

The Economist

The struggle for chip supremacy

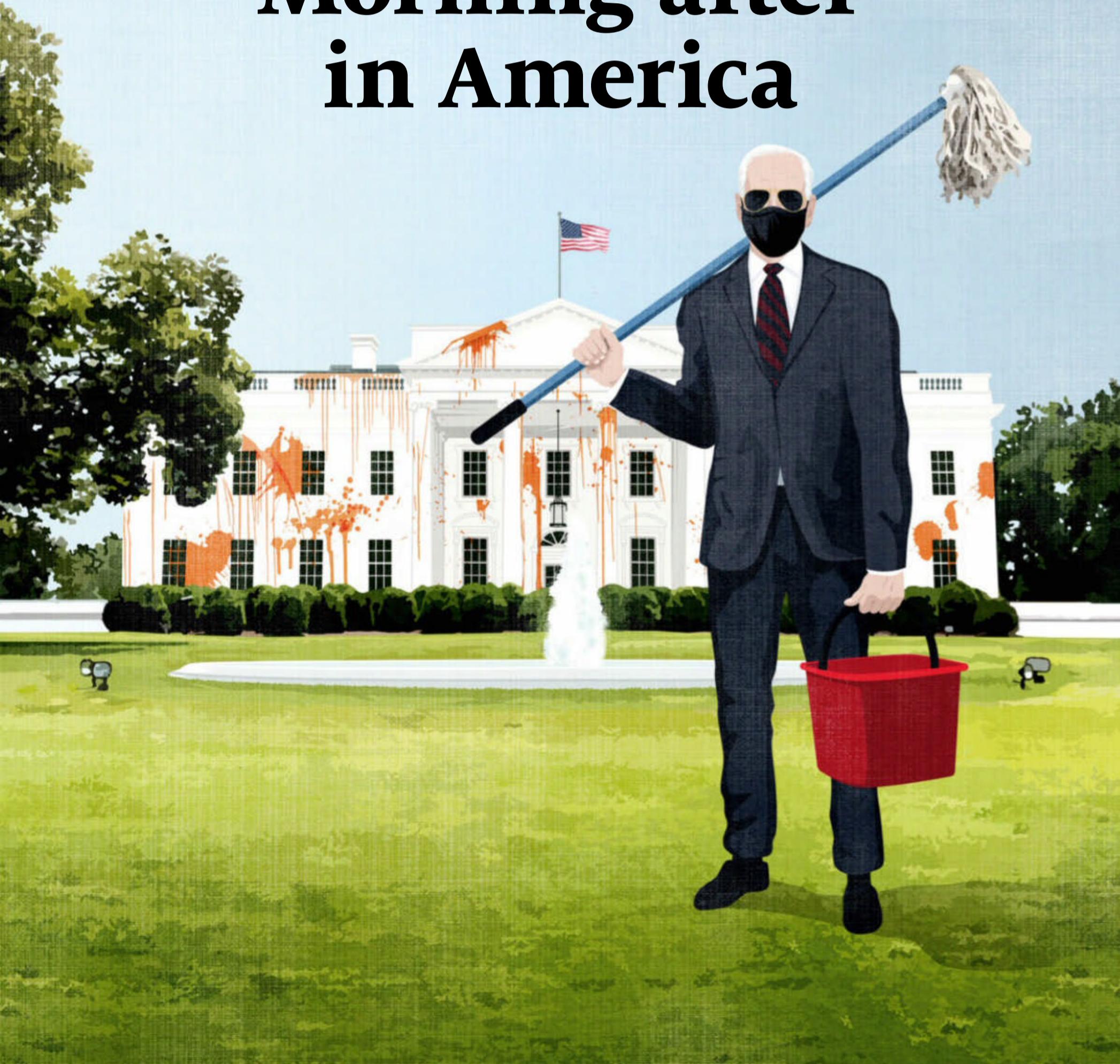
Alexei Navalny's courage

Virus v jab: the vaccination race

A special report on Chinese youth

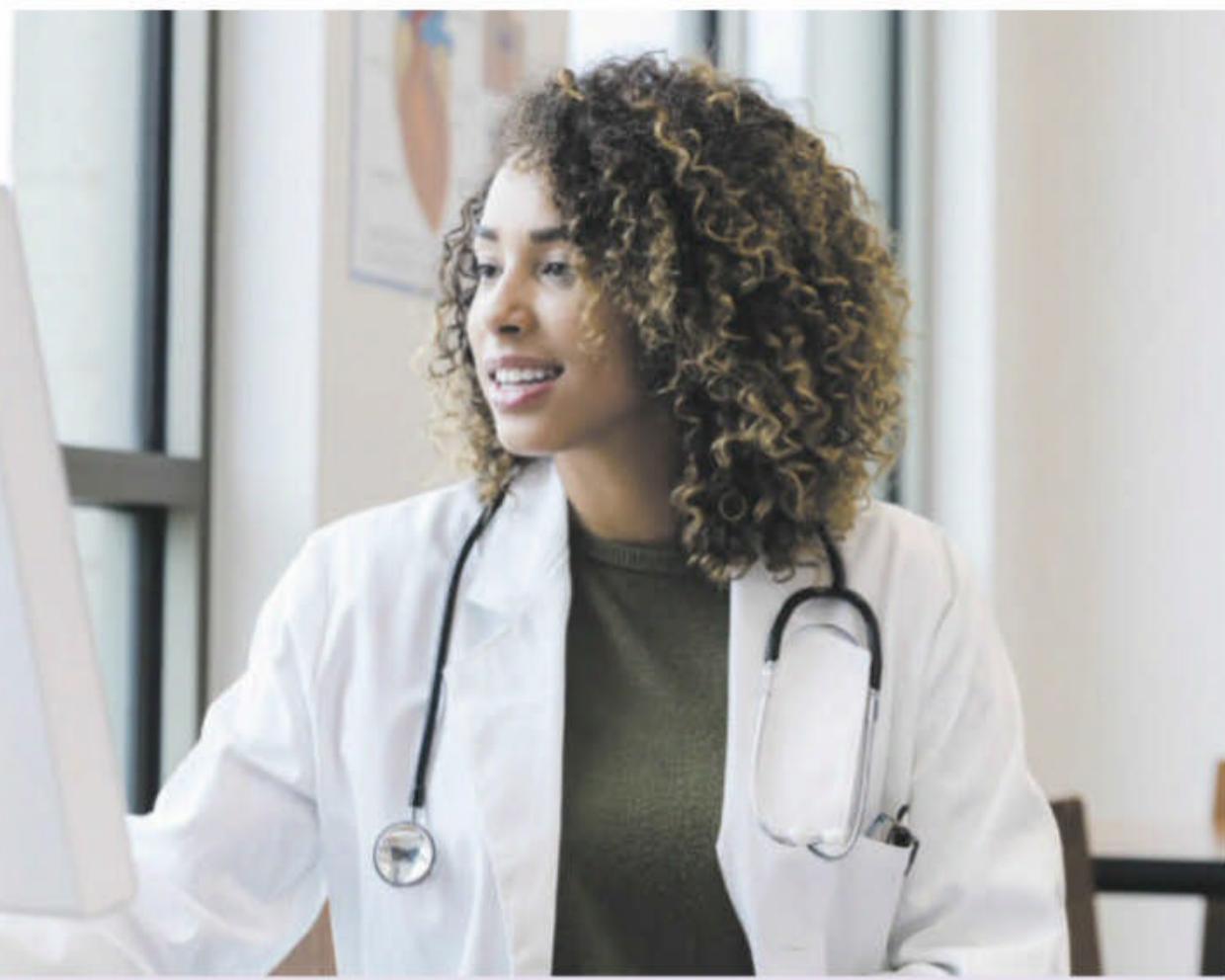
JANUARY 23RD–29TH 2021

Morning after in America





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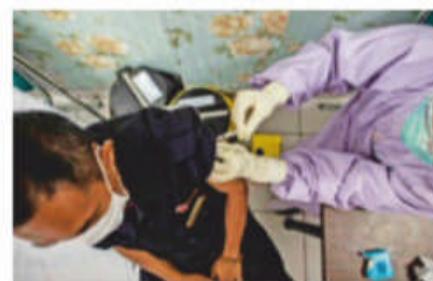
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The
Economist

Volume 438 Number 9229

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

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Joe Biden was inaugurated as the 46th president of the United States. Despite the small crowds, limited in size because of covid-19, the event marked a sea change in political tone. Mr Biden stressed “unity” in his speech, a stark contrast to Donald Trump’s “America First” theme four years ago. Mr Biden’s first official orders overturned many of his predecessor’s edicts, such as the ban on travel from some Muslim countries, and committed America to rejoin the Paris accord on climate change.

In his final hours as president **Donald Trump** issued a flurry of pardons. Among those on the list were Steve Bannon, a nationalist former adviser, and Anthony Levandowski, who had been convicted of stealing trade secrets from Google’s self-driving car project. Mitch McConnell, the top Republican in the Senate, shifted his earlier position and said that Mr Trump had “provoked” the mob that stormed Congress recently, leaving five people dead. Mr Trump still faces an impeachment trial in the Senate. If convicted, he may be barred from running for president again.

The National Rifle Association, America’s powerful pro-gun group, declared bankruptcy and said it would move its non-profit base from New York to Texas. At an initial bankruptcy-court hearing, New York state’s attorney-general said the NRA was trying to derail a fraud investigation.

The outgoing secretary of state, Mike Pompeo, said China was committing “genocide” against the ethnic-Uyghur population

in **Xinjiang**. It is highly unusual for the State Department to use that word about atrocities that do not involve mass killing. China dismissed his “outrageous lies” and called on the new administration to be “cool-minded”. Mr Pompeo’s successor, Antony Blinken, said he agreed with Mr Pompeo’s assessment.

Alexei Navalny, **Russia**’s most prominent opposition leader, returned to Moscow after spending five months in Germany recovering from an attempt on his life using Novichok, a nerve agent. He was immediately arrested and jailed. His team released a video showing viewers around a vast secret palace that he says President Vladimir Putin acquired with the “world’s largest bribe”. Mr Navalny called for countrywide protests on January 23rd.

Armin Laschet, the premier of North Rhine-Westphalia, the most populous German state, was chosen by a party congress to become the new leader of **Germany**’s Christian Democrats. This puts him in pole position to succeed Angela Merkel as chancellor later this year, though there are many obstacles ahead.

Italy’s government was cast into confusion after the prime minister, Giuseppe Conte, narrowly won a key vote that demonstrated he no longer has a majority in the Senate. He will hope to avoid an election, and will try to carry on leading a minority government.

The **Palestinian** president, Mahmoud Abbas, announced that parliamentary and presidential elections would be held in May and July. It has been 15 years since the Palestinians voted in a national election. Some see the move as an effort by Mr Abbas to lift his standing with the Biden administration.

Police and protesters clashed in several **Tunisian** cities, as frustration over a poor economy boiled over. The unrest came amid a four-day national

lockdown to stop the spread of covid-19. Some of those involved threw petrol bombs and looted shops. More than 600 people were arrested.

Yoweri Museveni was declared the winner of a presidential election in **Uganda**. He has been president since 1986. Bobi Wine, the main opposition candidate, is under house arrest. Security forces shot and killed scores of people after protests in November.

Aid workers warned of mass starvation in **Ethiopia**’s northern region of Tigray. Little food has been allowed in since fighting broke out in November between the federal government and forces loyal to a regional party. Some say the government is trying to starve the rebels into submission.

A former civil servant in **Thailand** was sentenced to 43 years in prison for sharing material critical of the monarchy online. The sentence would have been 87 years, but was halved because she pleaded guilty.

An earthquake struck the island of Sulawesi in **Indonesia**. More than 80 people were killed and 40,000 displaced.

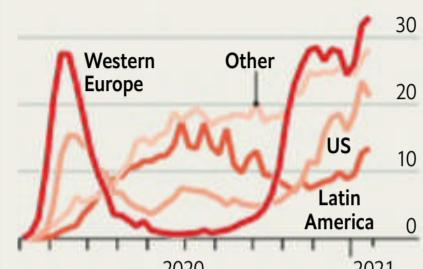
In **Guatemala** soldiers and police blocked 7,000 people trying to head from **Honduras** to America. Security forces used tear gas and truncheons to stop the caravan, the first large one to form since January last year. A few migrants managed to reach Guatemala’s border with Mexico.

Mexico’s government dropped its investigation of Salvador Cienfuegos, a former defence minister. America arrested Mr Cienfuegos in Los Angeles in October but sent him home on the understanding that Mexico would investigate allegations that he had links to a drug-trafficking gang. Mexico’s president, Andrés Manuel López Obrador, claimed that the American government had “fabricated” the case. America’s Department of Justice said it was “deeply disappointed”.

Coronavirus briefs

To 6am GMT January 21st 2021

Weekly confirmed deaths by area, '000



Vaccination doses

	This week, '000	Total '000	Per 100 people
Israel	651	2,937	33.93
UAE	757	2,161	21.85
Bahrain	45	144	8.44
Britain	1,744	5,070	7.47
Seychelles	4	7	7.12
United States	5,641	15,708	4.75
Malta	7	14	3.23
Denmark	52	182	3.14
Lithuania	26	60	2.22
Spain	480	1,026	2.19

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

The global **death toll** from covid-19 passed 2m, three months after it hit 1m.

The **Indian** government launched a vaccination drive with the aim of giving 300m people an injection by August. Most Indians are hesitant about getting the jab.

The **Netherlands** sought to introduce a curfew, its first since the second world war. It was complicated by the resignation of the entire cabinet over a scandal involving parents falsely accused of welfare fraud.

Joe Biden decided to keep a **travel ban** on most countries in the EU and Britain in place, after Donald Trump tried to loosen the rules as one of his last acts as president.

Britain was one of several countries to tighten border restrictions, suspending all travel corridors with countries with which it had reciprocal entry arrangements.

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

Janet Yellen, Joe Biden's pick as treasury secretary, urged senators to pass the new president's \$1.9trn **stimulus** package, saying there should be no compromise in helping people who are struggling through the pandemic. The measures have run into stiff opposition from Republicans, even among moderates, who balk at adding more stimulus to December's \$935bn package. Mr Biden's plan should easily clear the House. The Democrats also control the Senate, but may have to deploy a legislative tactic to get the bill through.

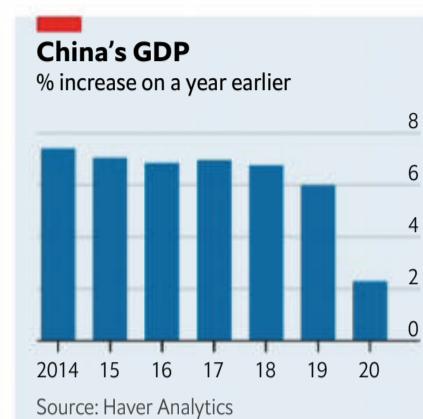
Filling out his nominees to head America's regulatory agencies, Mr Biden chose **Rohit Chopra** to be director of the Consumer Financial Protection Bureau. Mr Chopra is a staunch ally of Senator Elizabeth Warren, who helped set up the CFPB in the wake of the financial crisis a decade ago. Along with other Biden appointments, the nomination of Mr Chopra suggests that Wall Street will face tougher scrutiny in the new administration.

One of Mr Biden's first orders as president was to kill the **Keystone XL** oil pipeline, a project to carry crude from Canada to Nebraska that has been delayed for years because of opposition from greens and Native Americans. The decision is a blow to Alberta's oil industry, which will lose thousands of jobs as a result.

Seemingly unfazed by the pandemic, **America's big banks** reported another solid round of earnings. JPMorgan Chase posted its highest ever quarterly net profit, \$12.1bn. Like its peers, the bank benefited from trading in booming stockmarkets. Morgan Stanley's fourth-quarter profit of \$3.4bn was a record for the bank. Profit at Goldman Sachs for the quarter came in at \$4.5bn, up 135% year on year.

Lee Jae-yong, the boss of Samsung, was sent back to prison following his retrial for bribery. Mr Lee's incarceration complicates the South Korean

conglomerate's plan to re-organise its business, which is expected to include selling off non-core divisions to raise cash so that the Lee family can pay a \$10bn tax bill.



China's economy roared back in the last three months of 2020, growing by 6.5% compared with the same quarter of 2019. For the year as a whole, GDP expanded by 2.3%. Few other economies are expected to register positive growth. The fourth-quarter revival was helped by a surge in exports and state-backed industrial production. China recorded its biggest-ever trade surplus in December.

Supported by a group of British business leaders, **Eurostar** reiterated its request to the British government for a bailout. Operating trains through the tunnel linking Britain and France, Eurostar's passenger

numbers have plummeted by 95% since March. The British government sold its stake in 2015. Eurostar is majority owned by SNCF, the French state-owned railway company.

Cash-strapped, not cashless

London's transport authority, TfL, abandoned plans to make payments on the network completely cashless, after an experiment prompted by covid concerns last summer was criticised by the official watchdog. Covid is causing problems in other ways. TfL's finances are floundering as passengers avoid travel, and the mayor is reluctant to increase fares. Despite securing a £1.8bn (\$2.5bn) bail-out last year, TfL's financial plans recently submitted to the government forecast more than £3bn in shortfalls in each of the next two years.

United Airlines said it would need to make further cost-cutting measures, after the rate at which it was burning cash to keep flying during the pandemic rose sharply. Its annual loss last year was \$7.1bn.

