again while still in fashion). Zara, which spends next to nothing on advertising, might have to start if people are not reminded of its existence by walking past its billboard-like outlets.

In time, sales per square foot in remaining shops will probably continue to fall, threatening their viability. Unlike banks, which have been pruning their high-street branches for years, clothes retailers deal with fickle fashionistas, not sticky account-holders. The industry's supermodel will probably sashay online with more grace than rivals. But it had better watch its step. ■

Subscriber-only live digital event

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The global economy

Relapse and recovery

The world has become better at mitigating the economic cost of lockdowns

THE LOCKDOWNS of the spring, which at their peak covered more than half of the world's population, provoked an almighty downturn. In April global economic output was 20% below where it would have been otherwise. As cases of coronavirus have soared again, rich countries are imposing another round of lockdowns. France was in confinement in November, Italy locked down over Christmas, and England went into a national lockdown on January 6th. Parts of Japan have entered a state of emergency. The situation in America, where state and local authorities, not the federal government, are mainly responsible for stay-at-home orders, is more complicated. But one measure of lockdown stringency suggests that restrictions there are about as tight now as they were in the spring.

The latest round of lockdowns will hit the economy again—but, perhaps, not as hard. Analysts at Goldman Sachs, a bank, have argued that in Britain's case “the sensitivity of economic activity to covid-19 restrictions has diminished significantly since the first lockdown.” In research published on January 8th HSBC, another bank, noted that German industrial output “extended its recovery in November, under-

tered by the renewed lockdown”. America's jobs report for December, released on the same day, showed that employment fell for the first time since April—a depressing result when millions of people are still out of work. Yet other high-frequency economic indicators, such as those for consumer spending, are in better shape than they were in the spring.

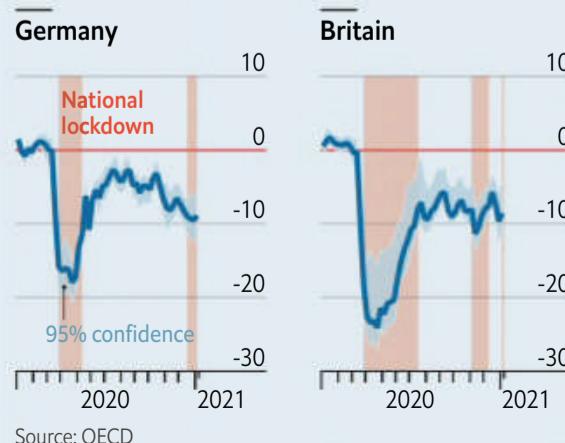
It will be some time before official GDP figures confirm the rich world's growing

resilience to lockdowns. But in a recent paper Nicolas Woloszko of the OECD, a rich-country think-tank, uses Google-search data to construct a weekly estimate of GDP for large economies. In April they were operating at about 80% capacity. Now they are running at over 90% (see chart). Three main factors explain the improvement: less public fear; better calibrated government policy; and adaptation by businesses.

Take fear first. In March and April the coronavirus was an unknown quantity, and many people responded by barricading themselves inside their houses. Analysis of a survey by YouGov suggests that in April more than 60% of respondents in rich countries were worried about catching the virus. Yet a better understanding of what they can do to avoid falling ill, and perhaps lockdown fatigue, mean that people may now be willing to go out and about more. ►

Lingering infections

Estimates of weekly GDP, % change on a year earlier



The share of people expressing concern about catching covid-19 fell to around 50% in November. Data from Google suggest that in many countries, people are moving around in public spaces more than they were at the start of the pandemic. That has led some public-health authorities to tear their hair out. The “current lockdown has not had nearly as much impact on mobility (and likely contacts) as...in March,” reads a presentation from scientists in Ontario in December. British and American newspapers mention the words “illegal rave” five times as frequently as in the spring.

The greater willingness to defy government orders probably worsens the spread of the virus, whatever its economic benefits. But the second factor that explains the resilience of economies this time round, the calibration of government policy, presents less of a trade-off. Officials have worked out what lockdown measures come at the least economic cost—so there is now less appetite for, say, closing schools than in the spring, but more appetite for mask-wearing directives and the testing of international arrivals, neither of which impose much hassle on anyone. Many have followed the example of Germany, where many construction sites were allowed to stay open during the first wave. France has kept manufacturing going; output in the sector barely shrank in November and grew in December.

The third reason for resilience relates to adaptation by businesses. The sudden shift to remote working was a shock for many of those who usually labour in an office, stuck as they were with old computers and not much else. Companies have since invested in making themselves more productive even under lockdown (see Business section). From March to October Britain imported £4.7bn-worth (\$6bn) of laptops, 20% more than in the same period in 2019. A recent paper by Nick Bloom of Stanford University and colleagues analyses American patent filings and finds that the pandemic has “shifted the direction of innovation towards new technologies that support video conferencing, telecommuting [and] remote interactivity”.

Consumer-facing businesses have done even more to cope. New York’s best jazz clubs now offer live-streams direct to living rooms. While staying on a farm in eastern England your correspondent bought a meal from Gujarati Rasoi, an Indian food stall 92 miles away in London, which like many restaurants has started to offer nationwide delivery. In Britain the share of firms open for business was no lower at the

end of last year than it was in the summer, when restrictions were far looser, according to official data. That is not the case for small businesses in America, but a larger share remains open than last spring.

This resilience of the economy in the face of the latest wave of lockdowns has several implications. When the virus first began to spread, governments were intent on freezing the economy in place. But over time it has become clear that activity has adapted to the shock of the pandemic. This means that governments should have to do less by way of fiscal support—which, indeed, is precisely their plan in 2021.

Moreover, as fewer resources are left unused during this latest round of lockdowns, it should inflict fewer scars. That could allow production to ramp up more quickly once restrictions are lifted. Analysts at Morgan Stanley, a bank, expect American GDP to return to its pre-pandemic trend by the end of this year. Plenty could still thwart that forecast. Whatever happens, though, the economy that went into the pandemic will look very different from the one that leaves it behind. ■

Surging commodities

The mountaineers

NEW YORK

Commodity prices are climbing. Is a new supercycle beginning?

THE BIGGEST commodity story of 2020 was one of decline. As the coronavirus pandemic halted travel, oil prices fell off a cliff, then briefly went subterranean: in April a futures contract for West Texas Intermediate was worth less than nothing. Oil began clawing its way above \$45 a barrel in November, supported by optimism about vaccines. For other commodities, however, 2020 was not all bad. Indeed the year may have marked the start of an extraordinary ascent.

In August gold passed \$2,000 an ounce for the first time ever, as low interest rates made the precious metal more attractive. The value of other commodities rose, too, not just from the depths of virus-induced lockdowns in April but from the start of 2020, before the pandemic began (see chart). Commodity assets under management reached a record \$640bn in December, estimates Citigroup, a bank, representing an annual gain of nearly a quarter. By January 11th even the oil-heavy S&P GSCI commodity index had reached the level of a year ago. The debate now is how quickly oil prices will recover, and how high other commodities may soar.

That in turn depends on whether the

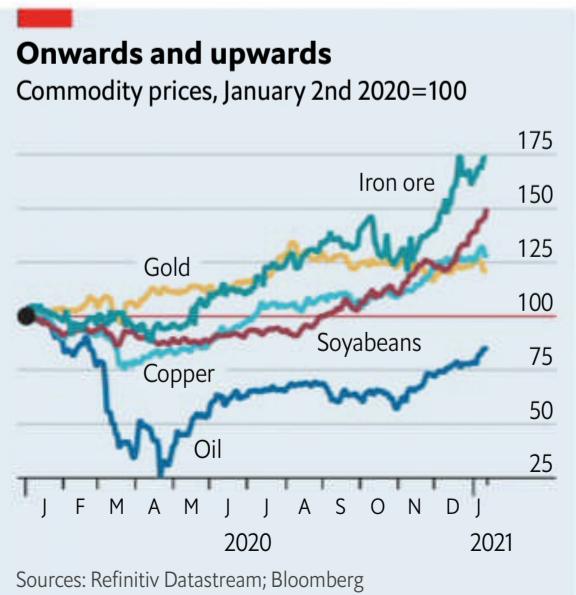
forces that pushed up certain commodities in 2020 will continue in 2021, or indeed be supplanted by even more powerful engines of growth. Last year China proved a voracious importer as it increased investment and filled strategic stockpiles. Beneficiaries included iron ore and copper, used in steel and electricity projects, as well as soft commodities such as wheat, soybeans and pork. This coincided with restrained supply. Outbreaks of covid-19 prompted the closure of some iron-ore mines in Brazil. Scant rain in South America, caused by La Niña, a large-scale cooling of Pacific Ocean temperatures, raised grain prices.

This year has already presented signs of limited supply. On January 11th Argentina lifted a ban on corn exports, but imposed a cap. Russia plans to tax wheat exports from mid-February. Low supply and cold weather have powered Asian prices of liquefied natural gas to a record high of well over \$20 per million British thermal units. Big mines still face risks of restrictions. Protests at Las Bambas copper mine in Peru, for instance, have stoked fears of disruptions.

Meanwhile oil has continued its tentative recovery, alternately inflated by hopes for vaccines and depressed by news of lockdowns. To boost prices, Saudi Arabia has said it will limit output by a further 1m barrels a day in February and March.

Two important developments may provide further support. The roll-out of vaccines across the world’s largest economies will eventually inspire higher levels of travel and trade. And a big spending bill by a Democratic American government, together with continued loose monetary policy from the Federal Reserve, would stimulate economic activity and therefore commodity consumption. That might also weaken the dollar, which would make oil and other commodities denominated in dollars cheaper for buyers in emerging markets, lifting demand and pushing commodity prices even higher.

Commodity bulls, led by Jeff Currie of Goldman Sachs, a bank, argue that longer-term trends will support prices through the ►



coming decade. "The pandemic itself is a structural catalyst for a commodity supercycle," Mr Currie contends. In addition to a weaker dollar and the accompanying boost for commodities, the pandemic may help synchronise activity across some of the world's biggest economies.

Governments in America, China and Europe profess to champion green investment and efforts to narrow gaps in income. Assistance for poor households has an outsize effect on consumption, Mr Currie points out, which in turn supports commodity prices. And green investment—in

electric-charging stations, for instance, and wind farms—is commodity-intensive. The early years of green spending may even lift oil demand, by boosting employment and economic activity. Goldman estimates that a \$2trn stimulus over the next two years would raise American oil demand by about 200,000 barrels a day, or 1%.

Sceptics expect more muted growth. In the short term, Ed Morse of Citigroup points out, investors' bets on copper are not supported by trends in supply and consumption. The Democrats' slim majority in the Senate hardly guarantees that presi-

dent-elect Joe Biden's climate plan will be passed. "There is nothing on the demand side that is nearly as commodity-intensive as the first decade of the 21st century," says Mr Morse.

That earlier supercycle was driven by urbanisation, investment and an ascendant middle class in emerging markets—and China, in particular. Governments from Berlin to Beijing now declare that they intend to bring a new type of transformation. The price of commodities in the coming decade depends in large part on whether they do what they say. ■

Buttonwood Bucket list

Why everyone is now an options trader

IN THE BUCKET shops of early 20th-century America, ordinary punters could bet on the direction of share prices with a tiny down-payment. The punters liked this, because it gave them a lot of notional exposure for a minuscule outlay. The bucket shops on the other side of the wagers loved it, too, because hour-to-hour fluctuations in the price meant punters often got wiped out. No stock certificates ever changed hands. This was betting, pure and simple.