General Motors announced a partnership with **Microsoft** in which vehicles being developed by Cruise, its autono-

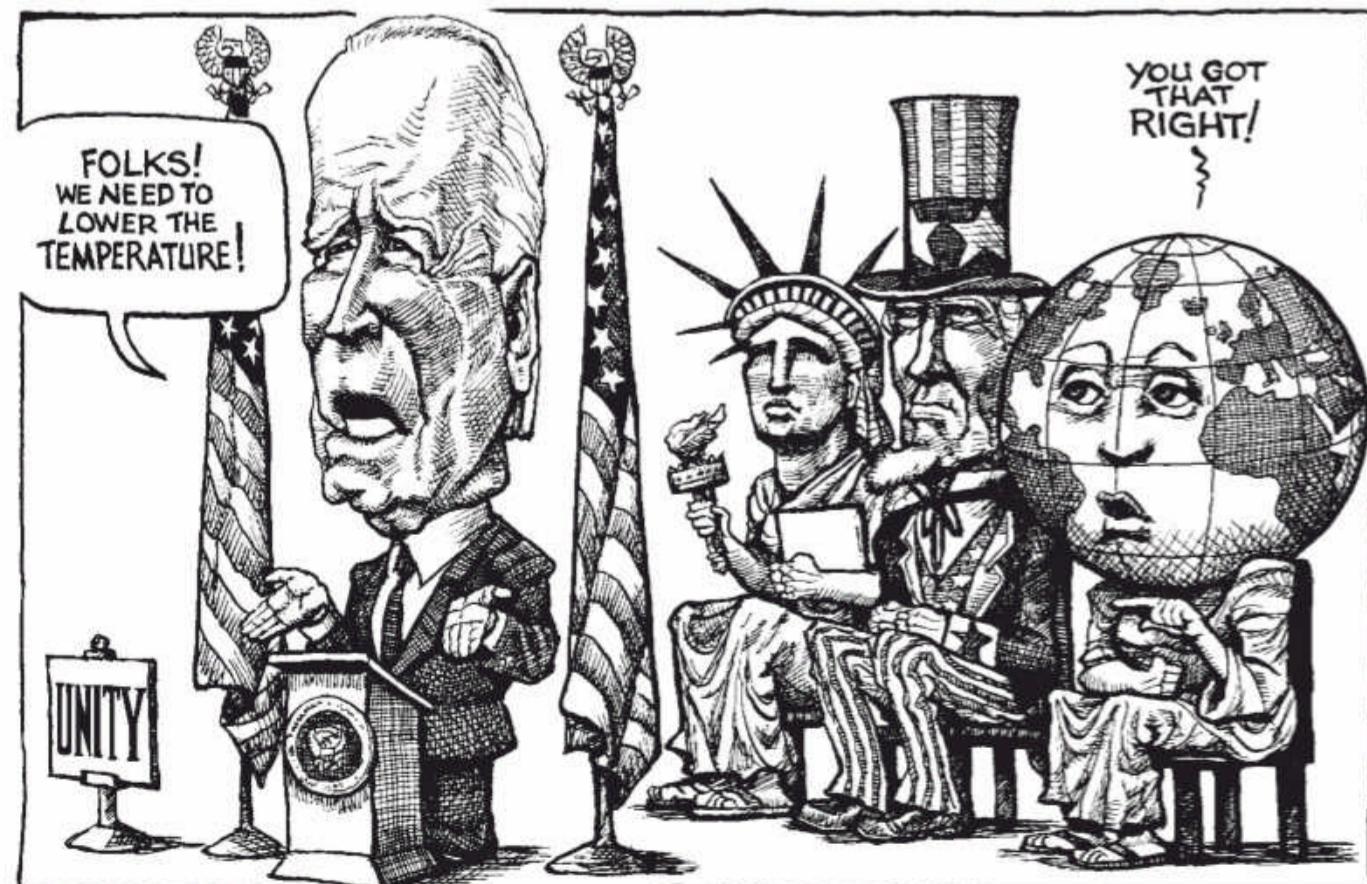
mous-car startup, will be plugged in to Microsoft's Azure cloud-computing platform.

Netflix added another 8.5m subscribers in the final months of last year, taking the total to almost 204m. The video-streaming service said it no longer required external financing to fund day-to-day operations and was looking at buying back stock. Its share price soared by 17%.

After a period of reflection...

Jack Ma surfaced in public for the first time since Chinese regulators scotched the IPO of his Ant Group and announced an antitrust investigation that in effect targets his business interests. According to state-backed tv, the founder of Alibaba said that after "studying and thinking" he and his colleagues are "more determined to devote ourselves to education and public welfare".

After a failed attempt last May, **Virgin Orbit** at last put its first satellites in space. The company launched the payload on a rocket that is carried under the wing of an old Virgin Atlantic 747 plane, making it theoretically possible to send satellites into space from anywhere in the world.



Morning after in America

The 46th president takes office at a grim time. Things could soon look up

JOE BIDEN has been dreaming of moving into the White House since at least 1987, when he first ran for president. How those dreams must have differed from the reality this week. The official toll of American deaths from covid-19 has passed 400,000. By the end of his first 100 days it may have passed 500,000. Millions of Americans have lost their jobs. Instead of observing the triumph of democracy in eastern Europe from the Oval Office, as the victor of the election in 1988 did, Mr Biden must contend with democratic decay at home. It is not an auspicious start. Yet, unlikely as it sounds, in the next few months the view from 1600 Pennsylvania Avenue could improve dramatically.

Mending America starts with getting the virus under control. Vaccinating the population will be a formidable operation that will test the ability of federal, state and local bureaucracies to co-operate. A slick campaign of the type the federal government masterminded to eradicate polio would save many lives. Yet even an imperfect vaccination programme will make a huge difference by the time spring turns into summer. Warmer weather, and hence longer spent outdoors, will help too. Covid-19 spreads exponentially. But once the number of people each person infects falls below one, it also dissipates exponentially.

This in turn will help America's economic recovery. Though the labour market is about as depressed as it was when Mr Biden was sworn in as Barack Obama's vice-president in the teeth of the financial crisis, this downturn is very different. Real disposable income probably rose at its fastest rate for two decades in 2020, a measure of the huge stimulus pumped into the economy by the federal government. The banking system looks sound. And the economic pain is not widespread, but concentrated among workers in businesses that depend on cramming lots of people into confined spaces. Many of them will find their services in demand again from Americans once they emerge from a year of hibernation.

Taking advantage of how the federal government can borrow at virtually no cost, Mr Biden's team is set on another \$1.9trn fiscal stimulus, bringing the total budget support since the pandemic hit to 27% of pre-crisis GDP. He may not be able to get that past the Senate, nor is it clear the economy needs all of it (see Finance & economics section). But even a trimmed-down version of the Biden opening bid—more money for vaccine distribution, extending unemployment insurance and expanding child tax credits—would have big effects. The tax-credit change alone could halve child poverty (see Briefing).

As for the political crisis that required 25,000 troops on the street at Mr Biden's inauguration, its causes will not soon fade. The Republican Party that became organised around a principle of loyalty to a man who has no loyalty to anything apart from himself, a dangerous coddling of racist factions and the rise of alternative facts: all were decades in the making. But the FBI is watching threats from domestic terrorism. The former president is just a citizen who might run for office again in 2024, assuming Congress does not bar him from doing so after his impeachment trial. And Mr Biden at his inauguration declared his clear support

for the rule of law and racial equality—which at another time might have sounded like platitudes.

This will help lower the temperature of American politics, which could open other possibilities. By working with Republicans eager for Congress to get things done, Mr Biden may yet be able to pass an infrastructure bill and something on climate change, as well as his covid-19 package. In textbooks, democracy involves solving problems through compromise and managing conflict in elections. With a president inclined to build a coalition, a little of that spirit might return to Washington. Voters may even prefer it to 24-hour partisan warfare.

That is what needs to happen. America faces challenges that require the government to help, not just get out of the way. America has done a worse job of keeping schools open in the past year than any other rich country (see United States section). Enrolments have fallen, suggesting that many children have dropped out of education. Higher death rates for African-Americans and Hispanics are a reminder that health is linked to skin colour. Four years of Donald Trump have hollowed out institutions and weakened constraints on malfeasance. His parting act was to pardon a doctor convicted of profiting from carrying out unnecessary eye treatment on hundreds of elderly patients. He rescinded his own executive order which would have stopped his administration's officials working as lobbyists.

The past four years have also created a problem for America abroad. At the back of their minds, foreign leaders know that the forces which brought Mr Trump to office could return with a future president, so any agreements American diplomats make risk seeming temporary. Mr Biden's foreign policy will also require a series of impossibly hard trade-offs. His team

needs the co-operation of the Russian government to sign an extension of the New START treaty on nuclear weapons, which expires on February 5th. Yet that same government has just locked up Russia's most prominent opposition politician, Alexei Navalny, after first attempting to kill him (see Leader). They need China's co-operation on climate change, even though China is engaged in what the outgoing administration has just labelled as "genocide" against the Uyghurs in Xinjiang.

Tricky corners in the Oval Office

A lot could go wrong. Senate Republicans may oppose everything Mr Biden suggests simply because he is a Democrat. The left of his party may turn sour on him for trying to make deals with Republicans. Politics has been simple during the Trump administration, which more often governed by inflaming partisan fights than fixing America's problems. Engaging with reality is much harder—especially when you are buffeted by events.

To have the best chance of success, Mr Biden should stick to his folksy brand of dogged centrism which is so well suited to the moment. Western allies should be patient and not expect a miraculous overnight transformation. The return of restraint to the White House will be only the first step in a long journey, but it is a necessary one for America's renewal. ■



Technology and geopolitics

Betting all the chips

The geopolitical struggle for supremacy in chips is entering a new and dangerous phase

WHEN MICROCHIPS were invented in 1958, the first significant market for them was inside nuclear missiles. Today about a trillion chips are made a year, or 128 for every person on the planet. Ever more devices and machines contain ever more semiconductors: an electric car can have over 3,000 of them. New types of computation are booming, including artificial intelligence and data-crunching. Demand will soar further as more industrial machines are connected and fitted with sensors.

For decades a vast network of chip firms has co-operated and competed to meet this growing demand; today they crank out \$450bn of annual sales. No other industry has the same mix of hard science, brutal capital intensity and complexity. Its broader impact is huge, too. When the supply chain misfires, economic activity can grind to a halt. This month a temporary shortage of chips has stopped car production-lines around the world.

And no other industry is as explosive. For several years America has enforced an intensifying embargo on China, which imports over \$300bn-worth of chips a year because it lacks the manufacturing capability to meet its own needs. Fresh strains in the chip industry are forcing the geopolitical fault-lines further apart. America is falling behind in manufacturing, production is being concentrated in East Asia, and China is seeking self-sufficiency (see Business section). In the 20th century the world's biggest economic choke-point involved oil being shipped through the Strait of Hormuz. Soon it will be silicon etched in a few technology parks in South Korea and Taiwan.

Start with the shifts in the industry. A surge in demand and those novel kinds of computation have led to a golden age in chip design. Nvidia, which creates chips for gaming and artificial intelligence, is now America's most valuable chip firm, worth over \$320bn. The quest to create bespoke chips in order to eke out more performance—think less heat, or more speed or battery life—is also drawing outsiders into the design game. In November Apple unveiled Mac computers powered by its own chip (it already uses its own in the iPhone), and Amazon is developing chips for its data centres. The design boom has also fired up dealmaking. Nvidia, for instance, is bidding \$40bn for Arm, which makes design blueprints. In the future a new open-source approach to designing chips, called RISC-V, could lead to more innovation.

Contrast this effervescence with the consolidation in chip-making. A gruelling 60-year struggle for supremacy is nearing its end. Moore's law, which holds that the cost of computer power will fall by half every 18 months to two years, is beginning to fail. Each generation of chips is technically harder to make than the last and, owing to the surging cost of building factories, the stakes have got bigger. The number of manufacturers at the industry's cutting-edge has fallen from over 25 in 2000 to three.

The most famous of that trio, Intel, is in trouble. It has fired its boss, an admission that it has fallen behind. It may retreat from making the most advanced chips, known as the three-nanometre generation, and outsource more production, like almost everyone else. That would leave two firms with the stomach for

it: Samsung in South Korea and TSMC in Taiwan. TSMC has just announced one of the largest investment budgets of any private firm on the planet. An array of corporate A-listers from Apple and Amazon to Toyota and Tesla rely on this duo of chipmakers.

The other big industry rupture is taking place in China. As America has lost ground in making chips, it has sought to ensure that China lags behind, too. The American tech embargo began as a narrow effort against Huawei over national security, but bans and restrictions now affect at least 60 firms, including many involved in chips. SMIC, China's chip champion, has just been put on a blacklist, as has Xiaomi, a smartphone firm. The cumulative effect of these measures is starting to bite. In the last quarter of 2020 TSMC's sales to Chinese clients dropped by 72%.

In response, China is shifting its state-capitalist machine into its highest gear in order to become self-sufficient in chips faster. Although chips have featured in government plans since the 1950s it is still five to ten years behind. A \$100bn-plus subsidy kitty is being spent freely: last year over 50,000 firms registered that their business was related to chips—and thus eligible. Top universities have beefed up their chip programmes. If the era of advanced chips being made in America may be drawing to a close, the age of their manufacture in China could be beginning.

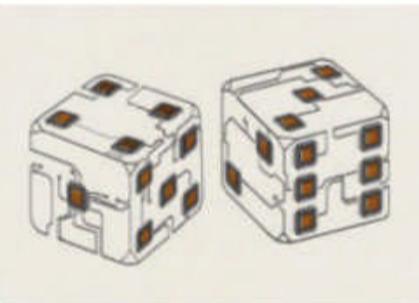
How worried should you be? It is hard to ignore the dangers. If

America withdraws from cutting-edge manufacturing and China continues to hurl resources at it, the White House will be tempted to tighten the embargo further in order to stymie China's development. That could have explosive consequences. And the inexorable logic of scale is set to lead to an alarming concentration of production. The manufacturing duopoly could start to use their pricing power. Already a fifth of all chip

manufacturing, and perhaps half of cutting-edge capacity, is in Taiwan, which China claims as its own territory and threatens to invade. The chip industry is poised for mutually assured disruption, in which America and China each have the ability to short-circuit the other's economy.

Chips and old blocs

Some hawks in America and Europe want to respond with a subsidy bonanza of their own: socialism for semiconductors. But that would dampen the free-market renaissance in chip design and is, anyway, likely to fail. Instead, chip-users such as Apple should press TSMC and Samsung to diversify where factories are. America must urge Taiwan and South Korea to cut their soft subsidies for chip plants, so their firms have more incentive to build factories around the world. Last, President Joe Biden needs to create a predictable framework for trade with China in sensitive sectors, including chips, that allows it to participate in global supply chains while safeguarding Western interests. His predecessor oversaw a chaotic array of controls aimed at impeding China's development, in chips as well as finance. These gave it an incentive to develop its own alternatives faster. The first chips may have been used in missiles, but it would be wise to avoid them becoming a flashpoint in a 21st-century cold war. ■



Vaccination

A marathon ahead

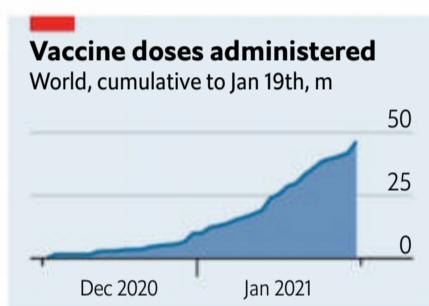
Even as governments sprint to get vaccination done, they need to keep an eye on what comes next

IT HAS BEEN described as a race between infections and injections. If so, infections are still winning. About 5m new cases of covid-19 a week are being recorded around the world. As we went to press, some 51 countries had begun to administer vaccines, according to Our World in Data, a website; over the previous week 17m people had been vaccinated, but the global total of doses was still below 50m. Only five countries had given the first dose to more than 5% of its population.

The inoculation effort is generating frustration in countries like France, which got off to a slow start, and rejoicing in Britain, which has so far done well (see Britain section). Both the despair and the joy are premature. Plenty will happen in the months before most countries create enough immunity to suppress the spread of the virus. In the interim, much will depend on how successfully their governments manage lockdowns.

At the moment most of their energy is going into sorting out the logistics of vaccine distribution, which they can directly control. However, as Britain may be discovering, vaccine supply is what matters most. The good news is that more doses will become available, as manufacture scales up and new vaccines win regulatory approval. One from Johnson & Johnson, expected to report trial results late this month, could inoculate 1bn people during 2021.

While countries wait for supplies, the central role in keeping the virus at bay will be played by non-pharmaceutical interventions (NPI), including masks and lockdowns. Modelling from Britain suggests vaccination's benefits will take time to show up in intensive-care wards. These are full of people in their 50s and 60s because those older than this are often too frail for ventilators and other interventions. When intensive-care wards are full, mortality is a quarter higher than expected. If highly infectious new variants of the virus take hold, NPI regimes may even need to be tightened, as Germany's was this week.



Lockdowns impose a burden on freedom and a heavy financial cost. Pressure will therefore mount for vaccinated people to be able to move around freely, even if at first they will be too few in number to make much difference to the economy. If governments ignore calls for "vaccine passports" to permit this, the vaccinated are likely to change their behaviour regardless. Some businesses may introduce informal systems.

For vaccine passports to make practical sense, epidemiologists need to understand how well vaccination stops people spreading the disease—because it would be harmful if those who were safe infected others yet to receive a jab. Early work from Israel, which has inoculated a greater share of its population than any other country, suggests that the Pfizer-BioNTech vaccine does indeed slow transmission a bit, but more research is needed to inform an effective passport regime (see Science section).

Vaccine passports also raise ethical questions. When so much rides on having one, the question of who gets a jab when will matter even more than it does today. If groups are arbitrarily pushed back in the queue, programmes will become mired in controversy. Vaccination must be free to rich and poor alike, and allocated by efficacy and clinical need. That can be hard to reconcile with the requirement not to waste scarce supplies, which argues for convenience.

There are complications, too. If vaccinated people can roam, those with acquired immunity will clamour for the same freedom: they are no more infectious, after all. Yet antibody tests are unreliable. It is not clear how long such immunity lasts or, in individuals, when they actually caught the disease and the clock started ticking. Some fear the implications for privacy if the state can check on citizens' health. In principle, vaccine passports are a good idea. In practice, governments face a host of questions—some of which can be answered only through more epidemiological research. They need to start work on it today. ■

Russia

The return

The world must not accept the jailing of Alexei Navalny

IN A DEMOCRACY the battle for power involves elections, media skirmishes and the occasional metaphorical stab in the back. In Russia it is literally a matter of life and death. To oppose President Vladimir Putin requires not only charisma and clear vision but also physical stamina and courage. Alexei Navalny possesses these qualities in abundance.

The Kremlin has tried hard to neutralise him. Prosecutors have levelled a series of trumped-up criminal charges against him. State propagandists have amplified them, and added imaginary calumnies to the mix. Last year Russia's security services slipped him a nerve agent in a botched attempt to murder him.

Mr Putin no doubt hoped that after all this Mr Navalny would be scared into permanent exile. Instead, on January 17th, five months after falling into a coma and being evacuated to Germany on a stretcher, Mr Navalny boarded a low-cost airline called Pobeda (Victory) and flew back to Moscow.

He was grabbed at the border, spirited off to a police station and put on trial there at one minute's notice. The charge was violating parole—while lying in a German hospital, he had been unable to check into a police station in Russia. He was found guilty, of course, and sentenced to 30 days' imprisonment. He awaits a second trial scheduled for February 2nd that could see him ►

locked up for three and a half years and possibly much longer.

Yet still he torments his tormentor. On January 19th he released a two-hour film about Mr Putin's billion-dollar secret palace on the Black Sea, set on an estate 39 times larger than Monaco, with an underground ice-hockey rink, a casino and a red-velvet hookah lounge and dance pole. This was bought with "the biggest bribe in history", Mr Navalny's team claimed. (The Kremlin denies that the palace belongs to Mr Putin.) In less than a day the video had clocked up 20m views on YouTube.

Mr Navalny's conviction has plunged Russia to a new nadir of lawlessness. In the room where he was tried, there was even a picture on the wall of the head of Stalin's secret police. The violence unleashed by the Kremlin on its opponents is a threat not only to Mr Navalny, but also to ordinary Russians. A kleptocracy and repressive regime cannot go into reverse and requires new fodder to keep itself in power. What happens next depends largely on how the population and the elite respond. A nationwide protest called by Mr Navalny on January 23rd, ahead of his new trial, will be a critical test.

A lawless Russia is a threat to the outside world, too. Repression at home is rarely isolated from aggression abroad, as Mr Putin has repeatedly shown. His arrest of Mr Navalny, who was

treated as Angela Merkel's personal guest while he was in Germany, is a slap in the face for the German chancellor and the West. It also presents a challenge to the incoming administration of President Joe Biden who, unlike his predecessor, sees Mr Putin's Russia as one of the biggest threats to American security.

Mr Biden's incoming national security adviser, Jake Sullivan, set the right tone by issuing a sharply worded demand for Mr Navalny's release within hours of his arrest. But words are not enough. Mr Biden should lead a coalition to grapple with Russia's corruption and its Western enablers (see Finance section). It should impose personal sanctions not only on Mr Putin's cronies and those responsible for poisoning and jailing Mr Navalny, but also on the much larger number of corrupt officials and politicians who have laundered or spent their ill-gotten wealth in the West in the past two decades of Mr Putin's rule.

Mr Navalny is risking his freedom and his life to stand up to a brutal, crooked regime. Mr Putin may command an army, the security services and a nuclear arsenal. But he is still afraid of the truth. Mr Navalny's courage has captured the world's imagination and put the Kremlin on the defensive. He deserves support. What becomes of him matters not only to Russia—a vast, talented country captured by rapacious ex-spoons—but to the world. ■

Ethiopia's civil war

Wielding hunger as a weapon

Abiy Ahmed's government appears to be trying to starve a rebel region into submission

ETHIOPIA HAS suffered famines in the past. Many foreigners know this; in 1985 about one-third of the world's population watched a pop concert to raise money for starving Ethiopians. What is less well understood is that poor harvests lead to famine only when malign rulers allow it. It was not the weather that killed perhaps 1m people in 1983-85. It was the policies of a Marxist dictator, Mengistu Haile Mariam, who forced peasants at gunpoint onto collective farms. Mengistu also tried to crush an insurgency in the northern region of Tigray by burning crops, destroying grain stores and slaughtering livestock. When the head of his own government's humanitarian agency begged him for cash to feed the starving, he dismissed him with a memorably callous phrase: "Don't let these petty human problems...consume you."

Things were supposed to be different under Abiy Ahmed, the Ethiopian prime minister who was hailed as a reformer when he took charge in 2018, and who won the Nobel peace prize the following year. Yet once again it looks as if hunger is being used as a weapon in Africa's second-most populous nation. And once again the scene of the horror is Tigray. Since fighting broke out in November between federal forces and those of Tigray's rebellious former ruling party, perhaps 2m out of 6m Tigrayans are thought to have fled their homes. Many could now starve because the government has let so little food into the region (see Middle East & Africa section).

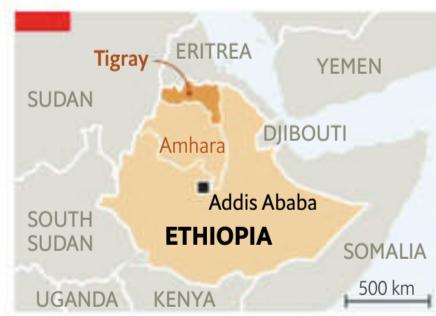
Aid agencies guess that between 2m and 4.5m people need urgent assistance. They cannot be more precise because the phone networks are down and the government has barred reporters from entering Tigray. The few who make it in return with horrifying accounts of ethnic killings, mass rapes—and starvation.

Plenty of food is available. Charities and UN agencies have been trying to get supplies through for months. But Ethiopia's Orwellian Ministry of Peace has sent them on a paper chase for permits. "For more than two months there has been essentially no access to Tigray," says Mark Lowcock, the UN's humanitarian chief. "There are 450 tonnes of supplies we've been trying to get in that are stuck." On those occasions when the federal government grants permission for an aid lorry to pass, it is typically stopped en route by regional governments, which insist that they, too, need to give permission, or halted by troops inside Tigray. Meanwhile there are credible reports of government forces

or their allies killing livestock and burning crops. If true, both the perpetrators and those who gave the orders are guilty of war crimes.

Abiy insists that his troops are respecting humanitarian law. The conflict is not a civil war, but a mere police action, he claims. His government claims that restrictions on aid workers are for their own safety. Few believe him. Moreover, many observers fear that the fighting has grown too complex for the government to control. Troops from neighbouring Eritrea have joined the fray, as have militias from a rival ethnic group, the Amhara.

Outsiders should press all parties to let civilians eat. Josep Borrell, the EU's foreign-policy chief, has suspended €88m (\$107m) of budget support until aid agencies are given access to Tigray. This is a good first step. Others, such as America and Britain, should add financial pressure. Ethiopia is desperately short of foreign currency, and depends on loans and grants from the IMF and World Bank. Until its government allows food into Tigray, donors should not give it another dollar. ■



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Nudging people to vaccinate

"Vaccinating the world" (January 9th) touched on the dangers from people who refuse to take the covid-19 jab in countries such as France. This is no small piece of the puzzle. In tandem with supply and distribution, tackling people's fears about the vaccines must be a priority for public-health officials.

We have seen this before. The reason it took decades to eliminate wild polio from Nigeria was that communities in the north of the country believed the vaccine was designed to harm, not help, them. Nigeria's experience with polio has given it an advantage in overcoming vaccine hesitancy. It can be done. Most important, we listened and learned to understand people's fears and scepticisms. We offered the vaccine free and trained an army of workers to knock on doors advocating for it. We packaged it with other public-health services people wanted, such as malaria treatments and access to clean water.

Dismissing people and communities who are cautious of a vaccine will not work. That is as true in France as it is in Nigeria. And there is no such thing as partial eradication of a virus: covid-19 vaccines need to be rolled out to every country and across every community as fast as possible.

DR FAISAL SHUAIB
Executive director
National Primary Health Care
Development Agency
Abuja, Nigeria

Ditch party primaries

Another factor that has led to the current state of American politics ("Trump's legacy", January 9th) is the pernicious effect of party primaries. Energetic and well-organised minorities of interests vote in the primaries for ideologues, who are guaranteed almost-certain election in gerrymandered districts dominated by their party. The system produces increasing numbers of rigid partisans in Congress. It also explains why Republican

legislators found it so difficult to challenge Donald Trump. They knew that their seats were at risk if they defied the zealous Trump primary base.

The problem of hyper-partisanship would be reduced by the widespread adoption of non-party blanket primaries, in which all candidates, Democrat and Republican, compete on the same primary ballot for a spot on the general election ballot. The top two go through. If both candidates are from the same party they have to compete against each other in the general. They would therefore have to appeal for votes across the political spectrum; those pandering to a narrow base, no matter how energised, are less likely to win.

WILLIAM HORNS
Fitchburg, Wisconsin

A Scottish import

You described bannock as an indigenous fried bread in Canada ("No source for soy", January 2nd). It is not of indigenous origin. The word and the food came to Canada with Gaelic-speaking traders and explorers. Variations include baked and fried versions of oatcake, and other breads well-known in Scottish cuisine. Lest one forget, the Scots did rather nicely at the Battle of Bannockburn, centuries before their descendants brought bannock to North America.

EILEEN HEASLIP
Liverpool, Canada

Defeating malaria

The world's response to a novel disease, covid-19, gives us renewed hope that we can edit history and end humanity's oldest scourge: malaria ("History, written by the vectors", December 19th). Malaria deaths globally have nearly halved since 2000, but the advances resulting from effective bed nets, insecticides and treatments have now stalled, and renewed investment in localised, data-driven strategies and in new tools is necessary to achieve the feasible goal of eliminating malaria within a generation.

Just as covid-19 vaccines will transform health, economies, and the way of life for us all, an effective malaria vaccine will do so for those at risk of malaria—nearly half the world's population. We urge investment in the acceleration of the final stages of a game-changing malaria vaccine, such as that developed by Oxford's Jenner Institute, with the same vigour that has delivered covid-19 vaccines in less than a year.

J. CHRISTOPHER FLOWERS
E. NEVILLE ISDELL
Co-founders
Isdell:Flowers Malaria
Initiative
New York

You didn't mention tonic water, as used in gin and tonic. Developed in the early 19th century a key ingredient was quinine, a medication used to treat malaria. Hence its popularity in British India.

CAROLINE CRACRAFT
Chicago

Defending democracy

Further to your country of the year (December 19th), could I add a special word on behalf of the Malawi Defence Force. In December 1993, as Kamuzu Banda, the long-term dictator, was dragging his heels over elections, a bar-room brawl with the Malawi Young Pioneers, his personal paramilitary force, resulted in the death of two army soldiers. Seething in the ranks led junior officers to lock up their superiors. Over the next two weeks the defence force systematically destroyed the paramilitaries, killing 25 but allowing the rest of them to return to civilian life.

The army then returned to base. The property of expatriates, Indians, rich Malawians and other likely scapegoats was left untouched. Banda and his party were left in power, though without any. No other officials were removed, no other political demands were made. There were no riots or lynchings or even imprisonments. Although bent slightly, the constitution was respected.

The consequence of this non-coup was a sudden blossoming of political parties and newspapers, and the birth of a vibrant democracy. The attempted succession in 2012 of Peter Mutharika that you discussed was foiled by the army protecting Joyce Banda, the rightful next president. In the mess following the 2019 election, when the police attempted to suppress demonstrations, the army stepped in to defend the protesters. There is more to Malawi's democracy than the army, but its ever-present promise of strong (non) involvement in Malawi's politics means that opposition activists, demonstrators, whistle-blowers and judges know that it has their back.

GEOFF WILLIS
Banbury, Oxfordshire

We're all just naked apes

As Johnson rightly notes, we humans need regular undemanding social interactions such as small talk to support our well-being (January 2nd). As a primate species that is relatively hairless we are unable to use grooming rituals to establish and maintain social bonds. Chatting about the weather and stock performances is our equivalent of removing salt crystals and lice from each other.

ALLAN MILNE LEES
Bath

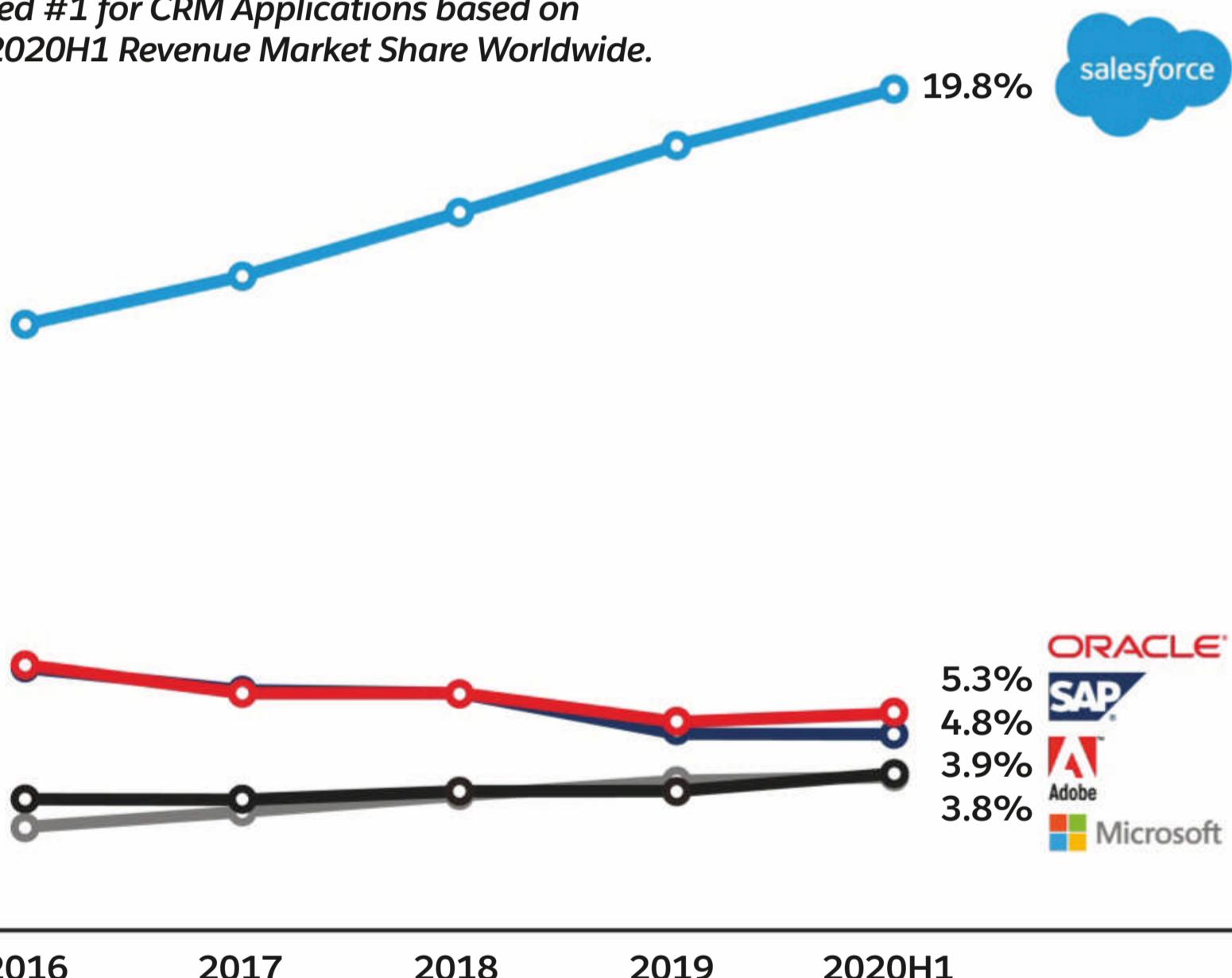
Sweet potatoes

Rather than heading to Ireland to visit a potato theme park, Alan Finlayson (Letters, December 19th) should consider going to Munich to visit the Potato Museum, the Kartoffelmuseum. It describes itself as "one of only a handful of museums worldwide devoted to the humble spud".

MALCOLM MACDONALD
Kidwelly, Carmarthenshire

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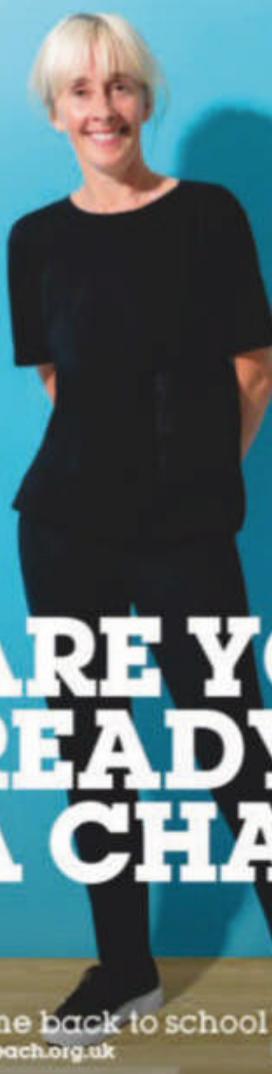
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Good luck, Joe

WASHINGTON, DC

After the chaos of the Trump era, what can the new president hope to achieve?

MANY PRESIDENTS assume office in the grip of a crisis. Joe Biden faces at least four. Covid-19 is a public-health disaster: the disease has killed over 400,000 in America and continues to rage while a disorganised vaccination drive sputters. The virus has wreaked economic devastation: 10m fewer Americans are employed than before the pandemic; two-thirds of children cannot attend school in person; one in eight adults are skipping meals. Bitter divisions over racial justice fester. And a partisan rancour has poisoned Americans' faith in their democracy.

Mr Biden acknowledged this in his inaugural address on January 20th. He spoke to an America that feels perhaps more deeply divided than at any time since Abraham Lincoln delivered his second in 1865, when the Confederate rebellion was in its death throes. "With malice toward none, with charity for all, with firmness in the right...let us strive on to finish the work we are in: to bind up the nation's wounds," urged Lincoln. Two weeks after an insur-

rectionist mob hoisted the Confederate battle flag in the Capitol—something Confederate soldiers had not done during the civil war—Mr Biden called for a moment of national healing. "Without unity, there is no peace, only bitterness and fury."