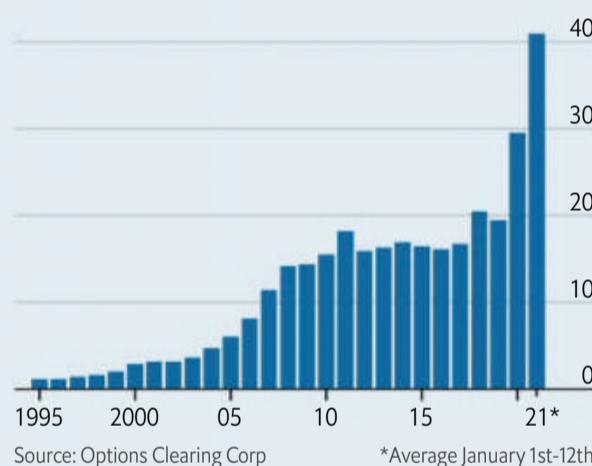
This brings us to the rapid growth of the present-day options market. On average last year almost 30m equity options were traded each day on American exchanges, a rise of more than 50% from 2019, according to OCC, the world's largest clearer of such derivatives. In recent weeks, the volume has regularly risen above 40m a day (see chart).

It is customary in polite society to discuss options in the language of insurance. The price of an option is known as a premium, for instance. And the need for insurance is one rationale for the growth in options. But impolite society, the natural habitat of Buttonwood, has a big say, too. Much of the surge in demand for options comes from small investors seeking long-odds bets on single stocks. The bucket-shop punter is back.

To understand the connection, start with the idea that options are rights that carry no obligation. A financial option is the right to buy or sell an asset—a basket of stocks, say—at a specified price (the strike price) on or before a specified maturity date. Call options are rights to buy; they are profitable to own if the price of the underlying asset rises above the strike price. Put options are rights to sell; they pay off when the price of the underlying asset falls. The owner is not obliged to exercise the option; she will do

You bet your bottom dollar

Average daily volume of options traded on US exchanges, contracts, millions



so only when the option is "in the money": ie, when the strike price is breached.

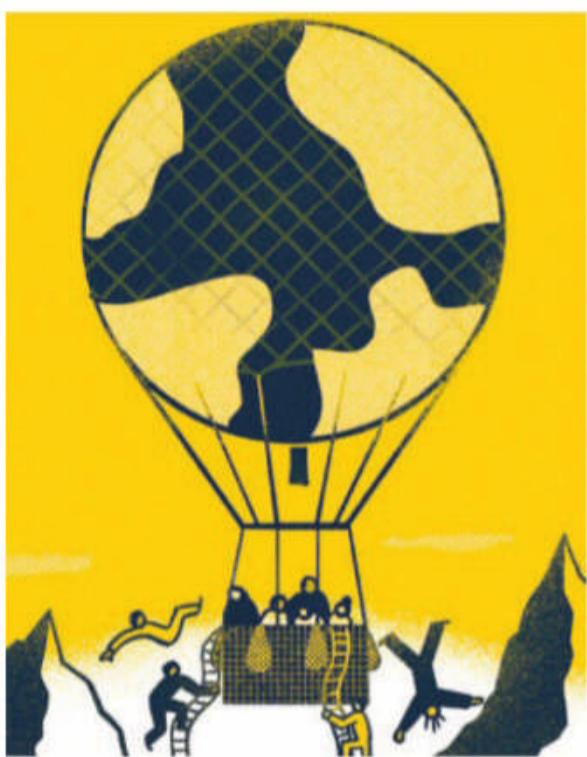
The key influences on premiums are the gap between the asset's strike price and its current price, time and expected volatility. A small gap is more likely to be closed than a large one, so options with strike prices close to prevailing prices cost more. Options with a strike price some distance from the actual price are said to be "out of the money" and are cheaper. Similarly, options with a more distant maturity are more expensive than near-dated options. The key variable, though, is volatility. The more violently the price of the underlying asset fluctuates, the more chance there is that an out-of-the-money option will move into the money. When you own options, volatility is your friend.

The range of options you can trade on a stock is a function of investor demand, says Hugh Selby-Smith of Talaria Capital, a Melbourne-based asset manager. If you want an option on, say, a Mexican retailer, you may have to ask an exchange to list an option series for you. But a high-profile stock, such as Tesla or Apple, will have 57

varieties of contract already listed. Tesla calls expiring on Friday January 15th were available this week at \$5 intervals. The positions are staggering. There were some 27,000 contracts with a strike price of \$1,000, for instance. (Tesla's share price was around \$860 on January 13th.) This kind of call option—deeply out-of-the-money and close to expiry—is favoured by the new cohort of retail investors that has rapidly emerged in America and elsewhere (see next page). It has the features of a long-odds sports bet. For a small outlay a call option can pay off handsomely if the stock price suddenly surges. If not, the option expires, worthless, like many a bucket-shop bet.

There are two sides to a market, of course. The specialist traders and hedge funds on the other side of these trades are content to take the premiums from options buyers and to manage the risks of occasional big losses should the punters' bets pay off. One hedge for a call option is simply to own the stock, which is why long-only equity funds are increasingly being drawn into the market to juice up their returns. "A lot depends on your book," says a seasoned options trader. If you've taken in a lot of put-option premiums, you might write some call options to even things out. Or you could balance the risk from an expensive-looking option—with, say, a round-number strike price of the kind favoured by retail investors—using a cheaper-looking option with a nearby strike price.

This new wave of options trading seems unlikely to recede. Technology has made access to financial markets ever easier for small investors. Equity options are like bucket-shop bets. Institutional investors are increasingly being drawn in to act as bookmakers. One way or another, everybody is an options trader now.



Emerging markets (1)

A peak conquered

HONG KONG

Shares in the developing world hit a new record

IN HIS BOOK "The Emerging Markets Century", published in 2007, Antoine van Agtmael marvelled at the progress of emerging markets since he coined the term in 1981. Their growth, he wrote, "will constitute nothing less than an economic landslide". Projections from Goldman Sachs, a bank, suggested that the combined GDP of Brazil, Russia, India and China (the BRICS) would more than triple in dollar terms from 2005 to 2020. In keeping with the mood, the MSCI's index of emerging-market shares set a record in November 2007.

There have been plenty of landslides since. Unfortunately emerging markets have often been caught beneath them. The covid-19 pandemic follows crises in Argentina and Turkey in 2018, the devaluation of China's yuan in 2015 and the oil-price collapse of 2014. These misfortunes have opened up a large gap between emerging and mature stockmarkets. Whereas shares in the rich world regained their 2007 peak as long ago as 2014, and have since risen by about 60%, MSCI's emerging-market index did not surpass its 2007 peak until last week, when it at last set a new record, thanks to a furious rally in recent months (see chart).

The price of the index may be near its 2007 level, but little else remains the same. China's weight in the benchmark has risen from 16% to about 40%, thanks to both the growth of its markets and the loosening of its capital controls. Brazil's weight rivalled China's in 2007, but has since fallen to 5%.

Two countries (Morocco and Jordan) have dropped out of the index altogether. One country (Greece) dropped into it, having been booted out of the rich-world index in 2013. Others have yo-yoed in and out. Argentina dropped out, then bounced back in (though MSCI has warned that it may be relegated again). Only Israel emerged and stayed that way.

It is natural to assume that the stagnation in emerging stockmarkets reflects setbacks in their economies. And some economies have indeed disappointed. But the combined GDP of the 25 countries in the index in 2007 has nonetheless grown from \$14.4trn to \$29.7trn today. (This does not adjust for dollar inflation, but then nor does the index.) The GDP of the BRICS now exceeds \$20trn—thanks largely to China—fulfilling Goldman's optimistic prediction.

And there perhaps lies the rub. Any economic success that emerging markets have enjoyed since 2007 was widely and eagerly anticipated. It was, therefore, already priced into equity markets. Moreover, the incumbent companies in an index do not always fully share in an economy's success. Some growth may be driven by new firms that enter the index after many of their most dynamic years are behind them and their prospects are already highly priced. Energy and materials firms (such as Russia's Gazprom or Brazil's Vale) have been eclipsed since 2007 by consumer firms, such as China's Meituan, an e-commerce site for food deliveries and other services, which did not even exist until 2010.

This churn should not have surprised readers of Mr van Agtmael's book, which points out that emerging-market champions tend to rise and fall with great rapidity. It also warns against looking in the rear-view mirror. In the book Mr van Agtmael describes how the investment team he managed at the time did not have Bloomberg machines at their desks. Their job was to identify future opportunities. If they wanted to distract themselves by looking at what the market had already done, they had to get up and walk to the terminal. ■

When we were getting high

Share prices, January 1st 2007=100

\$ terms



Source: Refinitiv Datastream

Emerging markets (2)

Joining the fray

SÃO PAULO

Brazilians were once wary of the markets. Now they are piling in

"**M**Y PARENTS NEVER talked about investing," says Arthur Lira, a university student from Olinda, a city in Brazil's poor north-east. In March, after hearing on YouTube that it was a good time to buy stocks, he set up an account with an online brokerage and bought shares in airline companies with 400 reais (\$75). Every month he puts a sliver of his scholarship into the Brazilian stockmarket, the B3. His shares have gained 30% on average.

Retail investors are diving into the stockmarket in Brazil, much as they are from America to South Korea. Since 2017 the number of retail investors in the B3 has quintupled to more than 3m, thanks to a dramatic fall in interest rates—the central bank's policy rate has fallen from 14.25% in 2016 to 2%—and the rise of affordable brokerages, notably XP Investimentos. Fully 1.5m piled into the markets in 2020 alone.

Some investors were undoubtedly lured by the 28 initial public offerings (IPOS) during the year, more than in 2014-19 combined and the most since 2007. Individuals made up a fifth of the 25bn-real demand for shares in Petz, a pet-shop chain that listed in September. They have helped fuel a rally in the Ibovespa, Brazil's main index, which has returned to its pre-pandemic levels.

Brazil used to be "addicted to high interest rates," says Bruno Constantino of XP. People parked their savings in fixed-income accounts run by one of five banks that sold everything from bonds to dental insurance. Decent returns masked high fees. Lingering trauma from hyperinflation in the 1980s made many Brazilians risk-averse. "I thought stocks were for the rich," says Umberto Dissenha, a 43-year-old computer programmer who worked for the B3 in his 30s but didn't invest until 2017. Despite recent growth, less than 2% of Brazilian adults directly own stocks, compared with around 15% of Americans in 2019.

Domestic investors more broadly are playing a bigger role in the stockmarket. In 2007 most of the financing for listings came from foreigners seduced by "national champions" pumped with loans from the government of Luiz Inácio Lula da Silva. Brazilian investors may have been right to be wary: a recession in 2014-16 led to dozens of listed firms failing.

After Lula's successor, Dilma Rousseff, was impeached in 2016 for breaking budget rules, the market-friendly administration of Michel Temer reined in spending. That

lowered interest rates and restored confidence among Brazil's financial institutions, which then invested more in the B3.

Retail participation has jumped to 15% of the B3's total volume, from 10% in 2016. Like first-time investors elsewhere, Brazil's novices tend to be younger (the average age is 32), poorer (investments average in the hundreds of reais) and more risk-tolerant (most invest directly, rather than in funds) than other punters. Their reliance on tips from social media has led to concerns. XP has faced criticism for its compensation model, which charges fees for each transaction and links brokers' pay to sales.

The real threat to the retail craze is fiscal uncertainty, says Paulo Bilyk of Rio Bravo, an asset manager. A hint of that came in the second half of 2020. Generous stimulus, amounting to about 8.5% of GDP, has fuelled a better-than-expected recovery. But when in September Paulo Guedes, the economy minister, suggested funding new spending by postponing court-ordered payments to citizens—creative accounting of the kind that got Ms Rousseff into trouble—investors got jittery. The Ibovespa fell by 2.4% that day. A handful of firms have since cancelled listings.