During his campaign Mr Biden vowed to restore America's soul. That is a daunting task. After Donald Trump's supporters vandalised the Capitol, an impeachment trial for the former president looms. At least 25,000 members of the armed forces were stationed in Washington, DC—more than are currently deployed in Afghanistan and Iraq combined—to secure the peaceful transition of power. For the first time in 150 years the outgoing president skipped the ceremony. More than 80% of Mr Trump's supporters believe his damaging lie that the election was stolen.

And yet Mr Biden looks well suited to the work at hand. He assumes the presidency after nearly half a century in government. He is a conciliatory elder statesman who may serve only one term, not a culture

warrior hellbent on securing re-election. His cadre of experienced appointees (see graphic overleaf) will immediately wield the tools of the administrative state to undo much of the damage of the Trump era. Harsh immigration policies will be lifted. The drive to weaken environmental protections will be reversed. European allies jittery about America's commitment to mutual defence and combating climate change will be reassured.

More lasting change will require legislation. Both chambers of Congress are under Democratic control, albeit by the narrowest of margins. The Democrats hold the House of Representatives by just four seats. They will retain control of the Senate—which is split equally between the two parties—thanks only to the deciding vote of Kamala Harris, the vice-president.

Marshalling enough support to pass serious reforms will be possible, but will require bipartisan negotiations and a ruthless mastery of the Senate last demonstrated by Lyndon B. Johnson. Any lone dissident Democratic senator, of left-leaning or conservative convictions, or a sufficiently large bloc of Democrats in the House (a squad of six, say) will be able to scuttle Mr Biden's proposals in the face of unified Republican opposition. The filibuster, a procedure which allows an obstreperous minority to block most laws unless 60 of the 100 senators vote otherwise, will almost certainly remain in place.

► As a result, those on the left of the new president's party are destined to be disappointed. During the Democratic primary Mr Biden rejected their most contentious proposals, including Medicare for All, the Green New Deal, and defunding the police. Other sweeping ideas such as packing the Supreme Court with new justices or ditching the electoral college look impossible.

And yet Mr Biden's opposition to his party's most radical ideas has obscured the fact that he hopes to govern well to the left of Barack Obama and Bill Clinton. His New Deal-esque agenda will retain populist economic ideas, such as minimum-wage increases, industrial policy and substantial government spending.

The early days of the administration will be dominated by legislation to contain covid-19 and further cushioning its economic fallout. The logic is clear. The proposals to "build back better", as the new president's team calls it, will address America's most urgent crises. They may also attract Republican votes and should conserve Mr Biden's political capital for more fraught matters later on. That does not mean that they will be modest.

Ready, steady, Joe!

The first order of business, which Mr Biden outlined in a speech on January 14th, will be another covid-19 relief bill, costing \$1.9trn. It would provide \$160bn to pay for a national vaccine programme, expanded testing and contact-tracers. It would shovel more cash to Americans via cheques of \$1,400 per person, increases in unemployment benefits and a temporarily enhanced child tax credit (a policy which would, almost on its own, halve poverty among children). Republicans may balk at the cost—their worries about the deficit and debt are noticeably more acute under Democratic presidents—or some of its provisions, such as increasing the national minimum wage to \$15 an hour. But the proposal cannot be accused, as some of Mr Obama's were, of

pre-emptive compromise.

Mr Biden's economic team has dubbed this bill a "rescue" measure. Hard on its heels will come a "recovery" bill, the details of which are yet to be unveiled. If the first foray into policymaking is any indication, it too will probably be a juggernaut. The recovery bill will propose massive infrastructure spending, perhaps the \$2trn pledged in the campaign. It would also be the primary vehicle for some of Mr Biden's most ambitious climate-change pledges. Mr Biden has promised to ensure universal broadband access, spend \$400bn on energy and climate research and create 10m new clean-energy jobs on the way to decarbonising the electricity sector by 2035 and the economy as a whole by 2050. The trillions proposed will also channel Mr Biden's neo-Rooseveltian instincts: he nostalgically aims for a domestic manufacturing renaissance powered by unionised workers.

These are opening, maximalist positions. They give a sense of the scale of Mr Biden's ambitions to exploit the crises he faces—and the fractious state of Republicans fighting over the legacy of Trumpism—to remake the American economy. They hint at his strategy for placating the left-wing gadflies of his party (who are also grudgingly thrilled at the diversity of his otherwise conventionally centrist appointees). Mr Biden seems to have grasped that unified control of government is a necessary but not sufficient condition for passing major legislation. Mr Clinton in 1993, Mr Obama in 2009 and Mr Trump in 2017 all came to Washington with the gift of an agreeable Congress. They squandered much of their political capital on trying to push through health-care legislation. Only Mr Obama succeeded.

One cliché of American politics is that such legislative overreach produces the swing back to the opposition party typically seen during a president's first mid-term elections. The last five presidents have lost on average 31 seats in the House of Repre-

sentatives during these elections (and two in the Senate). For Mr Biden, that would spell the loss of both chambers, probably dooming the chances of any serious law-making for the final two years of his term.

Democrats have learned from the drubbing Mr Obama received in 2010. The issues that provoke deep partisan divisions and sap political capital—such as sweeping reforms of the immigration system—may be introduced for debate in Congress but any serious action will probably have to wait.

Can they work this out?

Even with such caution and concerted whipping from party leaders, Mr Biden will have to work hard. He has two routes to success. The first would be to attract enough Republican support—ten senators under the current configuration—to neuter the threat of a filibuster. Some who remember the obstinacy of Mitch McConnell, the Republican leader in the Senate under Mr Obama, think it is foolish to expect any differently of him or his caucus. But Mr Biden and his allies maintain a starry-eyed optimism for bipartisan dealmaking. "If the Republicans will recognise this as a watershed moment for them, their party and our country, I think there's nothing we can't do together," says Chris Coons, a Democratic senator from Delaware.

Mr Trump's debasement of his party might be the deciding factor. A few moderate Republican senators most disaffected with Trumpism—such as Susan Collins, Lisa Murkowski and Mitt Romney—could band with conservative Democrats to become the crucial negotiating bloc for all major legislation.

The alternative is reconciliation, a special procedure for passing an annual budget which cannot be filibustered and so could squeeze through with Democratic votes alone. But it has its limits. The rules for such bills are fiendishly complicated. Most importantly policy changes must be principally—not incidentally—budgetary, ►

Proposed cabinet officials, to January 20th 2021



Vice-president
Kamala Harris*
Former senator



State
Antony Blinken
Former deputy sec.



Treasury
Janet Yellen
Former Fed. chair



Defence
Lloyd Austin
Retired general



Justice
Merrick Garland
Judge



Interior
Deb Haaland
US representative



Agriculture
Tom Vilsack
Former sec. of agri.



Commerce
Gina Raimondo
Governor



Labour
Marty Walsh
Mayor
*Sworn in Jan 20th



Health
Xavier Becerra
State attorney-general



Housing
Marcia Fudge
US representative



Transport
Pete Buttigieg
Former mayor



Energy
Jennifer Granholm
Former governor



Education
Miguel Cardona
State education commissioner



Veterans Affairs
Denis McDonough
Former White House chief of staff



Homeland Security
Alejandro Mayorkas
Former DHS deputy secretary



► and cannot add to the deficit over the long run (usually ten years). Those restrictions create fiscal cliffs and lead to huge swings in future tax and spending. They also demand kludgey redrafting to ensure that they are mainly budgetary, says Molly Reynolds of the Brookings Institution.

Much of Mr Biden's agenda—the parts related to taxation and spending—could be passed through reconciliation. The covid-relief cheques, the clean-energy investment plan, enhanced unemployment insurance and child tax credits look achievable. So does the promised repeal of many of Mr Trump's tax cuts. But other ambitious ideas may fall victim to internecine Democratic squabbles, including a carbon tax, lowering the Medicare eligibility age, expanding subsidies for child care, and some student-loan forgiveness.

Reconciliation is less useful for ideas that are principally regulatory—such as a national minimum-wage rise or an ambitious clean-energy standard. It could not be used for other priorities of the left, such as immigration reform or new voting- and civil-rights legislation. In theory reconciliation can be used only for the annual budget. But since Republicans did not pass a budget resolution for the current fiscal year, the Biden administration will have two opportunities in quick succession to employ the procedure. One could be devoted to the rescue package and the other to the recovery package. If both become law, they could be the start of an unusually successful presidency—unmarred by the gridlock and frustration of the Obama era.

Mr Biden departs from Mr Obama's cerebral approach to legislating but he shares his view of the expansive powers of the administrative state. Within hours of his inauguration he signed a slew of executive orders signalling the end of the Trump era. The ban on travel from certain Muslim countries was rescinded. America will

swiftly rejoin the Paris climate accord and World Health Organisation. The administration will organise a global climate-change summit. The drawn-out process of reversing Mr Trump's deregulations on emissions will begin, though these will probably be tied up in the courts for years.

Federal regulators will perk up. Under the former president, the Environmental Protection Agency was slow to enforce rules. The Consumer Financial Protection Bureau was effectively neutered. Both will pursue their mandates with new vigour. The broad powers already afforded to the Department of Justice to investigate police departments and civil-rights violations could provide a solid start to the current rather nebulous racial-justice agenda.

Getting his house in order

These domestic concerns will almost certainly dominate at least the first year of Mr Biden's presidency. Though he has taken a keen interest in foreign policy throughout his long career, it will take a back seat—for now at least. "To be an effective global power, you have to be stable at home," says Nicholas Burns, a professor of diplomacy at Harvard. Mr Biden will not be able to ignore the demands of the rest of the world entirely. Most pressing will be restoring relations with allies in NATO and elsewhere after a frosty four years. An arms-control treaty with Russia expiring in February will force hasty negotiations. Plans will have to be made to fulfil Mr Biden's pledge to withdraw troops from Iraq and Afghanistan.

But the biggest foreign-policy matter to loom over the Biden administration will be managing great-power competition with China. "It worries me that we've got these two giant superpowers moving as if by remote control towards conflict," says Angus King, an independent senator from Maine who caucuses with the Democrats. Mr King believes that a stable, bipartisan consensus

on the subject is within reach. "This is a place where President Trump's instincts were correct. His implementation was wrong. The fact that China needed to be confronted, I think, was absolutely correct." Indeed, there is no indication when or even if Mr Biden would lift the tariffs put in place on Chinese goods. Unlike Mr Trump's fixation on bilateral trade deficits, these will instead be justified on grounds of human-rights abuse, theft of intellectual property and climate change.

The spectre of Mr Trump will linger. The new administration may have to get through his impeachment trial—which would be the first to be held after a president has left office. Mr Biden, who has tried to stay above the partisan fray on the efforts, worries that a Senate engrossed in evidence against his predecessor for alleged high crimes will dally in confirming his nominees and debating his covid-relief package. Others disagree. "I happen to think we can do two things at once," says Mr King, the senator from Maine. "We can have, for example, hearings on nominations in the mornings and the trial in the afternoon. I don't think the trial is going to take as long as the prior one did. In fact, the jury in this case were all witnesses."

Whether or not Mr Trump is convicted, the damage done by his presidency is deep. Nearly 70% of American voters think members of the other party are "a threat to the United States and its people"; 50% conclude that they are "downright evil". Such feelings predate Mr Trump and indeed created the conditions for his ascent. His innovation was to emphasise white grievance and add a dangerous strain of disbelief in the legitimacy of elections. Having shattered norms like the belief in democracy and the non-violent transition of power, Mr Trump cannot be counted on to adhere to the lesser professional courtesy of refraining from criticising his successor. He did not shy away from inflaming racial animus or culture wars while in office. It would be naive to expect more dignity having left it, as he eyes a comeback in 2024.

In his first inaugural address, as the Union fractured, Lincoln appealed to "the better angels" of Americans' nature. His pleas could not prevent the worst conflict in American history. There are echoes of other moments of crisis in this transition—the recession presidencies of Franklin Roosevelt and Mr Obama; the pandemic ignored by Woodrow Wilson; the racial strife under Dwight Eisenhower and Johnson. For a president to navigate any one of these crises would be gruelling. To navigate them all at once will be a formidable job. Yet that is Mr Biden's charge. ■

**Vaccination politics**

Restoring the faith

LICHFIELD

A successful vaccination drive is crucial to Boris Johnson's battered government

IN MEDIEVAL TIMES pilgrims came to Lichfield Cathedral to visit the shrine of St Chad, the dust from whose bones was said to cure all manner of ills. Today, a scarcely less miraculous scene is unfolding. A trickle of pensioners, bundled against the cold, leaning on sticks and walking frames, processes through the great arched doorways. Beneath a crucifix, around 700 a day are being vaccinated against covid-19. For some, it is their first journey outdoors since England's lockdowns began in March, says the Very Rev Adrian Dorber, the dean. "This is quite a big act of faith for them to come."

Britain's covid-19 vaccination drive has had a strong start. Rugby grounds, village halls, theatres and a Sikh temple have been turned over to the most vital logistical effort since the second world war. By January 19th, 4.6m people had received the first of two doses of a vaccine against coronavirus, which places Britain fourth in the world for

the percentage of people vaccinated. The government hopes to issue a first dose to all care-home residents, the clinically vulnerable and the over-70s—a group of around 15m people who account for nine in ten covid-19 deaths—by mid-February.

The global vaccination drive will revive battered governments everywhere, but the size of the political dividend will vary from

country to country. For Boris Johnson's government, it could be particularly high. Britain's death rate, of 129 deaths per 100,000 people, is the seventh-highest in the world, according to data compiled by *The Economist*. Some 1,820 covid-related deaths were reported on January 19th alone, the highest daily toll yet, and British hospitals remain under severe pressure.

Some of the blame lies with the government, which was slow to appreciate the threat from covid-19, to impose lockdowns and to procure protective equipment for health workers. A plan to allow families to gather for Christmas was cancelled in southern England with six days' notice. Conservative MPs grew tired of defending policies which were quickly abandoned, and doubted Mr Johnson's fitness for office. Sir Keir Starmer, the sure-footed Labour leader, looked a credible rival.

Tories hope that the vaccination drive may restore faith in Mr Johnson's premiership. The programme has benefited from far-sighted planning missing elsewhere in the government's response: the task-force for funding and procuring vaccines was set up last April, and the NHS spent the autumn drafting delivery plans. It has relied on tested networks of family doctors, rather than the Silicon Valley-inspired "moonshots" favoured by Dominic Cummings, Mr Johnson's former aide. A poll by Opi-

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► nium released on January 16th found 47% of voters approve of the government's handling of the vaccine and 23% disapprove; for the pandemic as a whole, the figures are 30% to 51%. "Having had so many stoppy-starty things that didn't work, it's rather disorientating to have something go so well," says an influential Conservative.

A successful vaccine programme would also deflate the Conservative Party's lockdown rebels, who grew more numerous as Britain's restrictions dragged into the winter. The case against lockdowns rested on the fear that no vaccine would be found soon and Britain would have to learn to "live with the virus" as mass immunity slowly developed. That case has disintegrated: in Britain last week six people were jabbed for every new case of coronavirus detected. Mr Johnson's plea for sceptics to hold firm until the "cavalry" arrived has been vindicated, a rebel concedes.

For many Tory MPs, the vaccine has the pleasant side-effect of reinforcing their political convictions. One is Brexit. The vaccine offers an intellectual coherence to a project that looked increasingly chaotic and eccentric after four years of negotiations. Britain is outperforming its neighbours: it had issued 7 doses per 100 people by January 18th, the highest rate in Europe, compared to 2 in Italy, 1.5 in Germany and 0.7 in France. The gap is largely due to Britain's decision to opt out of the EU's programme of vaccine procurement and to offer emergency authorisation ahead of the European regulator. This has allowed Britain to buy more jabs and to dish them out before the EU. Both would have been legal while Britain was in the union, but Brexit made it politically easier.

To Brexiteers, it is proof of Vote Leave's claim that agility would be more valuable than membership of a huge market. "I've always said it would be like a ball and chain being released from the ankles of Britain," says Michael Fabricant, the MP for Lichfield. More cautious MPs who feared the MHRA would stumble outside the EU's ecosystem feel reassured. Mr Johnson would like Britain to be known for scientific research after Brexit; the AstraZeneca-Oxford vaccine is a helpful calling card.

The second happy side-effect is on the union. For six months, polls have shown a clear margin of support for Scottish independence. Since health policy is its responsibility, the Scottish government has taken day-to-day charge of the emergency, making it look less like a town council and more like a state-in-waiting. With Mr Johnson and Brexit unpopular, the UK government has struggled to make the case for the union. But it reckons the vaccine, which it procured on behalf of the entire union, provides proof of the "power of the union" and of the risks for Scots of breaking away.

Yet the vaccination programme is politi-

Working from home

Spread of the shed

Small buildings, big implications

ACROSS THE gardens of Britain, in cities and suburbs, people are building sheds. "We have never seen such an increase in orders," says Paul Deary of the Garden Shed Company, whose family has been in the business for 35 years. "People have gone shed crazy." The Timber Trade Federation reports that in October, the last month for which statistics are available, imports of softwood were 34% higher than a year earlier. With stocks running low, what wood is available is quickly snapped up.

A garden shed used to be mostly a place to store a lawnmower, or, if it was on an allotment, a place to discuss brassica problems and "dole out the tea and Hobnobs whilst the rain falls outside," in the words of Michael Rand, an expert allotment gardener. But the odd brain-worker (especially the irascible type) has long put it to more productive use. Roald Dahl and Dylan Thomas wrote in sheds. George Bernard Shaw had one in his Hertfordshire garden that rotated to face the sun.

The structures now being built are also often intended for work, although they are grander than the ones those pioneer shed-writers used. Green Retreats, which mostly builds garden offices but also garden gyms and the like, says that overall sales grew by 113% between 2019 and 2020. Larger, fancier structures with things like plastered walls are especially popular.