Long-term interest rates are creeping up and the central bank has signalled that it may raise its policy rate. For now, though, an informal survey by *The Economist* of more than 60 Brazilians who bought their first stocks in the past two years found that most plan to keep investing. Mr Dissenha, the programmer, says his earnings helped him afford a house and spend time with his infant daughter. He opened accounts for his wife, her mother and her sister. "I could do this as a job," he says, half-joking. ■

The Big Mac index

Out of joint

WASHINGTON, DC

What burger prices tell you about currency wars

DESPITE A RECENT bout of weakness, the dollar still looks strong. Consider the Big Mac index, our lighthearted measure of currency valuation. Of the currencies of the 20 trading partners studied by America's Treasury, our measure suggests that all have gained relative to the greenback since July, but that all apart from the Swiss franc are still cheap. That gives the incoming Biden administration, which has promised to take "aggressive trade-enforcement actions" against currency manipulators, lots to chew on.

Our burger-based index is premised on the idea that prices should adjust over the



long run, so that the same basket of tradable goods costs the same everywhere. Converting prices into dollars at prevailing exchange rates lets you judge whether a currency is too cheap or too dear. To avoid the problem that people buy different things in different places, we compare the price of just one good: the McDonald's Big Mac. The burgers are not exactly the same across countries—India's Maharaja Mac, for instance, does not contain beef—but they are consistent enough. A burger in Thailand costs 25% less than in America when its price is converted to dollars at prevailing exchange rates, for example, suggesting that the Thai baht is undervalued.

As wages tend to be lower in poor countries, though, Big Macs there may be cheaper. So we also calculate an index that adjusts for GDP per person. On this basis the Thai baht is no longer cheap relative to the dollar. The number of trading partners with undervalued currencies falls to 11.

Is the Big Mac index consistent with recent American policy on currency manipulators? The two do not assess quite the same things. Our index records outcomes; policymakers, by contrast, try to punish countries that intentionally depress their currencies. America's Commerce Department says it looks unkindly on currencies only if they are cheap because of government action. The Treasury is also concerned with manipulation, not undervaluation; it looks for evidence of intervention, as well as persistent trade imbalances.

Still, given currency gyrations over the past year, the Big Mac index could act as a cross-check on American policy. When covid-19 first spread, investors fled to the dollar, only for the trend to reverse after the Federal Reserve flooded markets with liquidity. Swings in the Mexican peso meant that, according to our index, it went from being 53% undervalued against the dollar to 61% undervalued over the first half of

2020, before the move was unwound. By contrast, the Vietnamese dong remained oddly stable against the dollar in the first half of last year.

Consistent with this, Mexico has escaped penalties from the Treasury and the Commerce Departments; Vietnam has not. On December 16th the Treasury labelled it a currency manipulator, citing its huge goods surplus with America and its intervention in foreign-exchange markets. The Commerce Department has whacked tariffs on imports of tyres from Vietnam, arguing that a depressed dong acted as a subsidy for producers.

On other fronts, though, America's recent actions are at odds with our index. The Treasury also branded Switzerland a manipulator, based partly on its currency intervention of around \$100bn (14% of GDP) in the year to June. Both versions of our index, though, suggest that the Swiss franc is overvalued against the dollar.

The Commerce Department also used manipulation to justify tariffs on imported twist-ties from China, used to seal plastic bags. (The country has not been labelled a manipulator since January 2020, but it is still on the Treasury's watch list.) Incoming officials may want to note that, after adjusting for GDP, our index suggests the yuan is in fact overvalued relative to the dollar by 2.5%. Food for thought. ■

The Big Mac index

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

Selected currencies

July 2020 January 2021
● GDP-adjusted index, January 2021



*Weighted average of member countries †Added to watch list in December 2020 ‡Average of five cities §Maharaja Mac
Sources: Eurostat; IMF; McDonald's; Refinitiv Datastream; *The Economist*

Free exchange | It's a bot time

The machines are coming for jobs—if you look in the right places



THE YEAR is 2021, and honestly there ought to be more robots. It was a decade ago that two scholars of technology, Erik Brynjolfsson and Andrew McAfee, published “Race Against the Machine”, an influential book that marked the start of a fierce debate between optimists and pessimists about technological change. The authors argued that exponential progress in computing was on the verge of delivering explosive advances in machine capabilities. Headline-grabbing breakthroughs in artificial intelligence (AI) seemed to support the idea that the robots would soon upend every workplace. Given that, on the eve of the pandemic, jobs were as plentiful as ever, you might now conclude that the warnings were overdone. But a number of new economics papers caution against complacency. The robots are indeed coming, they reckon—just a bit more slowly and stealthily than you might have expected.

Economists have, on the whole, been fairly sanguine about the impact of robots and AI on workers. History is strewn with incorrect predictions of the looming irrelevance of human labour. The economic statistics have yet to signal the arrival of a robot-powered job apocalypse. Outside of slumps, firms remain keen to hire humans, for example. Growth in productivity—which ought to be surging if machines are helping fewer workers produce more output—has been unimpressive. A look beneath the aggregate numbers, though, reveals that change is indeed afoot.

Take work by Daron Acemoglu and David Autor of the Massachusetts Institute of Technology, Jonathon Hazell of Princeton University and Pascual Restrepo of Boston University, which was presented at the recent meeting of the American Economic Association (AEA). The authors use rich data provided by Burning Glass Technologies, a software company that maintains and analyses fine-grained job information gleaned from 40,000 firms. They identify tasks and jobs in the dataset that could be done by AI today (and are therefore vulnerable to displacement). Unsurprisingly, the researchers find that businesses that are well-suited to the adoption of AI are indeed hiring people with AI expertise. Since 2010 there has been substantial growth in the number of AI-related job vacancies advertised by firms with lots of AI-vulnerable jobs. At the same time, there has been a sharp decline in these firms' demand for capabilities that compete with those of existing AI.

An AI-induced change in the mix of jobs need not translate into less hiring overall. If new technologies largely assist current workers or boost productivity by enough to spark expansion, then more AI might well go hand-in-hand with more employment. This does not appear to be happening. Instead the authors find that firms with more AI-vulnerable jobs have done much less hiring on net; that was especially the case in 2014-18, when AI-related vacancies in the database surged. But the relationship between greater use of AI and reduced hiring that is present at the firm level does not show up in aggregate data, the authors note. Machines are not yet depressing labour demand across the economy as a whole. As machines become cleverer, however, that could change.

Evidence that AI affects labour markets primarily by taking over human tasks is at odds with some earlier studies of how firms use the technology. A paper from 2019 by Timothy Bresnahan of Stanford University argues that the most valuable applications of AI have nothing to do with displacing humans. Rather, they are examples of “capital deepening”, or the accumulation of more and better capital per worker, in very specific contexts, such as the matching algorithms used by Amazon and Google to offer better product recommendations and ads to users. To the extent that AI leads to disruption, it is at a “system level”, says Mr Bresnahan—as Amazon’s sales displace those of other firms, say.

New work by Ajay Agrawal, Joshua Gans and Avi Goldfarb of the University of Toronto suggests that this state of affairs may not persist for long, though. As the quality of AI predictions improves, they write, it becomes increasingly attractive for AI-using firms to restructure in more radical ways. At some level of accuracy, for example, Amazon’s ability to predict consumers’ desires could encourage the firm to adjust its business model—by pre-emptively shipping goods to consumers before they ever go searching at Amazon in the first place—in ways that are likely to change how many workers and of what sort the firm requires. In that event, the influence of AI on the economy could change dramatically.

OK computer

Does more automation mean a surge in productivity is just over the horizon? Not necessarily. Speaking at the (virtual) AEA meeting, Mr Acemoglu mused that automation comes in different sorts, with different economic consequences. “Good” automation generates large productivity increases, and its transformative nature leads to the creation of many new tasks (and therefore jobs) for humans. Advanced robotics, for example, eliminates production jobs while creating work for robot technicians and programmers. “So-so” automation, by contrast, displaces workers but generates only meagre benefits. Mr Acemoglu cites automated check-out kiosks as an example; though they save some time and money, their deployment is hardly revolutionary. From 1947 to 1987, the displacement effect of new technologies was generally offset by a “reinstatement” effect, he reckons, through which new tasks occupied displaced workers. The rate of reinstatement has since fallen, though, while displacement has not, suggesting an increase in so-so automation relative to the good kind.

Mr Acemoglu suggests that policy interventions that lean against employers’ inclination to deploy so-so automation, such as higher taxes on capital, might be desirable. Perhaps. Yet it is also possible that continued improvement in machine capabilities will solve this problem on its own, either by creating vast new categories of work for humans, or by making us so much better off that we do not especially mind our approaching obsolescence. ■



Space flight

The dustman cometh

Efforts to remove dangerous debris from orbit around Earth are gaining steam

HUMAN BEINGS are messy. They tend to leave rubbish behind them wherever they go—and to expect someone else to clear that rubbish up. This is true even in outer space. The problem of orbiting debris, and the concomitant risk of it colliding with and damaging an active and probably expensive satellite, has been around for a while. But it is rapidly getting worse. There may now be as many as 1m bits of debris measuring 1cm or more across in orbit. Of larger objects, more than 20,000 are being actively tracked from Earth. And, according to Daniel Oltrogge, an expert who advises the Space Data Association, an industry body, on such matters, the past three years have seen a doubling of the number of times that bits of junk have almost hit operating satellites.

In the short term, satellite owners can, literally, dodge the problem—as long as their craft are fitted with appropriate thrusters. Mr Oltrogge's day job is to arrange for that to happen, for he also works

for COMSPOC, a firm based in Pennsylvania that develops software which helps satellite operators sidestep such collisions. In the longer term, however, more radical action will be needed.

Part of the problem is the growing number of launches taking place. On January 17th, for example, Virgin Orbit, a new entrant to the market that is part of Richard Branson's Virgin Group, plans to launch ten satellites into orbit using a rocket released from a modified Boeing 747-400. Another part, though, is that, every year, a dozen or so sizeable chunks of debris orbiting Earth break up. Around half of these ex-

plosions are caused by things like the ignition of leftover rocket fuel and the bursting of old batteries and pressurised tanks. The rest are the result of collisions.

The upshot is a chain reaction of impacts in orbit. Unlike the fictional version of such a chain-reaction, which inconvenienced Sandra Bullock's character in "Gravity", a film released in 2013, this real one is accelerating only slowly, so there is still time to curtail it. But if action is not taken soon, insurance premiums for satellites will rise, spending on tracking and collision-avoidance systems will have to increase, and certain orbits eventually risk becoming unusable.

Drop shots

Stopping this orbital-junk-generating chain reaction means casting part of the superfluous tonnage in space down into Earth's atmosphere, where the frictional heat of re-entry will burn it up. A clean sweep is not necessary. Removing a handful of the larger derelicts every year would be enough. Exactly how many is debated. Yamamoto Toru of Japan's space agency, JAXA, estimates somewhere between three and seven. Ted Muelhaupt of America's Aerospace Corporation, a taxpayer-funded research centre, reckons a dozen. But even that sounds doable. Except that no one knows how to do it.

People are, though, planning to prac- ►

→ Also in this section

72 Satellites made of wood

73 Hitchhiking viruses

74 Repurposing drugs for covid-19

74 Thieving monkeys

► tice. One such rehearsal, scheduled for lift-off in March, is led by Astroscale, a firm based in Tokyo. Astroscale proposes to launch, from Baikonur Cosmodrome in Kazakhstan, a mission dubbed ELSA-d. This consists of a 175kg mother ship called a servicer, and a 17kg pod fitted with a ferrous docking plate that will act as a dummy target. If all goes well, the servicer will eject and recover the pod three times, in successively harder trial runs, before thrusters push the whole kaboodle to fiery doom in the atmosphere below.

In the first test, the servicer will use springs to push the pod out and then, once it is ten metres away, will approach it again, lock onto the docking plate using an arm fitted with a magnetic head, retract the arm and pull it back to the servicer. For the second test, it will push the pod at least 100 metres away before its starts approaching it. A reaction wheel and a set of magnetic torque-generators will then put the pod into a tumble involving all three axes of motion, at a speed of half a degree a second.

This is, as it were, an important twist—for chunks of orbiting debris typically spin in this fashion. A real deorbiting mission will therefore have to deal with such spinning objects. Markings on the pod will help the servicer work out its prey's motion. Using eight thrusters, it will manoeuvre itself until those markings appear, to its sensors, to be stationary. This will mean its motion exactly matches that of the tumbling pod, and that the magnetic head can therefore be extended to do its job.

For the third capture test, the servicer will first use its thrusters to back off several kilometres from the pod, putting the pod beyond sensor range. Then it will search for it, as would need to be the case if it were hunting for a real derelict spacecraft.

For all the technological prowess these tests will require, however, real derelicts pose a greater challenge than dummy ones. For one thing, unlike Astroscale's pod, few spacecraft have been designed to expedite their own removal. Also, those objects which most need removing are dangerously heavy. A spacecraft that miscalculates while attempting to capture a massive piece of tumbling debris could be smashed to smithereens, thus contributing to the problem it was supposed to be solving.

Grasping the matter

The Commercial Removal of Debris Demonstration, a plan by JAXA to deorbit a discarded Japanese rocket stage, highlights these difficulties. Before a spacecraft can be designed to capture whichever derelict Japan's space agency selects as the experiment's target, a reconnaissance mission must first be launched to study it up close. JAXA has awarded the contract for this part of the demonstration to Astroscale, which plans to do it using a craft, called ADRAS-J,

that will be launched in two years' time. To measure the motion and features of a rocket part which might weigh tonnes, ADRAS-J will approach within mere metres. Once it collects the necessary data, another spacecraft can be designed to seize the junk on a subsequent mission.

In this case, magnets will not be used to grapple with the target, for normal spacecraft have no iron in them. Using a harpoon to capture such an object might be feasible, though. In a test conducted in 2019, Airbus, a European aerospace giant, successfully shot a harpoon from a satellite into a piece of panelling 1½ metres away. However, that panelling was attached to a boom extending from the satellite, so this was but the most preliminary of experiments. Also, a harpoon can miss, ricochet or—worse—

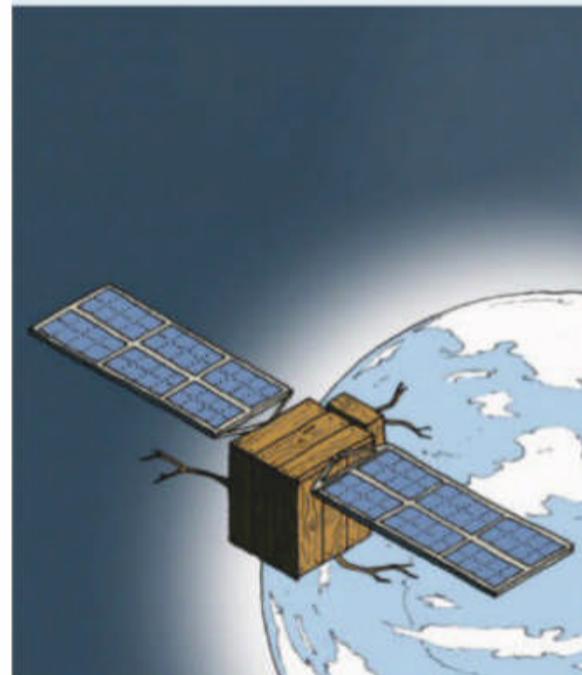
break off parts of the target which will then contribute yet more objects to the celestial junkyard.

Another option is to shoot a net. Airbus tested this idea in 2018. That test successfully enveloped a small "cubesat" which had been pushed seven metres away from the net-throwing craft—though this net was not tethered to the mother ship, which would therefore have been unable to deorbit its target. Tethers are hard to manage in the weightlessness of orbit, which is why Airbus chose not to use one in this preliminary net-tossing experiment. That leads some to doubt whether such cosmic *retiarii* are a sensible idea at all. Chris Blackerby, Astroscale's chief operations officer, expects the best approach will be to design robotic arms to clench the target vehicle's ►

Space-age materials

Hardy, non-perennial

Making satellites out of wood



THE SPACE age was built on clever materials. The business ends of rocket engines are composed of Inconel, a family of heat-and-corrosion-resistant nickel-chromium alloys developed in the 1940s. The "gold foil" adorning many satellites is, in fact, a form of insulation made from layers of Kapton and metallised Mylar, a pair of artificial polymers from the 1950s and 1960s. SpaceX's Dragon spacecraft use a heat shield made of phenolic-impregnated carbon to protect astronauts during atmospheric re-entry.

But it is not just humans in lab coats who can come up with whizzy substances. Sumitomo Forestry, a Japanese firm, and Kyoto University are pondering the idea of building satellites out of an advanced, high-performance composite made from cellulose and lignin, a pair of

complex polymers which are strong in tension and compression respectively. This material is both cheap and abundant. It is self-assembling and requires only simple chemical inputs. Manufacture can be entirely automated, requiring no human oversight. Translated from chemist-speak, they want to make satellites out of wood.

The research team argue that wood offers two advantages. Unlike metal, seasoned timber is easily penetrated by radio waves. That means communication antennas, sensors and the like could be kept inside the body of the satellite. This, they hope, will simplify construction. The second advantage is that, on atmospheric re-entry, the wooden parts of the satellite should burn up entirely, making disposal cleaner.

The researchers hope to launch a prototype version of what they have dubbed a LignoSat by 2023. Space is both extremely cold and very hot, and can switch quickly between the two as a spacecraft moves from shade into direct sunlight. Processing wood to cope with such extremes will be crucial to success. Sumitomo has said merely that its way of doing this is an "R&D secret".

Sending wood into space is not Sumitomo's only ambition for the material. It hopes that lessons from the satellite project might assist its plan to build the world's tallest wooden skyscraper, in Tokyo. This building, dubbed w350, would celebrate the firm's 350th birthday in 2041, and would, therefore, be 350 metres tall—roughly as high as the Empire State Building without its spire.

► fairing-connector ring (the shallow cylinder that links a rocket's upper stage to the covering of its payload), if this proves still to be intact.

If all that works, JAXA's debris-removal demonstration will face a final challenge. This is to execute a safe re-entry. Many pieces of the re-entering complex of captor and captive will survive frictional melting and slam, at speed, into Earth's surface. Were re-entry to occur at a random spot, the probability of a human casualty would now exceed the threshold of one in 10,000 that NASA, America's space agency, set as an acceptable level of risk in 1995, and which was adopted by Japan and other countries thereafter. The complex will therefore need to be put into a steep descent aimed at an uninhabited area—probably part of the Pacific Ocean.

As to the first clearance of actual orbiting debris, that is likely to be a European affair, for, in 2019, the European Space Agency awarded a contract to ClearSpace, a Swiss firm, to grab a 100kg piece of rocket debris that has been looping Earth since 2013. This mission is scheduled for 2025.

ClearSpace plans to use a capture craft fitted with four robotic arms. Unlike harpoons or net tosses, this strategy permits repeated attempts at recovery to be made. Even so, Luc Piguet, ClearSpace's boss, expects his spacecraft will spend at least nine months in trials near the target before it secures the derelict and decelerates sufficiently to descend.

Pay up!

An era of serious cleanup in space is still some way off. Besides the technological obstacles, removing junk will be expensive. The controlled re-entry of an object requires fuel, big thrusters and close attention from a ground controller. These things can tack millions of dollars—perhaps more than \$20m—onto a deorbiting operation's price tag. ClearSpace's mission, for example, may cost as much as €100m (\$122m), though Mr Piguet hopes subsequent jobs will be cheaper.

Cheaper or not, the question remains, "who will pay"? The littering of space is a textbook example of the tragedy of the commons, in which it is in everyone's interest for a problem to be solved, but no one's to be the lone individual who takes on the burden of solving it.

The solutions to tragedies of the commons usually have to be imposed from outside, often by governments. One idea is a special launch tax, with the proceeds hypothesized to pay for cleanup operations. A more creative proposal is what Mr Muelhaupt calls "a bottle-deposit system". Spacefarers would pay a deposit for each craft they lofted into orbit. If owners then failed to deorbit their equipment after its mission was over, the job could be done by

someone else, who would collect the deposit instead. That would encourage people to build deorbiting capabilities into satellites from the start, so the celestial dustmen would eventually no longer be needed. A third suggestion, proposed by Akhil Rao of Middlebury College, in Vermont, is to charge rent, known as orbital-use fees, for every commercial satellite in orbit. That would have the same effect.

Support for such schemes is growing, though they would require both international agreements between countries with launch facilities and an enforcement mechanism to stop outsiders with laxer rules from undercutting the arrangement.

There is also one other point. As Jean-Daniel Testé, once head of the French air force's joint space command, notes, equip-

ment developed for orbital cleanup could be used to disable satellites, too. Mr Testé says advances in orbital robotics made by France's adversaries, not to mention the lack of any international "space gendarmerie", are leading his country to plan spacecraft to defend its military and intelligence satellites.

Mr Testé is coy on specifics. But France's armed-forces minister, Florence Parly, has revealed more about her country's plans than have her equivalents in other powers, America included. She foresees France launching special "lookout" and "active defence" spacecraft, to protect its assets in space. The latter are likely to be armed with powerful lasers. As Ms Parly has put it, "we intend to blind" threatening spacecraft. Preferably without disintegrating them. ■

Bacteriophages

A hitchhiker's guide to the microverse

Viruses hitch lifts on some bacteria, the better to kill others

NOWADAYS, PATHOGENIC bacteria are generally dealt with using antibiotics. But some researchers argue that bactericidal viruses called bacteriophages should be added to the armory. One reason they have not found favour so far is that they are hard to deliver to their targets. However, Yu Pingfeng at Rice University in Texas and Zhu Liang at Zhejiang University in China may have found a way around that. As they report in *Environmental Science and Technology*, they have discovered that some phages can hitch lifts with certain bacterial species that they do not attack, to bring them to places rich in those that they do.

As is often the way with intriguing findings, Dr Yu and Dr Zhu made this discovery by chance. They were studying microbe communities in treatment plants for waste water, and noticed that phages in these miniature ecosystems sometimes attached themselves to species of bacteria equipped with flagella. These are rotating, helical appendages which act as propellers, so flagellate bacteria are more mobile than those lacking such equipment. To the two researchers, the behaviour of the phages looked a lot like hitchhiking, so they conducted some experiments to find out what was happening.

They and their colleagues grew "lawns" of an antibiotic-resistant strain of *Escherichia coli*, a common gut bacterium that is a laboratory workhorse. To some of these lawns they added a suspension of phages; to others, a suspension of a flagella-bearing bacterium called *Bacillus cereus*; and to others still, a mixture of the two. They then observed the consequences.

Phages alone inflicted little damage to the lawns. Neither did *B. cereus* alone. In combination, however, they were able to tear holes in the lawns, and both the viruses and the bacterial interlopers consequently prospered at the expense of the original *E. coli*. Whether such partnerships between viruses and bacteria might be used for medical purposes would require considerable further investigation. But this study does offer a novel lead in the search for a way to deploy phages effectively in the service of human beings. ■



A swarm of phages looking for a lift

Repurposing drugs

A pair of aces

Two arthritis medicines prove effective for covid-19

GOOD NEWS from covid-19 wards is hard to come by. A relentless surge in infections is overwhelming hospitals around the world. But the results from a clinical trial of two drugs, announced on January 7th, have improved the prognosis for both patients and hospitals.