This has important implications for cities. Urban scholars like Richard Florida and Edward Glaeser (who spoke about the future of cities at Policy Exchange, a British think-tank, this week) are busy trying to work out whether the rise in



George Bernard Shed

home-working that has occurred during the covid-19 pandemic will endure when the virus ebbs. If it does, many service jobs in cities, from baristas to taxi drivers, will disappear. Public-transport systems will struggle. The value of city-centre property will tank.

The shed boom makes that outcome more likely. A white-collar worker who has tried to work from the kitchen table for the past nine months might be keen to return to the office. A worker who has an insulated garden shed with Wi-Fi will be less so. Joel Bird, who builds bespoke sheds, is certain that his clients envisage a long-term change in their working habits. "They don't consider it to be temporary," he says. "They're spending too much money."

ically vulnerable. Its coverage is patchy, with some regions ahead of others. Supplies of the vaccine are tight. Well-placed observers expect meeting the mid-February target to be a close-run thing. "If they can get the sixth dose out of every vial from now on they should be OK," reckons one. And vaccines may prove less effective against new variants of the disease.

Even if the mid-February target is met, Mr Johnson will face a fight with his party over how quickly to unwind the current lockdown. His office says the pace will be dictated by the flow of new cases and the burden on hospitals, but many MPs want to see restrictions loosened quickly, warning that shuttered bars and shops are prevent-

ing a generation from getting into the workforce. Some are already protesting about the risk of restrictions next winter if it brings another wave of the virus. They are also keen that local and mayoral elections scheduled for May should go ahead.

There are tussles within the party over money, too. Conservatives are divided on how to withdraw aid to stricken firms and families. New MPs from poorer seats are unhappy over the scheduled withdrawal of a weekly welfare top-up of £20 (\$27). Still, a successful vaccine programme will be the shot in the arm Mr Johnson's administration needs, says an MP. "We can look constituents in the eye and say, this man got us where we need to be." ■

Covid-19

Papers, please

LUTON

Britain belatedly beefs up its borders

THROUGHOUT THE covid-19 pandemic, Britain has had some of the loosest travel restrictions in the rich world. It was slow to introduce quarantine, and offered exemptions both to countries with low rates of the virus and to a wide range of travellers (including journalists and executives on business trips). Jeremy Hunt, a former foreign and health secretary, thinks this reflects the national self-image: “It is painful for a country like Britain, which sees its entire economic success as being one of the most international Western economies, to do any restrictions.”

Yet the government is becoming increasingly willing to bear the pain. On January 15th it banned arrivals from South America and Portugal. Three days later, it closed travel corridors—which had allowed people from those countries with low rates of the virus to avoid self-isolating for ten days on arrival—and required all travellers to provide proof of a negative covid-19 test in the past 72 hours. Ministers promised strict enforcement of the rules.

The change of heart was inspired by the emergence of new covid-19 variants across the world and by the early success of the vaccine roll-out in Britain. The worry that new variants may reduce the efficacy of jabs explains the decision to close the border to South America (Brazil is home to a particularly concerning one—see Americas section), and also the shift in the government’s cost-benefit calculation about other rules.

Countries such as Australia, Taiwan and South Korea have shown that strict border controls can help keep the virus out. In Britain, where the goal has been suppression rather than elimination, their benefits did not seem worth the pain. As Matt Hancock, the health secretary, put it: “If there is a country where the case rates are lower than the UK...there is not necessarily any higher risk from somebody coming here.” Even when European neighbours began to ask for a test, Britain held off—pleasing airline bosses, who dislike extra barriers.

Despite the new restrictions, plenty of holes remain. The arrivals your correspondent quizzed at Luton Airport assured him that, of course, they would follow the rules. But there is little way of knowing if this is true. Lucy Moreton of the ISU, the border guards’ union, says quarantine rules were and still are “unenforceable”. Guards cannot check if the contact details provided by

arrivals are correct, she notes, nor if the test results are genuine. Public Health England, which is in charge of checking if people are following isolation rules, has just 90-odd people on the job.

Many of those who obey the rules will still take public transport to their place of isolation. The easiest route to lots of addresses in London from Luton Airport involves a bus, a train and a tube journey. Reports suggest that the government is therefore considering going further still: either with “enhanced monitoring” where travellers are tracked with GPS data (as in Poland) or an enforced two-week stay in an airport hotel (as in a number of countries, including Australia, Taiwan and New Zealand). That would offer more protection against new variants—and even provide solace to miserable hoteliers, or at least those near airports. ■



Schools and lockdown

Steep learning curve

Schools have become far better at teaching online

AT ELEVEN O'CLOCK in the morning, a class of 15- and 16-year-olds at Harris Boys’ Academy East Dulwich in south London is grappling with one of the most confusing periods in British history. Their teacher has explained the plots that swirled around Elizabeth I and Mary Queen of Scots, and is creating impromptu quizzes on Microsoft Teams to check their knowledge. His pupils, who are working from home, all turn out to know that the Treaty of Edinburgh was signed in 1560. “Sir, come up with a harder question,” types one boy.

In March last year, when the government told them to close for the first time,

schools were taken by surprise. Some farsighted teachers hastily handed out photocopied worksheets to keep their pupils busy, or sent them by email. But although many private schools delivered live online lessons during the first national lockdown, few state schools did. Millions of children drifted. In late May 34% of teachers told Teacher Tapp, a polling app, that at least half of their pupils appeared to be doing no work at all.

Teachers were equally surprised when schools were forced to close again on January 5th. Up until the last minute, the prime minister and his hapless education secretary, Gavin Williamson, were assuring them that they could stay open; primary schools were even told to reopen for just one day after the Christmas holidays before being ordered shut again. They will stay shut at least until mid-February, and probably for longer.

This time round they are coping with online teaching much better. Some are now so confident in their newfound digital techniques that they are beginning to think about how to keep using them even after they are allowed to open their gates.

The Sutton Trust, an education charity, finds that 54% of teachers are now holding live online lessons, up from just 4% last March. Although a live lesson is not necessarily better than setting tasks for children to work on in their own time, it breaks the monotony and keeps pupils engaged. They are responding well. Only 7% of teachers now believe that at least half of their pupils are doing no work. Parents say that nearly half of secondary-school-age children are putting in at least five hours a day—more than twice as many as last time around.

The Department for Education promised last spring that it would send laptops to all children who needed them. Many schools correctly surmised that the devices would not appear soon, and ordered their own. Ark, an academy chain with almost 29,000 pupils in mostly poor districts, has distributed 12,000 devices, less than half of them from the government. By the autumn many schools were sharpening online teaching. Although they were still open at that time, in areas with rampant covid-19 so many pupils were isolating at home that schools had to offer them something.

Nobody believes that online teaching is as good as the in-person kind. But Emma Turner, a former headteacher who now trains teachers at the Discovery Schools Academy Trust in Leicestershire, says that it has nonetheless forced teachers to adopt some good habits. Their explanations must be shorter and sharper. Knowing that some pupils are viewing their lessons on smartphones, they are learning not to clutter their slides with text—something that is usually undesirable whether you are teaching online or in-person. Ms Turner also ►

► thinks that the old-fashioned parents' evening, when parents must leave work early and talk to teachers while squatting on tiny chairs, is due for an overhaul. Online meetings turn out to work well.

For the past few weeks, teachers in the most adept schools have been able to do something that they could not before. By setting online quizzes during lessons, they can discover instantly how many of their pupils have grasped a concept, and thus whether it is time to move on. That will end when classrooms reopen. But Matt Jones, the principal of Ark Globe Academy in London, thinks that more teachers will move to setting virtual homework. Rather than simply telling their students to read a text before the next class, they will set tests to make sure they do. Bluffing will become a little harder. ■

Brexit and telecoms

The right to roam

Britons will no longer be guaranteed free phone-use across Europe

FOREIGN HOLIDAYS are on hold for now, as pandemic restrictions tighten. But when Britons are allowed to travel again they could be in for a nasty surprise. Since 2017 they, like other citizens of the European Union, have enjoyed the right to use their mobile phones anywhere in Europe at no additional cost. Brexit means that, starting this month, they may have to pay.

Almost everyone is unhappy about this. Remainers cite the return of roaming fees as yet another of Brexit's downsides. Firms complain it will make them less competitive abroad. Eurosceptic and Europhile newspapers alike have warned their read-

ers to beware new charges which, as one put it, risk putting "the Great British holiday selfie at stake."

Yet hanging up on European regulators could make the British mobile market fairer and more efficient. The EU's rules forbid phone companies from charging their customers for roaming, but they allow firms to charge each other, within limits. A local phone network may bill the roaming customer's network up to €3 (\$3.65) per gigabyte of data downloaded—about enough for an hour of Netflix. Parking the children in front of "Peppa Pig" in order to investigate the minibar is therefore free as far as the holidaying customer is concerned, but their network faces a bill.

Phone companies can make back some of this money by charging equivalent fees to foreigners roaming on their turf. But because Britons use their phones abroad more than EU citizens use theirs in the United Kingdom, British phone companies run a deficit. They make it up by charging more for other services, with the result that the most prolific roammers—business travellers and those who holiday a lot—have their overseas Zooming, streaming and selfie-posting subsidised by the rest.

Freed from European rules, British networks will be able to offer consumers more choice. The main operators say they have no plans to reintroduce roaming fees. But in time they will probably offer cheaper, no-frills packages for those who don't plan to travel, and pricier bundles for those who do, believes Karen Egan of Enders Analysis, a research firm. "It's something that's very valuable to some customers but not to others, so it makes perfect sense to price differentiate," she says.

European networks will be free to raise the fees they charge British operators, since those firms are no longer protected by the EU's wholesale-price limits. Before regulators launched their assault on roaming 15 years ago, a lack of competition

meant that fees were sky-high in some markets. But today, partly thanks to regulators' interventions, all the main EU markets have at least three phone operators and most have four. That ought to be enough to drive wholesale roaming prices close to cost, reckons Ms Egan.

The greatest risk to phone users will be in countries with a less competitive phone business and a surplus of British visitors, such as Greece and Portugal. But even there they have some protection. British phone companies are now required to alert customers nearing the end of their data allowance, so they do not spend an accidental fortune while glued to TikTok.

Making roaming "free" was always about politics as well as economics. Viviane Reding, the EU commissioner who began the war on roaming charges in 2006, declared at the time: "It is only when using your mobile phone abroad that you realise there are still borders in Europe." Bringing Europeans together by making it cheaper for them to chat is a worthy enough political aim. But abolishing roaming fees altogether has meant that the costs are transferred from jetsetters to stay-at-homes. It will be no bad thing if Brexit forces Britons to pay for their own holiday selfies. ■

Brexit

Going off

Delays to fish and meat exports are not just teething problems

EARLY EVIDENCE of the economic damage from Britain's thin trade deal with the EU has been more olfactory than visual. Rather than the spectacle of queues of trucks outside Dover or empty British supermarket shelves, Brexit has instead brought the stench of pork rotting in Rotterdam and shellfish going off in its pallets. The government blames "teething problems", but the new arrangements pose a long-term threat to farmers and fishers who want to export to the EU.

The Scottish fishing industry reckons it has lost around £1m (\$1.4m) a day of sales so far in January. Border delays and disruption are an issue for any sort of firm involved in international trade but pose a particular problem for those moving fresh produce. "It's incredibly grim at the moment," says James Withers, the head of Scotland Food and Drink, a trade association. "We've gone from a seamless border to a slow and expensive one."

Customs are part of the problem. Britain and the EU have agreed to tariff-free and quota-free trade but goods crossing the ►



Clocking the cost of TikTok



Crabby

► border need forms, which must be correctly filled. Transposing a 6 and 9 in a 15-digit code can lead to hours of delays; mistakes can be made by either the exporting firm or the receiving one. Add in inexperienced border staff and mostly new and untested IT systems, and there are multiple potential points of failure.

Food is now subject to sanitary and phytosanitary (SPS) procedures to check it meets EU standards. According to industry bosses Britain has mostly waived such checks to ensure that supermarket shelves remained stocked, but the Europeans are enforcing the rules more rigorously. "Groupage" is a particular problem. A trailer loaded with a single type of good from a single firm needs only one customs declaration and one set of SPS checks. But multiple goods from multiple firms grouped together all need individual checks. That can take hours; meat can rot and shellfish go off.

About 40% of British meat shipments to the EU are usually subject to groupage, according to the British Meat Processors Association (BMPA), an industry body. Shellfish-exporting firms are usually small, so groupage is common. The problems, says Duncan Buchanan, the Road Haulage Association's policy director, is that the current EU rules on SPS are designed for dealing with containers of frozen lamb from New Zealand rather than for mixed loads of fresh produce.

Some of the wrinkles should be ironed out in the weeks and months ahead. Importers and exporters will get to grips with the new arrangements, customs officials will gain experience and IT bugs will be fixed. But firms will still be looking at extra costs of £20 to £150 per shipment from customs charges alone—enough to wipe out

the profit margin for smaller exporters. Nick Allen of the BMPA says the new system is "convoluted, archaic and badly implemented" and worries that it will make lower-value exports unviable.

Some British fishing vessels have already started making the 72-hour round trip to land their catch in Denmark to get around the new customs frontier. If that continues, Britain's processing firms will suffer. Meat traders warn that French supermarkets are talking of replacing British suppliers with their Spanish and eastern European peers. More trade friction will mean less trade. ■

Retail

The wrong kind of sales

Supermarkets are victims of their pandemic success

LOCKDOWN IS BOOMTIME for supermarkets. Restrictions on the hospitality trade and working from home means consumers are getting more of their calories from their kitchens so, although overall GDP has shrunk by around a tenth in the past year, supermarkets' sales have grown fast. Tesco, the biggest chain, reported a 7.2% increase in like-for-like sales in the past quarter, the fastest rise in decades. Sainsbury's, second by market share, saw sales rise by 8.6%.

But a booming top line is not feeding through into higher profits. Sainsbury's expects profit for this financial year to be "at least £330m" (\$450m), down from £586m

the year before. Tesco expects profits to be about the same this year as last. Staff absences and the cost of ensuring stores are covid-compliant, alongside the impact of Brexit, have squeezed margins, but the biggest hit to profitability has come from a switch from physical to online sales. Online grocery orders have risen by 128% at Sainsbury's and now account for 18% of grocery sales. At Tesco they rose by 80%.

Britons have long been among Europe's most enthusiastic online grocery shoppers with a pre-pandemic share of around 7% compared with 5% in France and under 2% in Germany, Italy and Spain according to McKinsey, a consulting firm. That is partially because the country is densely populated, but it also reflects industry structure. Food retailing in Britain is relatively concentrated and deeply competitive. Price competition between the established players and the German discounters, Aldi and Lidl, has squeezed margins.

Amid fierce competition, the big firms have been happy to subsidise online delivery fees to build market share. They charge as little as 99p for deliveries on orders over £40 and even offer them free on larger orders. That was sustainable when the internet was a relatively small sales channel that was growing at a reasonable pace, but the step change in its growth has had a commensurate effect on the cross-subsidy. An analysis in 2020 by Bain, a professional services firm, found that, though in-store sales had an operating margin of 2-4%, online deliveries usually lost money. Ocado, a delivery-only grocery business which charges up to £6.99 (well above the industry norm) per delivery has been losing money for three years, and reported an operating margin of -3.6% in 2019.

"It's a much trickier business to get right than Amazon", says a supermarket boss. "It isn't just dropping off a package. It's carting over two or three pallets of food and waiting while they get unloaded. You can rarely manage more than four deliveries an hour." In the online-sales market, grocery firms have even less pricing power than they do with bricks-and-mortar sales. Although customers might favour a local store for convenience, their choice online is unconstrained by distance.

For the customers, there's probably no going back. McKinsey reckons it takes two months for consumer habits to be formed; after nine months of the convenience of online shopping many Britons are unlikely to return to the weekly trek to the supermarket. The industry, as a result, is in a bit of a bind. All the players reckon that charges for online deliveries will have to rise eventually, but none wants to risk losing market share by making that decision. "In this game no one wants to move first," says a supermarket boss. The customer, therefore, is winning. ■

Bagehot | Think small

Politics needs more parish pump and less grand design



THE PAST quarter century has witnessed two contrasting approaches to politics. In the Blair-Cameron years an intertwined caste of professional politicians and experts governed from on high: this was the politics of technocracy. In the Corbyn-Johnson era a motley crew of insurgents and opportunists shook up the status quo by appealing to raw political passions: this was the politics of ideology. The status quo is now thoroughly shaken up but there is little appetite for putting the technocrats back in power. The big question hovering over British politics is what comes next.

Marc Stears, a former speechwriter for Ed Miliband, Labour's leader in 2010-15, thinks he has the answer. The next big thing will be small—what he calls "the politics of the ordinary" or of "everyday life".

The Miliband years occupied a twilight world between the humiliation of the technocracy by the financial crisis and the rise of Brexit and Corbynism. Mr Stears was troubled by the gap between the Westminster village and regular voters but had no enthusiasm for Jeremy Corbyn's attempt to fill the gap with left-wing zealotry. Indeed, he was struck by how much technocrats and ideologues have in common. They both focus on grand abstractions rather than the stuff of everyday life and they both look down on regular people, whom they regard as ignorant, wrong or both.

Mr Stears retreated from the hurly-burly of political life to the University of Sydney in order to immerse himself in a group of pre-war writers and artists—D.H. Lawrence, George Orwell, Dylan Thomas, J.B. Priestley and Bill Brandt. The resulting book, "Out of the Ordinary", uses their work and their times to throw light on today's politics.

Mr Stears argues that his heroes invented a style of left-wing politics that was different from either the top-down rationalism of the Fabians or the sentimental communitarianism of William Morris. They looked at the country as it actually was rather than through ideological lenses. In "English Journey", J.B. Priestley explored "the England of arterial and by-pass roads, of filling stations and factories that look like exhibition buildings, of giant cinemas and dance-halls and cafés". In "Coming Up for Air", George Orwell chose an unlikely hero in the pudgy form of George Bowling, a 45-year-old insurance salesman who, equipped with a new

pair of false teeth, sets out to discover the country.