The drugs in question, tocilizumab and sarilumab, are currently used to reduce inflammation in patients with arthritis. Hyper-inflammation, whereby the immune system goes into overdrive and destroys a patient's organs, is how covid-19 tends to kill. The search for suitable anti-inflammatory drugs to treat it has already turned up one, dexamethasone. This is a cheap steroid that dampens the immune system across the board. Tocilizumab and sarilumab, by contrast, are more focused. They are both antibodies that block the effect of interleukin-6, a protein that stokes the immune response and has been prominent in patients with covid-19.

The trial of tocilizumab and sarilumab enrolled 800 patients admitted to hospital with covid-19 who were ill enough to require transfer to intensive-care units (ICUs). It was conducted in six countries by REMAP-CAP, an international collaboration dedicated to improving treatments for pneumonia, with most of the participants being in Britain. (Britain has an efficient programme of covid-19 drug trials, in which a quarter of patients in hospital with the illness are enrolled.) Half of the volunteers received one of the two drugs on top of the standard treatment, which includes dexamethasone. The other half received only the standard treatment.

Both drugs appear to work equally well, though the results are more certain for tocilizumab, an older, more widely available medicine which was, therefore, given to a majority of participants in the new-treatment arm of the trial. Nearly 36% of patients in the standard-treatment group died, compared with 27% of those in the group that also received either tocilizumab or sarilumab—a reduction in the death rate of about a quarter. Moreover, those treated with these drugs recovered faster and were discharged from hospital seven to ten days earlier than would otherwise have been expected. Reductions in hospital stay of this magnitude would free up lots of ICU beds—welcome news in places like Britain and America, where many hospitals are running out of such beds.

Neither drug is cheap, however, so they may be beyond the means of poorer countries. In Britain, a course of treatment costs £750-1,000 (about \$1,000-1,400). But the shorter stays in ICUs which that treatment permits more than offset this, for it costs the country's National Health Service (NHS) £2,000 a day to keep a patient in such a unit. Also, in general, those who spend fewer days in intensive care recover faster afterwards and need less rehabilitation.

The NHS will start using tocilizumab immediately for covid-19 patients in ICUs. Hospitals already have stocks and the government is working with Roche, the maker, to increase supplies. For now, Britain has banned exports of both tocilizumab and sarilumab. Whether other countries will follow suit remains to be seen. ■



Thieving monkeys

Name your price

Human beings are not the only species able to negotiate a deal

IF YOU VISIT Uluwatu temple in Bali, beware. The long-tailed macaques there are well-known thieves. Since time out of mind they have made a living by robbing visitors of their possessions and then holding those objects hostage until a ransom in the form of food is paid. That is quite clever. But Jean-Baptiste Leca of the University of Lethbridge, in Canada, wondered whether these monkeys are cleverer still. Sometimes, they do not accept the first offer and hold out for more. He therefore asked himself whether they are able to assess how valuable an object is to its owner, and factor that into their negotiations.

Laboratory experiments conducted in

the past with various species of monkey and ape suggest such primates can indeed attach a value to something intrinsically worthless to them, like a coloured plastic counter, by learning that tokens of this sort may be exchanged for food, and that different types of token bring different rewards, not all of them equally valued by the animal (a desirable grape versus an undesirable piece of cucumber, for example). That, though, is an artificial protocol in an artificial setting. The macaques of Uluwatu are true wild animals, albeit ones that are familiar with, and comfortable in the presence of, human beings.

As they describe in the *Philosophical Transactions of the Royal Society*, Dr Leca and his colleagues conducted their experiment by wandering around the temple with video cameras, recording the activities of the larcenous monkeys. Every time they saw a monkey show interest in a particular tourist, they recorded the interaction. Not all attempts at robbery were successful. But of those that were, they analysed the details of almost 2,200.

To work out what was going on, they had first to establish the relative values of food rewards to monkeys, and of stealable objects to people. The temple staff keep three sorts of reward available for use in negotiations by, or on behalf of, tourists who want to get their property back: raw eggs, crackers and small bags of fruit. Different monkeys have different preferences, but Dr Leca and his colleagues established these for individual animals by offering them choices between pairs of goodies in a preliminary experiment.

To confirm which stealable objects are most valued by people, they divided them into six classes: empty containers, such as phone cases, camera bags and plastic bottles; accessories such as hairpins and key rings; hats and headgear; shoes; spectacles and sunglasses; and electronics and wallets (phones, cameras, tablets, purses and so on). They then observed, from their video recordings, how often victims bothered to bargain with the thief for the return of property belonging to different classes, and thus classified objects into low value (the first two classes on the list), medium value (the second two) and high value (the third two).

They found that monkeys do, indeed, have a sophisticated sense of what they are doing—at least, adults and sub-adults do. These animals have a preference for stealing high-value items, and will often hold out either for more rewards, or for better ones, if they are in possession of such items. But this is something that they have to learn how to do as they grow up. Juveniles make no such distinctions, and sub-adults are less good at doing so than adults. In monkeys, as in people, guile is not a trick that is innate. It has to be acquired. ■



The aftermath of power

Conversations with a weirdo

MOSCOW

A play and a film explore the life and love of the Soviet Union's last leader

ADRESSING ROOM, two makeup stations and two mirrors. A selection of wigs and dresses. A pair of actors—a man and a woman—enter and sit on stools, facing the audience. They speak in their normal voices, without accents or costumes. All that will come later.

For now, they stick to the facts. “At the end of May 1999, Raisa Maksimovna accompanied her husband to Australia,” the woman begins. “Gorbachev admitted that the return flight was long and difficult,” the man continues, “and he still can’t help the thought that it gave a jolt to a process that had already started...”

The process was leukaemia. That July, the actors explain, Raisa Gorbachev went to Germany for treatment. Mikhail was at her side, holding her, talking to her and watching her die. The ward had to be kept sterile and Mr Gorbachev robed in full protective gear. To be able to see and hear him, Raisa refused morphine; one night, to dis-

tract her from the insufferable pain, he cradled her in his arms as they told each other stories from their half-century together.

Over the next three hours Evgeny Mironov (pictured) and Chulpan Khamatova, two of Russia’s best-loved actors, recount and relive those stories on the stage of the fashionable Theatre of Nations in Moscow. Step by step, they go deeper inside their characters. They put on makeup and try out voices and gestures: the deep southern vowels Mikhail acquired in Cossack country; Raisa’s prissier diction, ringing with the notes of socialist optimism. Trained in the school of Russian psychological realism, they embody the Gorbachevs with empathy and virtuosity.

The impersonation is both a personal tribute—“I like Gorbachev,” confides Mr Mironov—and a study of a man who changed the lives of everyone on stage and in the audience. “We wanted to understand where he came from and how he left, tak-

→ Also in this section

77 A novel of the “dirty war”

77 Innovation and the state

78 Johnson: The language of incitement

ing nothing with him, his faith in socialism still intact,” Mr Mironov says. Intentionally and otherwise, Mr Gorbachev also changed the map of the world—shrinkages and mutations that are captured in a projection on the theatre’s wall.

He may be the last general secretary of the Communist Party to appear on stage in Russia. But he is certainly not the first. During the Soviet period, productions pegged to the jubilees of Soviet leaders, past and present, were part of the official hagiography. Had Mr Gorbachev made different choices in the Kremlin, he might conceivably be presiding over the Politburo today, with every theatre in the land glorifying his 90th birthday this March.

The flywheel of history

But by the time he came to power in 1985 (shortly before Mr Mironov enrolled at the Moscow Art Theatre School), the idea that one of Russia’s trendiest, priciest theatres would honour a former Soviet leader out of choice, not obligation, would have seemed ridiculous. And these days, too, the most common feeling towards Mr Gorbachev in Russia is not gratitude, but contempt. Intoxicated by imperial nostalgia and newfound wealth, the ruling elite—like much of the country—sees him as at best a failure and at worst a traitor, who triggered the disintegration of a superpower.

► It is telling, then, that "Gorbachev" originated in Latvia, one of the three Baltic republics liberated by his policies. In a conversation recorded for a documentary produced in tandem with the play, Alvis Hermanis, the show's Latvian director, told Mr Gorbachev: "I just realised that, after my mother and father, you are the third person who defined my life—and the lives of millions." Though he has worked extensively in Russia, Mr Hermanis was barred from the country in 2014 after criticising Vladimir Putin; it took a personal appeal to the president by the director's leading man for him to return and meet Mr Gorbachev.

His text was developed from the Gorbachevs' memoirs and is divided into short narratives: "Gorbachev and First Love", "Gorbachev and the Corpse of Stalin", "Gorbachev and Honey". It is not a biopic or a political drama. Mr Gorbachev's stint at the helm of the Soviet state is skipped in one line: "Those six years went like a day." The director and actors are preoccupied by different questions: how did this man climb to the top of a system that was designed to suppress human instinct? ("Our biggest mistake was to overlook Gorbachev," the head of the KGB later confessed.) And what possessed him to undertake the reforms that led, in 1991, to the fall of the Soviet Union and his own loss of power?

Volumes have been written about the economic inevitability of the Soviet collapse, about Mr Gorbachev's political miscalculations and the influence of the West. Theatre had a cameo role in the process, too. Shortly after he came to office, Mr Gorbachev went to the Moscow Art Theatre to watch Chekhov's "Uncle Vanya". Afterwards he called the director to say that he found Vanya's part heart-rending. "It is time to get our flywheel [of reform] moving again," he said.

But by focusing on his relationship with Raisa, Mr Hermanis points to a motive rarely associated with Soviet bosses: love. "I am convinced that *perestroika* could not have happened had it not been for Raisa and his love for her. He has been winning her all his life," the director says. Osip Mandelstam, a poet who died in the gulag, captured this intimate view of history: "If it were not for Helen,/What would Troy be to you, O warriors of Achaea?" Mandelstam wrote. "The sea, and Homer, are all moved by love."

The couple met on a dance floor at Moscow State University, to which Mr Gorbachev had been admitted without an examination thanks to the record harvest he and his father produced in his native Stavropol region. A provincial combine-harvester operator with a southern accent, he was an outsider in the world of the post-war urban intelligentsia that he aspired to join. Raisa—a dutiful student in the philosophy faculty—personified his dream of a differ-

ent life, which had more to do with classical Russian literature than with the Marxism and Leninism that she herself studied and later taught.

They married in September 1953, six months after Stalin's death. The bride wore a new dress but had to borrow her shoes; the wedding was celebrated with beetroot-and-potato salad in a university canteen. Thereafter, whether they were trekking across the dusty steppes of Stavropol, or strolling at night down the snowy lanes at their government dacha—away from the listening devices—she shared his feelings, thoughts and doubts. "We can't carry on living like this," he told her in the small hours after he came to power.

A higher love

The couple's public companionship distinguished him from previous Russian rulers. A Russian monarch was wedded to his people and was not supposed to have a private life. The wives of other Soviet leaders had been kept out of sight. Raisa's profile, her taste for elegant dresses, intelligence and sophistication became a source of jokes and resentment among Soviet people. But—in the play, and perhaps in reality—it was his devotion to her that compelled Mr Gorbachev, as Soviet leader, to value human life above ideology or geopolitics. He loved her more than he loved power.

This became clear during the attempted coup in August 1991 that brought on Raisa's first stroke. When the couple returned from Crimea, where they were kept under house arrest, Mr Gorbachev did not join the citizens celebrating his release and their victory over the KGB. He stayed with his beloved. As Mironov-Gorbachev puts it on stage: "I was not married to the country—Russia or the Soviet Union. I was married to my wife and that night I went with her to



Living legend

hospital. Perhaps it was the most crucial decision of my political life."

Mr Gorbachev may be reviled by many compatriots, but some of Mr Mironov's and Ms Khamatova's stardom has rubbed off, and made "Gorbachev" a hit. Mr Gorbachev himself gave an approving thumbs-up from his box when he saw the show, receiving a standing ovation from a sympathetic audience. "I am so glad he had a chance to experience this," says Mr Mironov.

It must have been an uncanny experience, for at the end of the play Mr Mironov transforms himself into the present-day 89-year-old with such eerie precision that the distinction between them dissolves. He sits alone at the dressing table, memories of his life with Raisa playing in his head, unable to throw away her things and still sensing the perfume of her dresses.

This elderly incarnation is the subject of the accompanying documentary by Vitaly Mansky, a Latvia-based Russian director (recently arrested in Moscow for protesting against the poisoning of Alexei Navalny, an opposition politician). The film is called "Gorbachev.Rai"—a play on the diminutive form of Raisa, which also means "heaven". It includes scenes of the theatre actors talking to Mr Gorbachev, but it begins with a shot of several Soviet telephones, silent relics of his former supreme power. Now he lives alone and moves slowly. Mr Mansky peppers him with questions and dogmatic assertions about politics, freedom and his role in history.

Defiantly, Mr Gorbachev breaks out of the director's frame, just as he once broke free from ideological constraints. Listening to the questions, he studies the rippled veins on his arms, surprised by the metamorphosis of his own body. The physical frailty (see picture) only underscores the impression of enormous authority, complexity and wit. No actor, not even Mr Mironov, could compete with his charisma.

"You say that with Raisa's death, the meaning of life itself is gone," says Mr Mansky. "Gone," Mr Gorbachev confirms. "But is the meaning of life just to love one woman and have children with her?" Mr Mansky probes incredulously. "Does it not have some higher meaning?" Mr Gorbachev replies: "But what could be higher than to love a woman and be loved by her?"

At the end of the film Mr Gorbachev, in his baritone voice, recites a Ukrainian song (also heard during the play) about a silvery river and a heavenly green wood, which he heard from his mother when he was a child. A man who redirected 20th-century history, and liberated hundreds of millions from Soviet rule, strikes a lonely figure from a different era. Yet he is more free than any occupant of the Kremlin before or after him. "Call this film 'A Conversation with a Weirdo,'" he advises Mr Mansky, with a sparkle in his eye. ■

A novel of the “dirty war”

Unquiet ghosts

Hades, Argentina. By Daniel Loedel. Riverhead; 304 pages; \$27. Blackfriars; £14.99

“THIS BOOK”, Daniel Loedel writes in the acknowledgments for his powerful debut novel, “was inspired by my half-sister, Isabel Loedel Maiztegui, a Montonera who was disappeared on January 17th 1978, at the age of 22.” That was two years into the seven-year “dirty war” waged by Argentina’s military dictatorship against its own people. The junta killed, “disappeared” and tortured thousands of Argentines, from members of left-wing groups such as the Montoneros to writers and artists thought to be voices of dissent. In “Hades, Argentina” Mr Loedel travels back with his narrator into this haunted past.

The haunting is literal. Tomás, an Argentine living in New York, returns to Buenos Aires in the mid-1980s, hoping to put “stubborn ghosts back in their graves”. Instead he is reunited with his first love, Isabel—a Montonera who was murdered by the junta years before. After some initial alarm, Tomás takes this supernatural reunion in his stride. He has anyway been drifting for years, struggling with the aftermath of trauma and often feeling like a ghost himself.

Soon another shade—of his one-time mentor, a character known as the Colonel—invites him to visit a uniquely Argentine underworld, comprising an eternally looping version of the dirty war. Tomás immediately accepts. He knows this time-travel will be agonising, but also that it may be his only opportunity to forgive himself for the wrenching choices he once made.

Tomás is ashamed of having survived; in a compelling nuance, he is also ashamed of having abetted torture. While in medical school, he let Isabel persuade him to embed himself at a military torture centre, where he treated prisoners and spied for the Montoneros. Flashback and re-enactment blur in an extended account of his spell at the (real, infamous) Automotores Orletti, a clandestine prison where the junta tortured leftists from several countries. Mr Loedel handles these atrocities with tact, describing only what Tomás sees in person; not violence, but its aftermath. On his first day, for instance, he is called to defibrillate a prisoner. The man “died a few weeks later”, Tomás says; “his heart stopped again, only this time on one of my days off. I took fewer after that.”

The plain delicacy of Mr Loedel’s prose



To hell and back

suits not only the horror of his subject, but also his novel’s risky premise. A voyage to the underworld could easily become outlandish, or, conversely, too familiar—trapped in the worn formulas of myth or magical-realist tropes. In “Hades, Argentina”, though, hell is at once metaphor and setting, literary conceit and emotional reality. Tomás’s sojourn there is a fittingly moving tribute to the author’s sister and her many fellow victims. ■

Innovation and the state

Fly me to the Moon

Mission Economy. By Mariana Mazzucato. Harper Business; 256 pages; \$29.99. Allen Lane; £20

IN JULY 1969 America launched three astronauts into space, landed two of them on the surface of the Moon and safely returned all three to Earth. A remarkable demonstration of American might, the achievement still dazzles more than half a century later; no country on Earth could replicate the feat today. The contrast with America’s bumbling response to covid-19 could scarcely be more glaring.

In “Mission Economy” Mariana Mazzucato argues that societies ought to abjure tired ideologies and embrace the policy approach that put astronauts on the Moon. By setting grand missions for themselves, she writes, and deploying the power of the state in practical ways, they can become more prosperous and equitable. It is an ap-

pealing idea, even if America has rarely looked less capable of purposeful collective action.

Ms Mazzucato is an Italian-born economist of a heterodox bent, whose work has long challenged standard economic thinking about the role of markets and government in generating innovation. Her best-known book, “The Entrepreneurial State” (published in 2013), argued that American technological prowess is owed in large part to the strong influence of the federal government, which funded and bore the risk of the initial development of many critical 20th-century technologies. Conventional economic wisdom remains a target in her latest work, too.

Scepticism among dismal scientists about government involvement in markets is based on faulty assumptions, she insists. Common complaints about state meddling—that governments are less efficient than private firms, cannot pick winners, and are staffed by self-interested bureaucrats concerned only with their own status—are belied by an impressive record of government successes: developing the foundation of the internet, for instance, or extending financial assistance to Tesla. Not every public investment pays off. But, in Ms Mazzucato’s view, neither is the record of privatisation of public assets and outsourcing of public tasks an unmitigated triumph. In America and Britain they have produced plenty of wealthy consultants, she says, but not a revolution in public-service efficiency or vast savings.

A rethink is thus overdue, the author urges—and the Apollo programme reveals many ways in which a capable state can create economic value. The sense of purpose and urgency that infused the programme in the 1960s motivated the government agencies involved to innovate, Ms Mazzucato writes, as well as to improve communication and weed out inefficiencies. Retaining important technological capabilities in-house enabled NASA to engage in a more sophisticated fashion with private contractors and monitor their progress better. It also helped the government retain talent, since working for the state could involve meaningful engineering work, not just banal paper-pushing.

And the programme’s technological demands—like the need for smaller, more powerful and more reliable computers than were available at its inception—put pressure on contractors to innovate. They did so, fearlessly, because the state shouldered much of the risk associated with moonshot technologies. The government’s demand for cutting-edge kit sowed the seeds of the computing age to come. The MIT Instrumentation Laboratory, tapped to develop guidance and navigation systems for the mission, swept up 60% of America’s output of integrated circuits at the peak of ►

► the Apollo effort. For its part, NASA helped shape the industrial ecosystem of America's tech sector: to avoid becoming too dependent on any one contractor, it spread business around, implanting know-how across many firms.

These points are compelling. State projects can certainly go wrong, but there is no mistaking the vital role governments played in facilitating the development of rich economies. Conversely, the weakening of state capacity—to provide badly needed infrastructure and basic services, educate citizens, root out corruption, and

so on—has hurt America's dynamism and the welfare of its people. There is no shortage of daunting global problems in need of solving; Ms Mazzucato singles out the fight against climate change, campaigns to improve public health and efforts to narrow the digital divide.

Yet in the end it is hard to feel inspired by her book. America launched the Apollo programme at what may well have been the zenith of its state capacity. Not only was the government at its most capable, but state initiatives enjoyed maximum public legitimacy and confidence. That proficiency had

been forged during decades of crisis: two world wars, a devastating depression and an existential superpower stand-off against the Soviet Union. The bipartisan consensus that supported a strong state shattered long ago; a new sense of national unity and purpose cannot be conjured out of thin air.

Arresting as Ms Mazzucato's views on economic development are, her book does not really offer a route back to that purpose and cohesion. But that is what America needs most. Sadly, those goals look as remote and inaccessible as the Moon. ■

Johnson Fight like hell

When does a fiery speech cross the line into incitement?

JOHNSON'S FIRST column after the election of Donald Trump in 2016 looked at "speech acts", or what J.L. Austin, a philosopher, called "doing things with words". Part of a president's awesome power is that merely by opening his mouth he can set the official policy of the United States. Mr Trump, that column concluded, needed to learn to watch his words, given that they would soon constitute official acts.

He did not. Now he has been impeached for an offence grounded in speech: incitement of insurrection. On January 6th he delivered a tirade near the White House protesting that November's election had been stolen from him. Soon the Capitol building at the other end of Pennsylvania Avenue, where legislators were certifying the vote, was ransacked by his audience. Five people died. Mr Trump's accusers say he incited the violence, his defenders that he merely gave a typically barnstorming speech, and was not responsible for the mob.

Impeachment is a political process, not a criminal one, but the law offers some pointers for the neutral. To begin with, America's First Amendment strongly protects speech—including much that would be illegal in other democracies. Incitement of hatred of races or religions, for example, is banned in many European countries—even though the thing being incited (hatred) is not itself a crime. American law does forbid "solicitation to commit a crime of violence". But what that means in practice has been sharply circumscribed by the courts. Sometimes even actual calls for violence are protected.

The "solicitation" statute requires intent by the speaker that another person should commit a crime. In 1969 the Supreme Court added two further tests in

Brandenburg v Ohio. It protected the right of a Ku Klux Klan leader to call for "revengeance" against African-Americans and Jews, finding that such calls were too abstract to be criminal. Such speech was bannable only if "directed to inciting or producing imminent lawless action" and "likely to incite or produce such action".

Which of these three tests—the speaker's intent, the imminence of a crime and its likelihood—are met in the case of the Capitol riot? Imminence, clearly: the mob was in the Capitol building within an hour of Mr Trump's harangue. What he intended, though, is less starkly obvious.

The president used the word "fight" 20 times. But such words can be employed metaphorically—Mr Trump also referred to members of Congress who took his side in rejecting the election results as "warriors". He never explicitly said "Ransack the Capitol". The mob, in this defence, took matters into its own hands. Indeed, at one point Mr Trump said the crowd should "peacefully...make your voices heard".

Yet a direct command is hardly required to persuade someone to do some-

thing. Paul Grice, like Austin a philosopher of language, noted that a tacit but virtually universal "co-operation principle" is observed between speakers and hearers. It involves a "maxim of quality" (be truthful) and a "maxim of relation" (do not waste an audience's time). Expecting speakers to observe these conventions, hearers will try to interpret statements that seem to flout them in such a way that they still make sense.

What was the crowd thinking when Mr Trump said, "We must stop the steal"—and how was it likely to respond? Congress was hours from certifying Joe Biden's win. Marching to the Capitol just to shout outside would stop nothing. Further guidance might have been found in Mr Trump's assertion that "when you catch somebody in a fraud, you're allowed to go by very different rules." What rules? "You have to be strong," he urged. "We fight like hell and if you don't fight like hell, you're not going to have a country any more." The crowd—containing, as the president ought to have known, numerous avowed extremists—could assume either that his superabundant fighting talk was irrelevant, or that his single mention of peaceful protest was.