They believed that Britishness (which in those days was mostly called Englishness) was defined by informal institutions like working-men's clubs and women's institutes rather than official ones, and by quiet patriotism rather than noisy flag-waving. They contributed mightily to the war effort by forging a sense of redemptive nationalism, with Britain standing for messy everyday decency against Germany's well-organised tyranny: Orwell and Thomas were fixtures on the BBC while Brandt photographed people in extraordinary circumstances, such as sleeping in Underground stations during air raids.

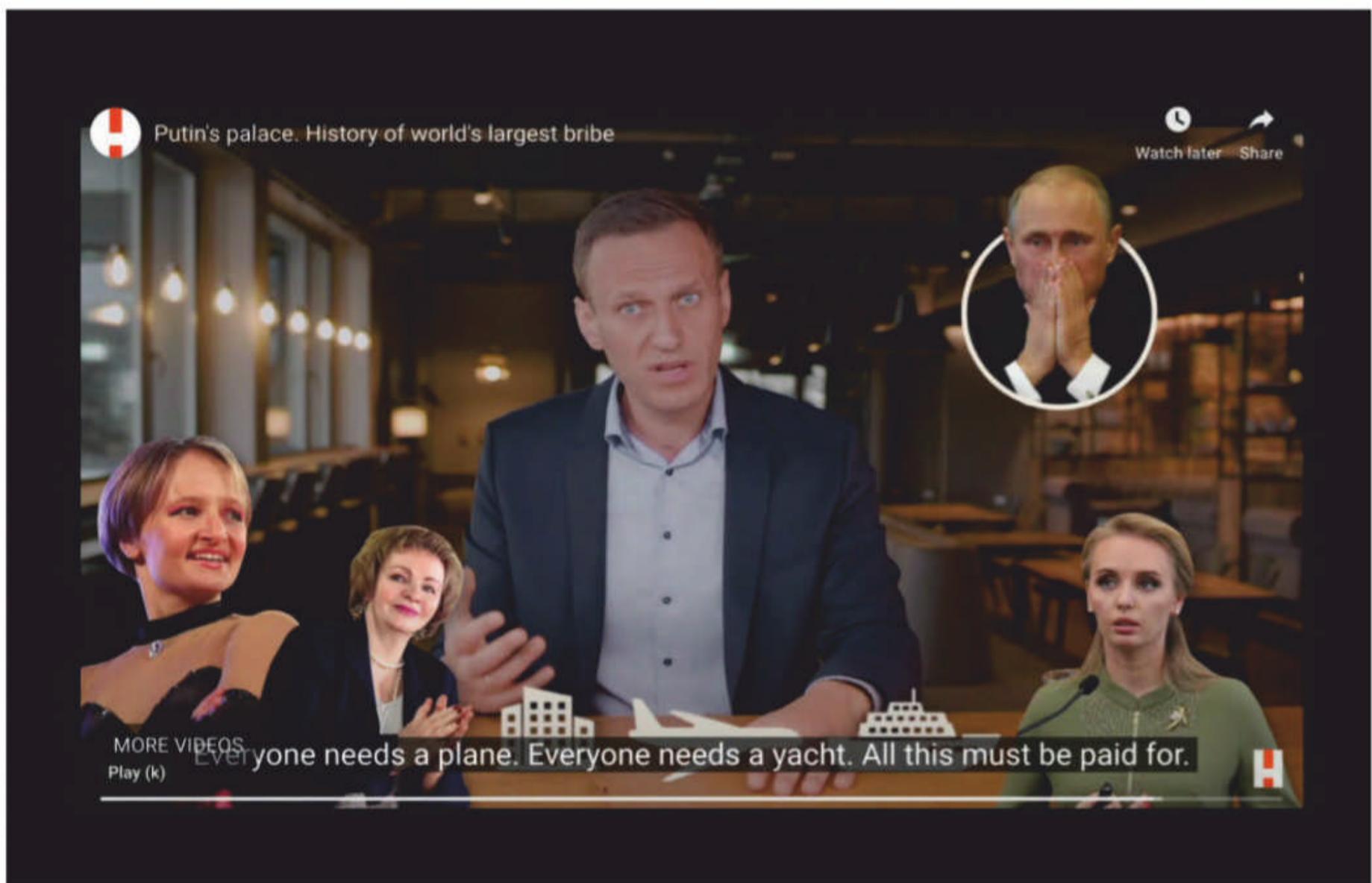
A politics based on a revival of these ideas would focus on things people mind about but politicians usually ignore. Mr Stears recalls a conversation with a Labour pollster. Noticing that the polls showed that what people minded about most was being able to spend time with their close friends and family, he asked why the party didn't focus on this, only to be told that "it's not the sort of thing that politics is about." Everyday politics would change the relationship between the state and the people by involving citizens in the design of public services. It would encourage politicians to stop viewing the public as exemplars of this or that "demographic" and school them instead in Orwell's aphorism that "to see what is in front of one's nose needs a constant struggle."

If reviving the politics of the ordinary sounds Utopian, Mr Stears thinks that, in a small way, it is already happening. Local politicians and charities are doing it up and down the country. Every One, Every Day, an initiative in the London borough of Barking and Dagenham dedicated to the proposition that "what people do together every day matters", has involved more than 2,000 volunteers in projects such as turning an abandoned warehouse into a workshop equipped with sewing machines and do-it-yourself equipment. Marcus Rashford, a footballer who grew up in straitened circumstances, is a master of the politics of everyday injustices. He persuaded the government to provide free school meals in the school holidays during the pandemic.

Who are you calling ordinary?

This approach to politics has champions in both major parties. On the Labour side Jon Cruddas, the MP for Dagenham and Rainham, has been talking about the subject for decades; Morgan McSweeney, Sir Keir Starmer's chief of staff, is intrigued; Angela Rayner, the deputy leader, has a compelling personal story to tell about growing up in poverty. On the Conservative side a cohort of younger thinkers such as Rachel Wolf, Liam Booth Smith and Danny Kruger are advocates. Allegra Stratton, Boris Johnson's press spokeswoman, was enthusiastic about these ideas when she moved in Labour circles.

By itself, the politics of everyday life is too vague and incomplete to constitute a political programme. Many of the "everyday" problems that people complain about (such as crumbling town halls and terminated bus routes) were the result of austerity. Fixing them requires making top-down decisions about economic policy rather than just reviving local politics. And the notion of "ordinary people" is problematic: one of Labour's biggest headaches, for example, is that it is trying to appeal to two groups, working- and middle-class voters, who have different values rooted in different experiences. But it is a valuable part of a broad mix of policies. The politics of technocracy and ideology have both left Britain badly broken. It will need to be fixed from the bottom up as well as from the top down. ■



Russia

Into the lion's den

MOSCOW

Alexei Navalny returns to face Vladimir Putin

IT IS 8.30PM on January 17th. Alexei Navalny and his wife Yulia stride through the arrivals terminal of Moscow's Sheremetyevo airport. A gaggle of journalists is trying to keep up. Mr Navalny spots a bright poster of the Kremlin on the wall. He stops in front of it. Cameras snap. "I am not afraid...this is the happiest day for the past five months of my life," Mr Navalny declares. "I have come home."

Those were Mr Navalny's first public words back on Russian soil. (Five months earlier he had fallen into a coma after being poisoned with Novichok, a nerve agent, and was evacuated to Germany for treatment.) Moments after he spoke, he was detained by officers in black uniforms at passport control, who led him away into the unknown. His wife hugged and kissed him, then wiped her lipstick from his cheek, uncertain when and if she would see him again.

A few hours later, far from the cameras,

he was transferred to a police station. The next day, he was put on trial in a makeshift courtroom. "I've seen a lot of mockery of justice, but this time [Vladimir Putin, Russia's president] in his bunker is so afraid that he has demonstrably torn into pieces Russia's criminal code and thrown it into a dump," he said.

After a brief hearing, the court sentenced him to 30 days' detention for violating parole while recuperating in Germany from the assassination attempt. Before

that sentence ends, on February 2nd, he will be back on trial. The next court will probably jail him for three-and-a-half years, a sentence that had earlier been suspended, on charges of embezzlement that are widely considered to have been trumped up. Mr Navalny's real crime is to have exposed the actions of the Russian security services and to have returned home.

The scenes at the airport were just a warm-up. On January 19th, the day after the trial, Mr Navalny's team released an explosive two-hour film about Mr Putin's finances and a secret palace on the Black Sea coast that Mr Navalny alleges his friends have built for him at a cost of \$1.35bn filched from Russian taxpayers.

A camera-equipped drone shows 78 square kilometres (30 square miles) of vineyards and parks with a church, an arboretum and a classical theatre, not to mention the residence itself—a 17,700 square metre Italianate palace filled with baroque furniture, a casino and a hookah lounge. In less than a day after it appeared the film had clocked up 20m views.

The fact that Mr Navalny's team could evade security and put on public view one of the best-protected properties in the world is jaw-dropping, and humiliating for the Kremlin. And the symbolism of the palace itself does not flatter the regime. It is not like, say, the palace at Versailles, which

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► was built to show off the power of France's Sun King, Louis XIV. On the contrary, it is hidden from view, conveying the opacity and obsession with money at the heart of the Russian state.

In the past, Mr Navalny's investigations into corruption largely focused on Mr Putin's entourage and cronies. He refrained from attacking Mr Putin personally; not out of fear, but because so many Russians admire their president. The latest film aims to puncture Mr Putin's legitimacy in the eyes of the public. That could earn Mr Navalny a long spell behind bars, or worse.

However, the Kremlin is faced with a dilemma. To imprison Mr Navalny now would be to turn him into a Nelson Mandela figure. To kill him would cement Mr Putin's legacy not as the restorer of Russia's lost empire and prestige, as he would like to see himself, but as something closer to a vengeful mafia boss.

Mr Navalny may see himself as a revolutionary. What is missing is the revolution. Only 23% of the public think political protests are possible where they live, according to a snap poll by the Levada Centre.

Why, then, has the challenger taken the gigantic risk of coming back to Russia and launching a direct attack on the Kremlin, which has already once tried to kill him? His may be a courage that borders on the suicidal. Yet he is no madman. Rather, Mr Navalny is a politician aiming to achieve power by democratic means, and determined to turn his country into a modern republic. As he says in his film, Mr Putin's regime, like its Soviet predecessor, is primarily held together by fear and lies. Having first come into politics through the internet and social media, Mr Navalny has mastered its resources to destroy the Kremlin's monopoly on propaganda. The number of people who have viewed Mr Navalny's film already dwarfs the audiences of any news show on state television.

Yet, as Mr Navalny has often said at his real-life rallies, the biggest obstacle to ditching the current regime and moving towards "A bright future for Russia", as he has branded his project, is not Mr Putin, his muscular goons or his propaganda, but the learned helplessness, resignation and fear that afflict so many of his compatriots.

By walking back into the lion's den he is hoping to help the Russian public to jettison that fear. As he said from his courtroom: "Don't be afraid...take to the streets not for my sake, but for your own sake and [for the sake of] your future! The only thing to be scared of is your own fear." He has called for a countrywide protest on January 23rd. On TikTok, a social-media platform, videos with the hashtag "23 January" have already generated tens of millions of views. Whether those will turn into real people will perhaps determine Mr Navalny's fate—and that of his audacious project. ■

Germany's Christian Democrats

Steady, as she goes

BERLIN

Armin Laschet moves a step closer to replacing Angela Merkel in the chancellery

“**I**MAY NOT be a great showman, but I am Armin Laschet—and you can trust that.” If the words with which Mr Laschet secured the leadership of Germany's Christian Democratic Union (CDU) were less than rousing, they encapsulated the appeal of the football-loving cigarello-chomper who defeated two rivals at a vote of party delegates on January 16th. Now in charge of Germany's ruling party, Mr Laschet is well placed to succeed Angela Merkel, his CDU colleague, who will step down as chancellor after a general election in September.

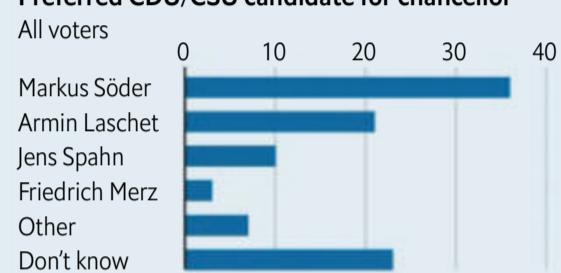
Yet Mr Laschet, premier of the hulking western state of North Rhine-Westphalia (NRW), faces several hurdles on his way to the chancellery. His narrow run-off victory by 53% to 47% over Friedrich Merz, a corporate lawyer backed by right-leaning delegates, underlines the first. Mr Merz is a serial political loser who has repeatedly failed to dispel suspicions that he is more interested in his own fortunes than his party's. But he became a vessel for the hopes of CDU members who saw in Mrs Merkel's departure a chance to stop its liberal drift on matters like migration. Jana Schminke, a CDU MP who backed Mr Merz, says members have resigned from the party and that disappointment is particularly acute in east Germany. Mr Laschet's first task is to unite his party's warring tribes.

A bigger obstacle lies in Markus Söder, the swaggering premier of Bavaria and leader of the Christian Social Union (CSU),

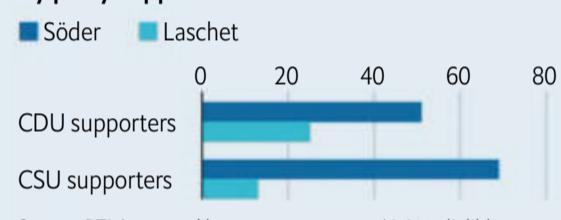
Some work to do

Germany, January 16th-17th 2021, % polled*

Preferred CDU/CSU candidate for chancellor



By party supported



Source: RTL/ntv trend barometer

*2,014 eligible voters

the CDU's sister party there. In March or April, the two parties must decide who will lead them into the general election—and therefore, polling suggests, succeed Mrs Merkel. Thanks in part to a confident performance during the coronavirus crisis, Mr Söder outshines Mr Laschet in opinion polls (see chart). He insists his ambitions do not extend beyond Bavaria. However, should Mr Laschet fail to win the affections of German voters—especially if the CDU struggles in two state elections due in mid-March—the party may turn to Bavaria for salvation, and Mr Söder will surely oblige. “We have to enter the race with the candidate who has the best chances,” says Christian Natterer, another CDU Merz-backer.

Mr Laschet's hopes rest in part on his promise to maintain the stance of the woman he hopes to succeed. Like Mrs Merkel, he is a down-to-earth, risk-averse pragmatist who distrusts grand visions. But the pair differ markedly in style. Mrs Merkel, the phlegmatic daughter of a Lutheran pastor, grew up on the east side of the Berlin Wall, keeps her emotions in check and weighs her words like gold dust. Mr Laschet, a jovial, gaffe-prone Rhinelander of strong Catholic faith, was delighted to win an “award against deadly seriousness” at a carnival in his home town of Aachen.

Mrs Merkel has always remained aloof from the party she led for 18 years. She had to battle its entrenched structures, ruthlessly dispatching internal enemies where ►



Leader Laschet

► necessary (including, back in 2002, Mr Merz) and earning its affection by endlessly winning elections. Mr Laschet is a CDU man through and through. He joined at 18. After dabbling in law and journalism, he represented the party in parliaments at state, national and European level, losing almost as many elections as he has won.

A conciliator by instinct, Mr Laschet pledges to be the CDU's team captain rather than its CEO. "This is his speciality," says Serap Güler, who serves in his government in NRW. "He is open to being convinced, open to other views." In NRW Mr Laschet has stacked his cabinet with figures from across the spectrum, including former opponents who have become firm supporters. His interior minister, Herbert Reul, is a law-and-order bruiser who lends Mr Laschet's affable bearing a sharper edge.

Mr Laschet was an early and consistent advocate of expanding the CDU's appeal to minorities in Germany—earning the nickname "Turkish Armin" among sceptical right-wingers but attracting adherents like Ms Güler, the daughter of Turkish immigrants. He backed Mrs Merkel's decision to keep Germany's borders open to migrants in 2015–16, as well as her subsequent policies to keep them out.

The Green Party, the CDU/CSU's likeliest governing partner after the election, would certainly prefer Mr Laschet to Mr Merz. But his closeness to industry could hamper coalition talks. Climate taxes and rules must not be allowed to strangle jobs, he argues. He is a miner's son from a coal state, and in 2019 helped delay the date when Germany promises to stop burning the stuff to 2038. In 2017, during abortive coalition talks with the Greens, the energy negotiations he led for the CDU nearly collapsed.

Mr Laschet's upbringing in Aachen, close to the Dutch and Belgian borders, places Europe in his "political heart", says Moritz Küpper, one of the authors of "Der Machtmenschliche" (roughly, "power with a human face"), a recent biography. He keeps a bust of Charlemagne, the city's most famous son, in his office. In 2018 he wangled the obscure job of plenipotentiary for Franco-German cultural relations to gain access to Emmanuel Macron. Last year, in a rare rebuke to Mrs Merkel, he said Germany should have been more responsive to Mr Macron's call for action in Europe. Mr Laschet's hawkish fiscal views are orthodox for his party, but he once hinted at support for Eurobonds. As the CDU often applies the brakes to Germany's Europe policy, such views will carry weight.

Yet beyond his western European comfort zone, aspects of Mr Laschet's foreign policy raise eyebrows. As a teenager he hung a poster of Solidarity, Poland's anti-communist union movement, in his bedroom. But as an adult he shares Mrs Merkel's reluctance to confront EU members

that undermine democracy. (An early test will be whether he backs moves to expel Hungary's authoritarian ruling party from the EU's centre-right grouping.) He belongs to the ranks of Germany's *Putin-Versteher* (understanders): he urges dialogue with the Kremlin, questioned whether it really murdered a former agent in Britain in 2018 and has turned a blind eye to its bolstering of the murderous regime in Syria.

Should he secure the chancellor-candidacy, Mr Laschet's foreign-policy views are unlikely to be much of a handicap. Voters care far more about recovering from the pandemic. But Mrs Merkel's departure will leave a gaping hole on the global stage. Mr Laschet has yet to show he could fill it. ■

Arms control

Grounded

Russia's departure from the Open Skies treaty is another blow to arms control

THREE ARE few opportunities left for Russian military officers and their NATO rivals to meet face-to-face and shoot the breeze. Soon there may be none. On January 15th Russia said that it would follow America in withdrawing from the Open Skies treaty, a decades-old arms-control pact that allows unarmed surveillance flights over 33 countries.

America left the treaty in November, complaining that Russia had imposed unacceptable restrictions on flights over Kaliningrad, Russia's enclave north of Poland, and had used its own flights over America to map out critical infrastructure (which is permitted). NATO allies were aghast,



though publicly they sided with America.

America's departure left Russia in an awkward position: it could no longer fly over American soil, yet America's closest allies could still roam freely over Russia. Russian officials demanded guarantees that Europeans would neither restrict Russian flights over American bases in Europe nor pass imagery on to the Americans—both things that are not permitted by the treaty anyway.

European diplomats worried that acceding to such an ultimatum would risk setting a precedent whereby one country could hold a treaty to ransom. Russia's demands were due to be discussed at a meeting of the Open Skies Consultative Commission on January 25th. Russia's decision to pre-empt that gathering was a surprise.

Though Russia, like America, boasts advanced spy satellites that can do much the same job, in recent years it had invested more than any other treaty member in surveillance planes and advanced sensors. Russian military officers valued the treaty but "hardliners got the upper hand," says Alexander Graef of the Institute for Peace Research and Security Policy in Hamburg. "My personal view is the Russians wanted to send a message that they won't be pushed around on arms control and NATO," says Rose Gottemoeller, a former deputy secretary-general of NATO.

The treaty's 32 remaining members may limp on. Poland, a NATO member, and Russia's ally Belarus, for instance, have cause to keep an eye on military build-ups along their shared border. But with neither American nor Russian involvement, the treaty's original rationale—to reassure Russia and the West that the other is not massing troops for war—will fizzle out.

For the moment, Russia's membership hangs by a thread. To carry out its threat of withdrawal, Russia's government would first have to write and pass a new law and then give six months' notice to Canada and Hungary, the treaty's depositaries. In theory, that would allow time for President Joe Biden to re-sign the agreement. In practice, Russia would have to approve American re-entry amid disputes over Russia's persecution of Alexei Navalny and cyber-intrusions against America. Congress is supportive of the treaty, says Mr Graef, but may impose awkward conditions for re-entry that are impossible for Russia to swallow.

In any case, Mr Biden's priorities for arms control will be renewing the New START nuclear pact and reviving an ailing nuclear deal with Iran. With Russia's suspension of the Conventional Armed Forces in Europe (CFE) Treaty in 2015, the collapse of the Intermediate-range Nuclear Forces (INF) Treaty in 2019 and the looming threat to Open Skies, the diplomatic foundations of Europe's post-cold-war security architecture look shaky. ■

The Dutch welfare state

The fraud that wasn't

AMSTERDAM

Innocent parents, guilty government

EVERY COUNTRY's welfare state is a reflection of its soul. Take the Netherlands, an egalitarian country but also a deeply Calvinist and bureaucratic one. Dutch benefits are generous. Income inequality is among the lowest in the EU. But benefits are subject to complicated rules meant to exclude the undeserving. These can run amok. Over the past decade, systems meant to snoop out abuse of child-care benefits wrongly labelled more than 20,000 parents as fraudsters and drove many into

penury. On January 15th Mark Rutte, the prime minister, and his cabinet resigned over the scandal. It may herald a modest shift to the left in Dutch social policy.

Child care in the Netherlands is private, but the tax authority gives parents subsidies to pay the fees, depending on income. After Mr Rutte and his centre-right Liberal (VVD) party took office in 2010, laws to fight benefit fraud were repeatedly sharpened, especially in 2013 after Bulgarian scammers were discovered collecting payments. The tax authority was given new powers to hunt cheats and encouraged to cover the cost with funds it seized.

Soon Dutch lawyers began getting complaints from parents who had not only had their benefits cut off but had been told to repay everything they had ever received. Those who did not repay fast were hit with fines. Without child care, many parents gave up their jobs. Some lost their homes. A

disproportionate number had immigrant backgrounds. Parents had to prove they had applied correctly, but when they tried, the tax authority failed to respond.

"They would promise to look into it, and then you wouldn't hear from them," says Leigh Ann Janssen, a British-Dutch dual citizen who was a full-time student with a young daughter when her benefits were cut off in 2014. She and her husband, who is Turkish-Dutch, were ordered to pay back about €30,000 (\$36,000). Because the authorities refused to provide evidence, parents could not appeal.

A report by the national ombudsman in 2017 criticised the tax authority for mistreating parents, yet the benefit stops continued. Parliamentary investigations got skimpy information from ministries, with large sections redacted. By late 2019 the government acknowledged wrongdoing and set aside money for compensation (estimated at €1.3bn), but almost no payments have been made. Last July the personal-data authority found that the tax service had used algorithms in which parents with dual nationality (such as Ms Janssen and her husband) were labelled fraud risks. That violated the constitution.

The final straw for the government was a parliamentary report in December that labelled the mistreatment of citizens an "unheard-of injustice". "There were a few really nasty things: the ethnic profiling, blacklists and citizens labelled as fraudsters for no reason and financially ruined," says Pieter Omtzigt, an MP who was instrumental in uncovering the scandal.

The cabinet's resignation is in a sense an empty gesture: a general election had already been scheduled for March 17th. Mr Rutte is running again, and polls put support for his VVD at about 25%, far ahead of any other party. The only party leader to resign has been Labour's Lodewijk Asscher, who served as deputy PM while the anti-fraud policies were developed. It seems unlikely that Mr Rutte, who led the Netherlands throughout the benefits scandal, will face any political reckoning for it.

However, the VVD says it is willing to discuss proposals from the Labour and GreenLeft parties for direct government financing of child care. Mr Rutte has lately moved away from small-government orthodoxy, saying the pandemic has shown the public's desire for a "strong state".

The parents are at last seeing some justice. The government has promised each family at least €30,000. Incredibly, the tax authority at first said it would claw back much of that, but on January 18th the government abruptly cancelled the parents' debts. Even that was frustrating to some. "All these years we have heard it is too complex, nothing can be done," says Eva González Pérez, a lawyer who represents 40 of the families. "Now suddenly it can?" ■

Poland

How clams fight pollution

Scientists find that molluscs are remarkably good at detecting toxins

A WATER PUMP known as *Gruba Kaska* (Fat Kathy) is a local landmark in Warsaw. To get there, you must walk 300 metres through a slimy tunnel under the Vistula river. There you will find eight clams hooked up to computers. They are monitoring the city's drinking water.

The system is nifty. When the molluscs encounter heavy metals, pesticides or other pollutants, they close their shells, explains Piotr Domek of Adam Mickiewicz University in Poznań, who has worked on the project for three decades. To create a natural early-warning system, Mr Domek and his colleagues collect the clams from rivers or reservoirs, and attach a coil and a magnet to their shells. Computers register whether their shells are open or closed by detecting changes in the magnetic field.

"In the case of a terrorist attack, an ecological disaster or another contamination of the water supply, the clams will close," says Mr Domek. This, in turn, will automatically cut off the water supply. The clams, he thinks, are life-savers. "If contaminated water goes straight to our taps, we will get poisoned," he says in "Fat Kathy", a short film that celebrates the invaluable bivalves.

Today 50 Polish waterworks (and one in Russia) use clams in this way. There are drawbacks. Clams, as the proverb reminds us, cannot talk. So they never reveal which toxin is causing them to clam up. Also, it seems that they may be less good at detecting dangerous phar-

maceuticals. Still, Piotr Klimaszyk, who leads the team that developed the system, thinks it ought to be used everywhere. It is cheap: all you need is clams and computers. "It allows you to check the water quality hour by hour, minute by minute, so why not?"

Mr Domek is now so fond of clams that he tries to deter people from eating them. He mischievously suggests that they "have a negative effect on [sexual] potency". Julia Pelka, the film-maker behind "Fat Kathy", has also stopped gobbling them. We use them "to protect ourselves from ourselves", she says.



The shellfish gene keeps water clean

Charlemagne | Lessons from the vaccine race

Europe needs to wake up and compete harder



COPIUM" IS THE most useful recent addition to the political lexicon. The portmanteau of "cope" and "opium" is a metaphorical opiate that dulls the pain of defeat, according to Urban Dictionary, a useful guide to slang. In Europe a slow vaccine rollout across the EU has left its leaders huffing gallons of the stuff. So far the EU, a club of mostly small rich countries, has vaccinated 1.4% of its population. By contrast Israel, a small rich country, has vaccinated a third of its population. Even Britain, whose health service is a punchline on the continent, has jabbed 7%. With nearly 5% of people vaccinated America, the uncaring antithesis to the EU's self-image, has done better than anyone in the bloc.

The copium comes in many forms. According to one ingenious argument, the EU vaccination scheme is not any slower than other rich Western countries, it simply set off later. Others suggest that regulators in the likes of Israel, America and Britain played loose with safety standards. The most pernicious argument, however, is that rolling out the vaccine is not a competition at all.

After all, competition sits awkwardly with the EU. It was set up to stop destructive contests between governments. Mashing together the coal and steel resources of western Europe was designed to make war—the worst form of competition—impossible. Strict rules stop countries from propping up failing national champions and the outright bungs that are common among American states trying to attract new businesses. The logic of EU rules is to create a firm floor to stop countries from undermining each other.

It was in this spirit that the EU built its vaccination strategy. Rather than allow individual countries to outbid each other, vaccines would be bought collectively by the European Commission and then shared out equally, according to population. Otherwise, the contrast between Bavarian teenagers in nightclubs and Bulgarian grannies in body bags would have made the spring fight over medical equipment—when EU governments were reduced to grabbing from each other—look like a lover's tiff. Countries going it alone again would have produced winners, but also losers, most likely in the EU's poorer member states. Sometimes competition can be a bad thing.

But a lack of competitive drive hurt the EU elsewhere. Regulatory slowness was painted as a virtue rather than vice. Part of the

reason European regulators did not rush through approval was due to overblown concerns about Europe's band of vaccine sceptics. Now several EU leaders led by Austria's chancellor, Sebastian Kurz, are heaping pressure on the agency to hurry up and approve other vaccines. This has left the EU with the worst of both worlds, with a thorough process delaying arrival yet still being undermined by political interference.

Leaders are peculiarly relaxed that countries outside the EU are beating them at getting jabs into arms. Israel, runs one argument, is a special case. Squint at the statistics, however, and Israel becomes an archetypal EU member state. At 9m, its population is bang on the median for an EU country, as is its income per head. Yet many officials assume that Israel's roll-out cannot be matched by countries of similar population and similar wealth. Israel may be better placed than, say, Austria, to fight a land war but there is no reason its health care cannot be matched. "There is this tendency to compare yourself with the worst," complains one diplomat. In EU capitals there is no shame in losing to Israel as long as politicians can say they beat Belgium or Bulgaria.

For a bloc with global pretensions, this attitude is depressing. Countries that have done well with covid-19 are most aware that the world is a competitive place. Israel is surrounded by countries that want to destroy it. Taiwan, Japan and South Korea have similarly tricky relationships with powerful neighbours. By contrast, governments in the EU outsource their existential worries. It is the EU's job to devise collective solutions to how the continent deals with, say, China. Just as criticism about procurement of vaccines can be offloaded—at times unfairly—onto Brussels, so can any holes in the collective approach to Beijing.

Reluctance to compete goes deeper than the response to covid-19. Areas that are still competitive within the EU, such as corporation tax, are being squeezed towards standardisation. Ireland lures businesses with the promise of a 12.5% tax rate, less than half the German and French rates. For now, the commission is only examining ways of wiping out the most egregious uses of tax law (those companies paying far less than 12.5%). In the long term, though, this is just the beginning of an anti-competitive squeeze.

Calls for corporate "European champions" are growing, based on the dubious logic that if businesses have less competition at home, they can be stronger abroad. Chinese and American firms bulk up by growing inside large, competitive single markets. Yet in the EU, when it comes to services—about three-quarters of the EU's economy—the single market barely exists. Where the competitive streak of European governments does come out is in their attempts to grab the levers of power, says Hans Kundnani of Chatham House, a think-tank in London. Once in command, they tilt the field in favour of their own industries and economies. European governments are most competitive when it comes to the prospect of reducing competition.

A continent of cope

If the EU is to find its competitive spirit, then a vaccination race is the perfect place. The European Commission has set a goal of jacking 70% of its adults by summer. There is time to catch up (especially as the pandemic has provided regular, brutal reversions to the mean, when high-flying outliers are brought to ground.) There is more at stake than health. If a group including some of the world's most successful societies cannot vaccinate their populations swiftly, then any pretensions that the EU is a potential superpower look ridiculous. Put down the copium and put up a fight. ■



Ethiopia

War and hunger

ADDIS ABABA

After more than two months of fighting, the Tigray region faces starvation

NO IMAGE BETTER symbolises the fall from power of the Tigrayan People's Liberation Front (TPLF), the party that had called the shots in Ethiopia for almost three decades. Sebhat Nega, one of its founders, was pictured this month in handcuffs, wearing a rumpled tracksuit and a single sock. The 86-year-old, long one of Ethiopia's most powerful men, had been captured by the army. His party, which was pushed out of power amid massive protests in 2018, has been fighting the government led by Abiy Ahmed for the past two months. It is not going well.

Several other senior TPLF figures have been killed by the army. Among them was Seyoum Mesfin, Ethiopia's longest-serving foreign minister. The killings and arrests appear to have left the TPLF in disarray. Its leaders, including the ousted president of the Tigray region, Debretsion Gebremichael, have been in hiding for over a month. Although the TPLF still controls

sizeable swathes of rural Tigray, it holds no towns or cities. Allies of Abiy, who has already declared victory, believe it is only a matter of time before the rest of what he calls the "junta" are captured or killed.

But time is not a luxury Tigrayans can afford. For weeks the vast majority of the region's roughly 6m people have been without adequate food, water or medicine. According to the interim administration of Tigray, which Abiy appointed last month, more than 2m civilians have been driven from their homes. The state-appointed human-rights commission has warned of a "humanitarian crisis". According to the Famine Early Warning Systems Network, run by the American government, parts of central and eastern Tigray are probably one step from famine. "We could have a million dead there in a couple of months," frets a Western diplomat.

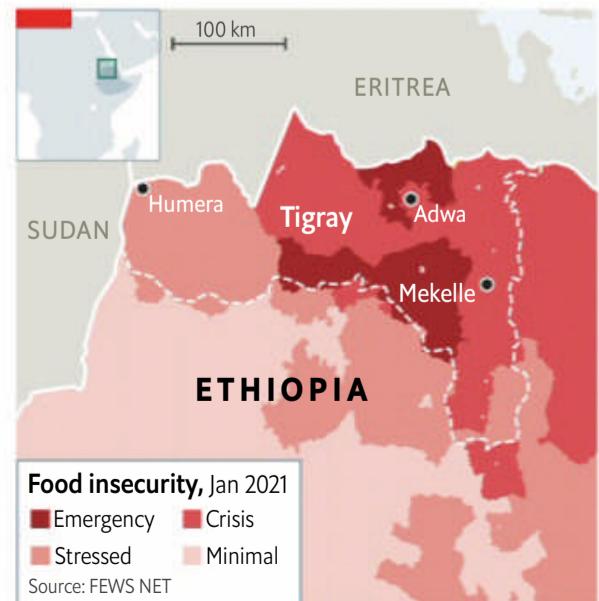
It is impossible to know how bad the crisis is because phone lines are down and

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the government has barred journalists from going to most of Tigray. It also restricts the movement of aid workers. But accounts are trickling out. In some places, especially in the north, crops have been burnt. In others, farmers abandoned their fields before the harvest.

Even where food is still available, many people have no means of getting it. Banks are closed across Tigray (apart from in Mekelle, the region's capital). So are markets and shops. In many places fuel has run out. Inflation is rampant. "Even if you have the money, you don't have a bank," says Kibrom, who fled from Tigray to Addis Ababa, ➤



► the Ethiopian capital, last month. “If you have grain, you don’t have a mill. If you have a mill, you don’t have power.”

Hospitals are also running out of supplies. In most, such as the one in Humera, a town close to Sudan and Eritrea, staff have not been paid since October. A lack of electricity means medicines are spoiling—if there are any left at all. When Médecins Sans Frontières (MSF), an international charity, arrived at the hospital in Adwa earlier this month, its staff found that it had been almost completely looted. “How are we going to do blood transfusions that save lives if we don’t have a refrigerator?” asks Mari Carmen Viñoles, the head of MSF’s emergency unit.

The federal government disputes such accounts. “There is no starvation in Ethiopia,” said a spokesman for the federal disaster management agency on January 19th. It claims to have distributed aid to nearly 2m people in northern Ethiopia (though it is unclear how many of those were actually in Tigray).

Muferiat Kamil, the minister of peace, says her ministry is reaching citizens even in the central areas of Tigray, which are largely under the control of the TPLF. This is implausible. A senior humanitarian official notes that civilians in these places are “effectively trapped”. TPLF forces regularly attack military convoys, which makes it impossible for the government to deliver supplies safely. An agreement signed with the UN last month to allow aid groups to travel unhindered throughout the region is not being honoured. This is probably because officials do not want them to expose war crimes or the presence of thousands of troops from neighbouring Eritrea (who are helping the government). Four UN staff were shot at and detained last month for entering areas where a government official said “they were not supposed to go”.

Lorries carrying emergency supplies are also being stopped. Despite some recent improvements, the system for getting permits to let them into Tigray is slow and complex. Even when permission is granted by the central government, local authorities in neighbouring regions halt shipments, saying that they too have to give permission. Once the lorries arrive in Tigray, local army commanders stop them, citing security or perhaps because they think the food will end up in rebel hands.