A luminary of classical liberalism, John Stuart Mill, defended speech that was hot-tempered even to a fault: "An opinion that corn-dealers are starvers of the poor...ought to be unmolested when simply circulated through the press," Mill wrote. But such words "may justly incur punishment when delivered orally to an excited mob assembled before the house of a corn-dealer." In that case, angry words are not merely words. Mr Trump surely knows how devoted his followers are. "Our president wants us here," one said inside the Capitol. "We wait and take orders from our president."



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Economic data

	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago latest	quarter*	2020†	% change on year ago latest	2020†	%		% of GDP, 2020†		% of GDP, 2020†		10-yr govt bonds latest, %	change on year ago, bp	per \$ Jan 13th	% change on year ago
United States	-2.8	Q3	33.4	-3.7	1.4	Dec	1.2	6.7	Dec	-2.3	-14.9	1.1	-75.0	-	
China	4.9	Q3	11.2	1.9	0.2	Dec	2.4	4.2	Q3§	1.3	-5.2	2.9 §§	5.0	6.47	6.5
Japan	-5.7	Q3	22.9	-5.3	-1.0	Nov	0.1	2.9	Nov	2.6	-11.3	nil	-8.0	104	5.8
Britain	-8.6	Q3	81.1	-11.3	0.3	Nov	1.0	4.9	Sep††	-1.5	-19.6	0.4	-42.0	0.73	5.5
Canada	-5.2	Q3	40.5	-5.5	1.0	Nov	0.8	8.6	Dec	-1.8	-13.5	0.8	-80.0	1.27	3.1
Euro area	-4.3	Q3	60.0	-7.5	-0.3	Dec	0.3	8.3	Nov	2.5	-9.1	-0.5	-33.0	0.82	9.8
Austria	-4.0	Q3	54.6	-6.9	1.3	Nov	1.1	5.2	Nov	2.4	-8.5	-0.4	-41.0	0.82	9.8
Belgium	-4.5	Q3	54.2	-7.9	0.4	Dec	0.4	6.1	Nov	-1.3	-9.1	-0.3	-38.0	0.82	9.8
France	-3.9	Q3	98.3	-9.2	nil	Dec	0.5	8.8	Nov	-2.3	-11.3	-0.3	-34.0	0.82	9.8
Germany	-4.0	Q3	38.5	-5.4	-0.3	Dec	0.4	4.5	Nov	6.8	-7.0	-0.5	-33.0	0.82	9.8
Greece	-9.6	Q3	9.5	-9.9	-2.1	Nov	-1.4	16.1	Sep	-6.6	-9.2	0.7	-77.0	0.82	9.8
Italy	-5.0	Q3	80.4	-9.1	-0.1	Dec	-0.1	8.9	Nov	2.6	-11.0	0.6	-83.0	0.82	9.8
Netherlands	-2.5	Q3	34.8	-4.4	1.0	Dec	1.1	3.8	Mar	7.2	-6.9	-0.5	-39.0	0.82	9.8
Spain	-9.0	Q3	83.6	-11.4	-0.5	Dec	-0.2	16.4	Nov	0.6	-11.0	0.1	-37.0	0.82	9.8
Czech Republic	-5.3	Q3	30.8	-6.6	2.3	Dec	3.2	2.9	Nov‡	1.2	-7.8	1.3	-40.0	21.5	5.3
Denmark	-3.8	Q3	22.6	-4.0	0.5	Dec	0.4	4.5	Nov	8.5	-4.8	-0.5	-27.0	6.12	9.6
Norway	-0.2	Q3	19.7	-1.7	1.4	Dec	1.4	5.2	Oct††	3.2	-1.3	1.1	-36.0	8.48	5.0
Poland	-1.8	Q3	35.5	-3.4	2.3	Dec	3.4	6.1	Nov§	2.6	-7.9	1.2	-114	3.73	1.9
Russia	-3.4	Q3	na	-3.8	4.9	Dec	3.4	6.1	Nov§	2.1	-4.3	6.4	20.0	73.5	-16.7
Sweden	-2.7	Q3	21.2	-3.2	0.2	Nov	0.4	7.7	Nov§	4.2	-3.6	0.1	-6.0	8.33	13.7
Switzerland	-1.6	Q3	31.9	-3.0	-0.8	Dec	-0.9	3.4	Dec	9.2	-3.7	-0.5	2.0	0.89	9.0
Turkey	6.7	Q3	na	-3.6	14.6	Dec	12.1	12.7	Oct§	-4.5	-5.1	12.8	188	7.41	-20.8
Australia	-3.8	Q3	14.0	-2.9	0.7	Q3	0.8	6.8	Nov	0.9	-7.3	1.1	-14.0	1.29	12.4
Hong Kong	-3.5	Q3	11.8	-5.7	-0.2	Nov	0.4	6.3	Nov‡‡	5.5	-6.7	0.8	-77.0	7.75	0.3
India	-7.5	Q3	125	-7.9	4.6	Dec	6.7	9.1	Dec	1.3	-7.2	6.0	-64.0	73.2	-3.1
Indonesia	-3.5	Q3	na	-2.2	1.7	Dec	2.0	7.1	Q3§	-1.4	-7.2	6.2	-67.0	14,060	-2.8
Malaysia	-2.7	Q3	na	-5.3	-1.7	Nov	-1.1	4.8	Nov§	4.8	-7.2	2.7	-61.0	4.04	0.5
Pakistan	0.5	2020**	na	-2.8	8.0	Dec	9.6	5.8	2018	-0.2	-8.0	9.9 †††	-109	160	-3.2
Philippines	-11.5	Q3	36.0	-9.3	3.5	Dec	2.6	8.7	Q4§	0.5	-7.7	3.0	-169	48.1	5.4
Singapore	-3.8	Q4	8.7	-6.0	-0.1	Nov	-0.3	3.6	Q3	18.0	-13.9	1.0	-78.0	1.33	1.5
South Korea	-1.1	Q3	8.8	-1.1	0.5	Dec	0.5	4.1	Dec§	3.8	-5.7	1.7	-1.0	1,095	5.6
Taiwan	3.9	Q3	16.6	2.4	0.1	Dec	-0.3	3.8	Nov	13.7	-1.5	0.3	-33.0	27.9	7.0
Thailand	-6.4	Q3	28.8	-6.1	-0.3	Dec	-0.8	2.0	Nov§	3.6	-6.3	1.3	-17.0	30.1	0.6
Argentina	-10.2	Q3	61.7	-10.7	35.8	Nov‡	42.2	11.7	Q3§	2.0	-8.0	na	-464	85.5	-29.9
Brazil	-3.9	Q3	34.6	-4.5	4.5	Dec	3.2	14.3	Oct§‡	-0.8	-15.8	7.7	82.0	5.29	-21.7
Chile	-9.1	Q3	22.6	-6.2	3.0	Dec	3.0	10.8	Nov‡‡	2.1	-8.0	2.7	-76.0	740	4.9
Colombia	-9.5	Q3	39.6	-7.7	1.6	Dec	2.5	13.3	Nov§	-3.7	-8.8	4.9	-105	3,471	-5.2
Mexico	-8.6	Q3	58.0	-8.9	3.2	Dec	3.4	4.6	Nov	2.3	-4.5	5.3	-149	19.8	-4.7
Peru	-9.4	Q3	187	-12.0	2.0	Dec	1.8	14.2	Nov§	1.0	-8.0	3.6	-49.0	3.61	-7.5
Egypt	0.7	Q3	na	3.6	5.4	Dec	5.1	7.3	Q3§	-3.4	-7.9	na	nil	15.7	1.7
Israel	-1.5	Q3	38.9	-3.7	-0.6	Nov	-0.6	4.8	Nov	4.0	-11.3	0.8	7.0	3.13	10.9
Saudi Arabia	0.3	2019	na	-4.2	5.8	Nov	3.5	9.0	Q2	-3.7	-10.7	na	nil	3.75	nil
South Africa	-6.0	Q3	66.1	-7.2	3.2	Nov	3.2	30.8	Q3§	-2.1	-16.0	8.8	50.0	15.3	-5.3

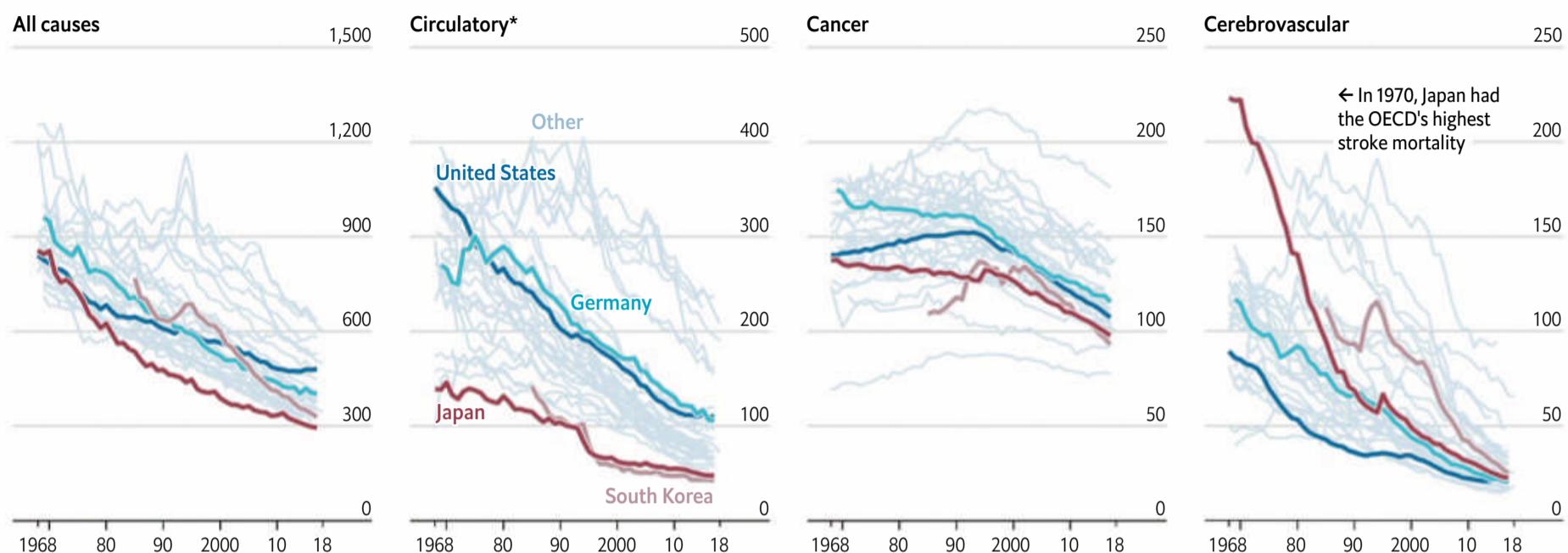
Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. #3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

Markets

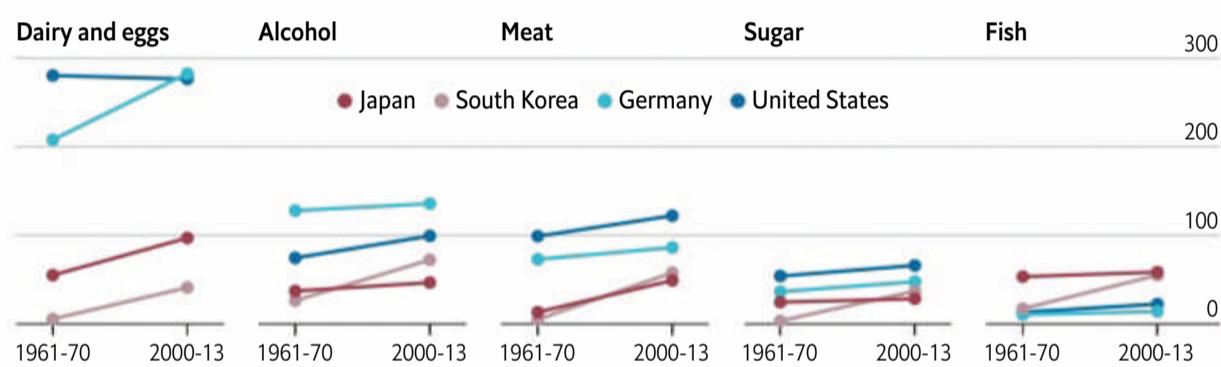
In local currency	Index	% change on:			index	% change on:		
		Jan 13th	one week	Dec 31st 2019		Jan 13th	one week	Dec 31st 2019
United States S&P 500	3,809.8	1.6	17.9		46,092.0	2.1	13.2	
United States NAScomp	13,129.0	3.0	46.3		2,977.5	4.0	-7.6	
China Shanghai Comp	3,598.7	1.3	18.0		3,148.3	6.1	43.3	
China Shenzhen Comp	2,393.7	-1.1	38.9		15,770.0	5.3	31.4	
Japan Nikkei 225	28,456.6	5.2	20.3		1,547.3	3.7	-2.1	
Japan Topix	1,864.4	3.8	8.3		Argentina MERV	50,961.2	-1.8	22.3
Britain FTSE 100	6,745.5	-1.4	-10.6		Brazil BVP	121,933.1	2.4	5.4
Canada S&P TSX	17,934.7	0.6	5.1		Mexico IPC	45,740.2	0.3	5.1
Euro area EURO STOXX 50	3,616.5	0.2	-3.4		Egypt EGX 30	11,388.9	4.0	-18.4
France CAC 40	5,662.7	0.6	-5.3		Israel TA-125	1,641.8	4.5	1.6
Germany DAX*	13,939.7	0.3	5.2		Saudi Arabia Tadawul	8,914.3	2.8	6.3
Italy FTSE/MIB	22,743.7	nil	-3.2		South Africa JSE AS	63,474.5	2.6	11.2
Netherlands AEX	644.4	0.8	6.6		World, dev'd MSCI	2,739.9	1.5	16.2
Spain IBEX 35	8,361.1	0.1	-12.4		Emerging markets MSCI	1,364.1	3.7	22.4
Poland WIG	58,5							

→ Japan's rapid decline in deaths from strokes may be partly explained by consuming more meat and dairy

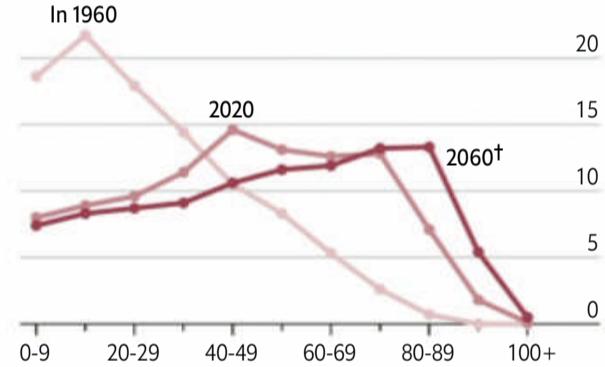
Deaths per 100,000 people, OECD countries, standardised by age using WHO standard population



Consumption, kg per person, average per year over period



Age composition of Japan, % of population



Sources: WHO; FAOSTAT; OECD; UN *Excluding cerebrovascular diseases †Forecast

The meat spot

The Japanese may owe some of their unusual longevity to a Goldilocks diet

TANAKA KANE is one of humanity's great outliers. On January 2nd she became the third person ever to turn 118, according to the Gerontology Research Group, a team of academics. She is also the first citizen of Japan to reach 118—but is unlikely to be the last. The country has the world's longest life expectancy, and 80,000 centenarians.

Mrs Tanaka is an outlier for another reason, too. She claims to love chocolate and fizzy drinks, setting her apart from most of her compatriots. Japan has long had one of the lowest sugar-consumption rates in the OECD, a club of mainly wealthy countries.

The unusual longevity enjoyed in Japan is often credited to diet. Yet the idea that the country has extended lifespans by entirely avoiding the West's sinful culinary delights may be too simple. In fact, recent studies imply that one key to its success may be that its people's diets have shifted

over time towards Western eating patterns.

Japan was not always a longevity champion. In 1970 its age-adjusted mortality rates were average for the OECD. Although its levels of cancer and heart disease were relatively low, it also had the OECD's highest frequency of cerebrovascular deaths, caused by blood failing to reach the brain.

In 1970-90, however, Japan's cerebrovascular mortality rate fell towards the OECD average. With world-beating numbers on heart disease and fewer strokes, Japan soared up the longevity league table.

How did Japan overcome its cerebrovascular woes? Some of its gains simply mirror better treatments and reductions in blood pressure around the world, notes Thomas Truelson of the University of Copenhagen.

However, another cause may be diets. Japan largely banned meat for 1,200 years, and still consumes relatively little meat and dairy. Too much of these can be damaging, since they contain saturated fatty acids, which correlate to heart disease. Studies have also tied eating lots of processed red meat to a greater risk of stroke. But too little may be unwise as well, because they provide cholesterol that may be needed for blood-vessel walls. In a study of 48,000 Britons, vegetarians were unusually resis-

tant to heart disease, but prone to strokes.

In theory, a dearth of animal-based food could have contributed to Japan's historical cerebrovascular mortality. In 1960-2013, as the country's deaths from strokes tumbled, its annual meat intake rose from near zero to 52kg per person (45% of America's level). Tsugane Shoichiro of the National Cancer Centre in Tokyo says that his compatriots may need meat and dairy to keep their blood vessels robust—though not so much that those vessels get clogged.

Some empirical evidence supports this view. One paper from the 1990s found that the parts of Japan where diets had changed most also had the biggest drops in cerebrovascular mortality. Another study, which tracked 80,000 Japanese people in 1995-2009, showed that strokes were most common among those who ate the least chops and cream. Although Japan's decline in cerebrovascular deaths could stem entirely from other causes, these data suggest that nutritional shifts may have helped.

The unhappy irony is that Japan's health gains, paired with a low birth rate, threaten its economy. By 2060, 40% of Japanese could be 60 or older. That would yield more birthday cakes with 118 candles—and fewer great-grandchildren to blow them out. ■



The thin blue line

Sir Brian Urquhart, initiator and overseer of the UN's peacekeeping operations, died on January 2nd, aged 101

WHEN HE CAME to, Brian Urquhart found himself lying on the floor of a truck full of drug-high commandos. His nose was broken and streaming blood, and he was bruised from a thorough pummelling with rifle butts. Much of his clothing seemed to be missing. Every so often, one of the boots around him would administer a kick. He seized the nearest; it happened to belong to the squad commander, and they fell to arguing. In the state he was, he was not as impressive a disputant as he would have wished.

He was sorry to be a disputant at all. That was not why he was in Katanga, a breakaway province of newly independent Congo, in 1961. As the UN representative there (a job no one in his right mind would have wanted), he and his force of Moroccans were meant to be keeping the peace between Moise Tshombe's Katangans, the mutinous Congolese army and the fleeing Belgians. Now that he had been kidnapped and beaten up, the UN was in the fight too. Soon enough his force was battling rebels all over Elisabethville.

This was not what peacekeeping was all about. Few knew that better than he did, for he had been in at the inception, when in 1956 the first UN Emergency Force had been sent to Suez to stand in their freshly blue-sprayed helmets, ex-American GI issue, between the armies of the French, the British and the Egyptians. Together he and Ralph Bunche—his most valued colleague at the UN, who had won the Nobel peace prize in 1950 for mediating between Egypt and Israel—had devised the peacekeeping rules. The force was to be a buffer between combatants, to express a world consensus that peace was preferable to war. It could advise, but not order; help with humanitarian tasks, but not with anything political. And it could not favour one side, even secretly, for first and foremost—whether on the Green Line in Cyprus, or the Line of Control in Kashmir, or the Golan Heights between Syria and Israel—it was not there to join in the fight.

This was difficult, and over his next three decades of organising

peacekeeping it became no easier. He had been a soldier himself in the war, second lieutenant in the Dorset Regiment and then an intelligence officer with the 1st Airborne Division. Soldiers were trained to fight, and wanted to be armed. As he had found out, after his service pistol went down with the ship when he was blown up by a mine off the Kent coast, to lose one's weapon was a disgrace. Besides, it was no joke to be sitting-ducks between enraged parties. But his rule was firm: their strength lay in having light arms only, or none at all. He might limp like an ex-soldier (parachute failure during training), and enjoy the logistics of operations; but he was an impartial desk man now, an international civil servant.

His view of the UN and its role had begun with high romantic enthusiasm in 1945, when he was only the second staffer hired. He had wanted to work for the League of Nations, and here was a stronger chance to build co-operation and prevent future disasters. Experience had left him deeply sceptical of leaders and revolted by war's waste and violence. Two events seared him: the disastrous Market Garden operation in 1944 to seize German-held bridges over the Rhine, where commanders bent on a dashing-stroke ignored the intelligence he gave them; and his consuming rage at stumbling on Bergen-Belsen, where the corpses piled up like logs at the perimeter fence did not smell, because they had been reduced to skin and bone while they were living.

Peacekeeping was not mentioned in the UN charter. But it seemed fundamental to create safe zones while reason was brought to bear on conflicts. Among the five secretaries-general he worked for, his deepest admiration was for Dag Hammarskjold: a loner, almost a mystic, with an evangelistic passion for his work and for preserving peace. Hammarskjold's death in a plane crash just before his own posting to Katanga left a void in which, for years afterwards, he still saw his face and heard his directions.

Leadership at the UN was seldom so good. He judged Trygve Lie, the first, to be out of his depth, and Kurt Waldheim a status-hungry mediocrity as well as a liar. His work could be trying, too often arguing the toss over deployment or sitting, numb with annoyance, in some conference hall while antagonistic delegates sulked over seating plans. In New York, sclerosis and elephantiasis had set in. The Security Council (that "Awesome Organ" as he mockingly called it) had split at once along cold-war lines, which made arranging peacekeeping all the harder. Decolonisation brought in dozens of Third World countries with new agendas and views that tilted against Israel and, therefore, annoyed the United States. All through the 1980s America's neocons, especially fierce Jeane Kirkpatrick, railed at the UN as if it was a troublesome sideshow, though one they were happy to use when in a bind. He began to wonder whether it would actually survive into the 21st century.

Something of that original romance still glowed, however. Even as he witnessed, after his retirement in 1986, terrible peacekeeping failures in Rwanda, Somalia and Bosnia, and even as he saw missions he had set up still stuck after decades in Cyprus and in Lebanon, he stayed committed to the idea that there had to be one place and one international civil service dedicated to problem-solving on a global scale. As the perils facing the planet mounted, so did his appeals in the press and at the Ford Foundation for the UN, the world's best hope, to be streamlined and reformed.

His peacekeeping days made him realise what a reasonable, cooperative world community might be like. He was always moved to see soldiers from every corner working as friends in a common enterprise—as he also was to see, in some disputed zone, memorials to UN soldiers killed "in the service of peace". He might have been killed in its service himself, that night in Katanga, but at the time he was fairly sure some UN Gurkhas would haul him out. As it happened, the only real damage he sustained was his broken nose. Non-religious though he was, he liked to recall St Ignatius's advice "not to heed the wounds". As he was rescued he noticed with satisfaction that his nose was bleeding again, all over the luxurious white upholstery of Moise Tshombe's car. ■



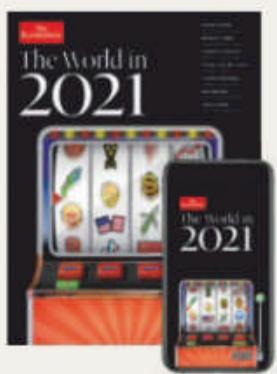
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