It is possible that Ethiopia’s government is too incompetent to realise that its actions are likely to cause starvation. But it seems more likely that the authorities are deliberately holding back food in an effort to starve the rebels out. “The lack of humanitarian access is part and parcel of the war campaign,” says a UN diplomat. Even before the war began there was an effort to blockade Tigray to weaken its leaders. In October the federal government stopped

welfare payments to poor farmers.

For decades Ethiopian governments have been guilty of putting politics before people. A famine in 1973 was covered up to avoid embarrassing the government of Emperor Haile Selassie. A decade later a Marxist military dictatorship burned crops and restricted aid to Tigray in an attempt to defeat the TPLF, then a ragtag band of guerrillas. There is not yet a fully-fledged famine in Tigray. But there is a real danger that history will repeat itself. ■

Congo’s coltan smugglers

Dodging the “Obama law”

KALUNGU

How to get ore out of a war zone

MARTIN IS A Congolese pastor with a sideline in coltan smuggling. “You can hide it in the petrol tank of a motorbike,” he says, “or in a secret compartment under a lorry.” He smuggles coltan into neighbouring Rwanda, where it costs about half as much to export the stuff. The border police know which vehicles are smugglers’, says Martin (not his real name), but they look away in exchange for a cut.

Tantalum, a metal used in smartphone and laptop batteries, is extracted from coltan ore. In 2019 40% of the world’s coltan was produced in the Democratic Republic of Congo, according to official data. More was sneaked into Rwanda and exported from there. Locals dig for the ore by hand in Congo’s eastern provinces, where more than 100 armed groups hide in the bush. Some mines are run by warlords who work with rogue members of the Congolese army to smuggle the coltan out.



Bag then tag

When demand for electronics soared in the early 2000s, coltan went from being an obscure, semi-valuable ore to one of the world’s most sought-after minerals. Rebels fought over mines and hunted for new deposits. Soldiers forced locals to dig for it at gunpoint. Foreign money poured into Congo. Armed groups multiplied, eager for a share. Then, in 2010, a clause in America’s Dodd-Frank Act (a reform of financial regulations) forced American firms to audit their supply chains. The aim was to ensure they were not using minerals such as coltan, gold and tin that were funding Congo’s protracted war. For six months mines in eastern Congo were closed, as the authorities grappled with the new rules. Even when they reopened, big companies, such as Intel and Apple, shied away from Congo’s coltan, fearing a bad press.

The “Obama law”, as the Congolese nickname Dodd-Frank, did reduce cash flows to armed groups. But it also put thousands of innocent people out of work. A scheme to trace supply chains known as ITSCI run by the International Tin Association based in London and an American charity, Pact, helped bring tentative buyers back to Congo. It promised to trace each sack of coltan back to the mine it was dug from, and thus to prevent conflict minerals from entering the global supply chain.

ITSCI staff turn up at mining sites to see if armed men are hanging about, pocketing profits. They check that no children are working in the pits. If a mine is considered safe and conflict-free, government agents at the sites put tags onto the sacks of minerals. However, some unscrupulous agents sell tags on the black market, to stick on coltan from other mines. “The agents are our brothers,” Martin says. It is hard to police such a violent, hilly region with so few roads. Mines are reached by foot or motorbike along winding, muddy paths.

For a long time those who preferred to export their coltan legally had to work with ITSCI, which held the only key to the international market. Miners groaned that ITSCI charged too much: roughly 5% of the value of tagged coltan. When another scheme called “Better Sourcing” emerged, Congo’s biggest coltan exporter, Société Minière de Bisunzu, signed up to it instead.

Tantalus, a figure in Greek mythology who lends his name to the metal, was condemned to spend eternity in a pool of water under a low-hanging fruit tree. When he tried to drink the water, it receded. When he tried to eat the fruit, it slipped out of his grasp. Coltan is similarly tantalising: the riches it promises remain out of reach for most Congolese. Until the state takes back control of the lawless east, it will be hard to prove that minerals from the region are untainted by conflict. But shunning them is not the answer, say campaigners; better to improve traceability schemes. ■

Equatorial Guinea and the IMF

Who will blink first?

One of the world's most corrupt countries waits for a bail-out

MORE THAN a year after being promised an IMF bail-out, the tiny petrostate of Equatorial Guinea has yet to see most of the money it hoped would revive its economy. Before oil prices slumped in 2014 the country was, on paper, one of Africa's richest per person. But since the slump it has been weighed down by budget and current-account deficits. Its economy shrank in each of the past six years (see chart).

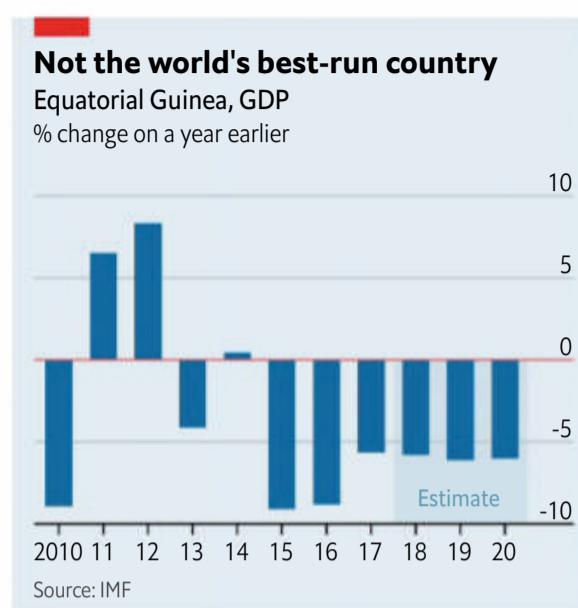
In late 2019 the IMF reluctantly agreed to lend Equatorial Guinea \$280m over three years, despite objections from NGOs and human-rights groups that the central African country was a bottomless pit of corruption. They have a point. The government's management of its oil and gas revenues is opaque. It publishes few statistics on the economy and there are almost none of the usual checks and balances that hold governments to account: political opponents are routinely arrested and tortured, and there is no independent press to scrutinise the government or its spending.

As a result, little of the oil wealth that flowed into the country in the years before 2014 made its way to ordinary people. In Malabo, the capital, slums run almost up to the foot of the large presidential palace occupied by Teodoro Obiang Nguema Mbasogo, who seized power in a military coup in 1979. Just a few miles from the palace people queue up with barrels to collect water from the single tap in their village.

Much of what we know of the spending habits of Mr Obiang is from court actions abroad, where he and members of his family and government (often there is no distinction) have been mired in controversy. In 2019 authorities in Switzerland auctioned off a collection of 25 sports cars that they had confiscated from Mr Obiang's eldest son—and vice-president—Teodorin. The cars, which included Bentleys, Rolls-Royces and Ferraris, fetched the equivalent of \$27m. Last year an appeals court in France upheld an earlier conviction of Teodorin on charges of embezzlement.

Despite these warning signs, Equatorial Guinea was seemingly able to allay the IMF's concerns. An initial \$40m was released at the start of the programme.

But the honeymoon did not last long. As part of its programme, the IMF had insisted that Equatorial Guinea meet a number of conditions aimed at increasing transparency and reducing theft. One was that it join the Norway-based Extractive Indus-



tries Transparency Initiative (EITI), which sets standards for good governance of oil, gas and mineral resources. In February 2020, shortly after the IMF deal was signed, the EITI's board rejected an application from Equatorial Guinea, saying that it had not met the requirements. Since then the IMF has held firm and not released any more money. Despite his country's deepening economic crisis, Mr Obiang seems strangely reluctant to blink first. ■

Qatar and Turkey

The special relationship

ISTANBUL

Ideology, business and bad neighbours push Qatar and Turkey together

WHEN TURKEY looks around its region, it sees angry faces. Many Arab states view the Islamism of its president, Recep Tayyip Erdogan, as a threat. The European Union is unhappy with Turkey for instigating a row over drilling rights in the Mediterranean. America, a NATO ally with troops in Turkey, has imposed sanctions on it, most recently for buying a Russian air-defence system. Yet Turkey doesn't even get on that well with Russia, which has bombed its allies in Libya and Syria.

At least Turkey has Qatar. The seeds of their friendship were planted in the early 2000s, when Turkish contractors poured into Doha, Qatar's capital, to help with a building boom. Since then the countries have drawn closer, spurred on by ideology, business and isolation. Turkey, which is big and cash-strapped, counts on Qatar for financial support; Qatar, which is small and rich, relies on Turkey for protection.

Both countries angered Middle Eastern despots a decade ago by backing the Arab-spring uprisings, which empowered Islamists in several countries. When the tide turned against the Islamists, many found

refuge in Turkey and Qatar. Qatar's support for Islamist groups such as the Muslim Brotherhood and Hamas was one reason why Bahrain, Egypt, Saudi Arabia and the United Arab Emirates (UAE) severed ties with it in 2017. They also wanted Qatar to shut a Turkish military base in Doha.

Instead Qatar deepened its ties with Turkey, which sent more troops and food to the emirate. The military base in Doha, completed in 2019, can now host 5,000 Turkish soldiers. Mr Erdogan dubbed it a "symbol of brotherhood". The countries have conducted joint military exercises and Turkey has provided Qatar with arms. Qatar, for its part, has backed Turkey's interventions in Libya and Syria.

More importantly, Qatar has propped up Turkey's finances. In 2018, as Turkey was running out of cash, Qatar pledged to invest \$15bn in the country and agreed to a \$3bn currency swap with Turkey's central bank. As the bank's dollar reserves continued to fall, Qatar boosted the swap agreement to \$15bn. In November, with Turkey facing another currency crisis, Qatar bought a 10% stake in its main stock exchange and a 42% share in a struggling shopping mall. It also pledged to invest in a port development in Istanbul. The deals are worth billions of dollars. Qatar is now Turkey's third-biggest foreign investor.

Opposition politicians accuse Mr Erdogan (pictured, left) of cutting shady deals. In 2018 they criticised him for shopping for a new presidential jet—so Sheikh Tamim bin Hamad al-Thani, Qatar's emir (pictured, right), gave him one worth \$500m. A firm linked to the emir's mother has purchased land near Mr Erdogan's pet project, a canal that would connect the Black and Marmara Seas. In 2019 Mr Erdogan personally approved the awarding of a 25-year lease on Turkey's national tank factory to a joint Turkish-Qatari venture involving one of his closest confidants. "Qatar has ac-



Friends with benefits

quired almost unlimited access to lucrative investment deals in Turkey," says Birol Basakan of the Middle East Institute, a Washington-based think-tank. "Qatar seems to be subject to no formal procedures."

Some wonder whether the relationship will become less special, since Qatar and its neighbours restored diplomatic ties earlier this year. But the atmosphere remains frosty (not literally—it's the Gulf). And Turkey is still feuding with some of them. It accuses the UAE, which is fiercely anti-Islamist, of having backed a coup attempt against Mr Erdogan in 2016. The countries support opposing sides in Libya's civil war. Turkey fell out with Saudi Arabia after Saudi hitmen killed Jamal Khashoggi, a Saudi journalist, inside the kingdom's consulate in Istanbul in 2018. (Qatar has offered to mediate between the two countries.)

The circumstances that brought Turkey and Qatar together have not fundamentally changed, so they are likely to stay close. The alliance "is one of the most stable relationships Erdogan has established since he came to power," says Galip Dalay of the Brookings Doha Centre, a think-tank. Whether it makes the region more stable is still keenly debated in Gulf capitals. ■

Iran

The not-so-Shia state

Disenchanted Iranians are turning to other faiths

FOR FATHER MANSOUR, Christianity in Iran has all the excitement of the persecuted early church. In homes across the country he delivers his sermons in code, calling Jesus "Jamsheed". He leads songs of praise in silence. "We lip-synch because we can't worship out loud," he says. The risks are great: proselytisation is banned; dozens of missionaries have been jailed. But so too are the spiritual rewards. Local pastors report hundreds of secret churches attracting hundreds of thousands of worshippers. Evangelicals claim Christianity is growing faster in Iran than in any other country.

The spiritual gap between Iran's Shia ayatollahs and the people they rule is widening. The strictures of the theocracy and the doctrine of Shia supremacy alienate many. So growing numbers of Iranians seem to be leaving religion or experimenting with alternatives to Shiism. Christians, Zoroastrians and Bahais all report soaring interest. Leaders of other forms of Islam speak of popular revivals. "There's a loyalty change," says Yaser Mirdamadi, a Shia cleric in exile. "Iranians are turning to other religions because they no longer find satis-



Increasingly popular prayers

faction in the official faith."

Formally, the ayatollahs recognise other monotheistic religions, as long as they predate Islam. The constitution allocates non-Muslim "peoples of the book"—Christians, Jews and Zoroastrians—five of the 290 seats in parliament. They have their own schools (with Muslim headmasters) and places of worship. Iran hosts the Muslim world's largest Jewish community.

But the clerics prefer to keep non-Shias separate, cloistered and subservient. Religious diversity, they fear, could adulterate the Shia identity of the state. Since the Islamic revolution in 1979, there has never been a non-Shia minister. The clerics sometimes denounce religious minorities as infidels and spies. Conversion to non-Muslim religions is punishable by death.

The repression isn't working. The state says over 99.5% of Iran's 82m people are Muslim. But its numbers are not reliable. A poll of more than 50,000 Iranians (about 90% of whom live in Iran) conducted online by Gamaan, a Dutch research group, found a country in religious flux. About half of the respondents said they had lost or changed their religion. Less than a third identified as Shia. If these numbers are even close to correct, Iran is much more diverse than its official census shows.

Zoroastrianism, Iran's oldest faith, is perhaps the country's second-biggest religion. Nowruz and Yalda, two of its holy days, are celebrated as national holidays. Officially, it has only 23,000 adherents (some of whom are pictured). They follow the teachings of Zarathustra, a Persian prophet from the 6th century BC. But 8% of respondents told Gamaan they were Zoroastrian. Some are attracted to the faith's indigenous roots, Persian creed and hostility to Islam, which they deride as an Arab implant. Such was the popularity of Zoroastrian-style weddings, conducted with Persian prayers around a fire, that the authorities banned them in 2019.

The clerics see Sufism, or mystical Islam, as a bigger threat. Long targeted by the government with harassment and arbitrary arrests, Sufis protested in 2018. Five members of the security forces were killed; over 300 Sufis were arrested. Noor Ali Tabandeh, leader of the Gonabadi, the most popular Sufi order, was then placed under house arrest until his death in December 2019. But Gonabadi mystics say their retreats attract a growing number of Iranians.

Iran's Sunni population is also growing, in part due to high birth rates. They are thought to be 10% of the population and live mostly on the country's periphery. The authorities want to keep it that way. They have demolished all Sunni mosques in the capital, Tehran. Still, every Friday thousands of Sunnis spill out of large villas in Tehran which Sunnis use as prayer halls.

Millions more have joined Islam's other offshoots, such as the Yarsanis, who follow the teachings of a 14th-century holy man, and the Bahais, who follow those of a 19th-century prophet. Their universalism and rites incorporating music, dancing and the mixing of the sexes draw many seeking a respite from the theocracy founded by Ayatollah Ruhollah Khomeini, who reportedly said, "There is no fun in Islam."

Many Christian converts like the fact that women may take part in services alongside men. Some draw parallels between the martyrdom of Shia imams and Christ. But some new members of Iran's minority religions may also be attracted by certain non-spiritual benefits. For example, they can apply for refugee status in America as persecuted minorities, usually leading to quicker approval.

President Hassan Rouhani unveiled a citizen's charter in 2016 that promised to end religious discrimination. But it wasn't binding. The ruling clerics still seem to think that theocracy is best protected by persecution. As a result, they may be turning Iran into a less Shia state. ■

Tunisia

Free but fed up

ETTADHAMEN

Ten years after the Arab spring, jobs are still scarce

BY DAY THE streets are quiet, the cafés full of unemployed men. At night, though, groups of young people have fought running battles with police during a week of protests and riots in several Tunisian cities that started on January 15th. Local media portray them as looters and vandals; more than 600 have been arrested, and the army has been deployed to restore order. But other Tunisians are more sympathetic. In Ettadhamen, a working-class suburb of the capital, Tunis, residents decry the joblessness and despair that periodically cause eruptions of anger. "They always want to depict protesters as troublemakers," says 37-year-old Ahmed (who declined to give his full name). "They never want to say they're protesting over living conditions."

This month's unrest began almost ten years to the day after Zine El Abidine Ben Ali, Tunisia's dictator from 1987 to 2011, stepped down amid a popular uprising. Since then Tunisia has become a democracy, with fair elections and political freedoms. In economic terms, though, it has been a disappointing decade. Annual growth averaged just 1.8% from 2011 to 2019. Last year the economy shrank by between 7% and 9% as covid-19 forced long lockdowns and clobbered the vital tourism sec-



Less firing, more hiring

tor. Unemployment is stubbornly high at 16% overall, and 36% for young people. The Tunisian dinar has lost 47% of its value.

Successive governments—there have been nine prime ministers since the revolution—have seemed powerless to jump-start the economy. In part that reflects the messy nature of politics in a fragile democracy. Long-running disputes between Islamist and secularist factions make it hard to get much done. Powerful labour unions fought efforts to trim a bloated public sector. And, in contrast to decades past, public opinion now matters. In 2018 a string of tax increases sparked a week of protests, some violent. "The people want the fall of the regime," chant some of the protesters today, echoing calls made ten years ago.

Small in size, bordered by war-torn Libya and stagnant Algeria, Tunisia has struggled to find avenues for growth. The cash-strapped government cannot afford much spending on development or welfare. Pub-

lic debt has soared from 43% of GDP in 2011 to a projected 89% this year. The IMF estimates that Tunisia budgeted just 1.8% of GDP to support individuals and firms during the pandemic (the global average is 5.9%). To cover a widening deficit, the government may have to seek another loan from the IMF, which could necessitate painful austerity measures. It received a \$745m loan from the IMF in April to deal with the pandemic, but that has run out.

Some young people see no choice but to leave. The country's economic malaise has fuelled a rise in risky forms of emigration. Last year 12,776 Tunisians crossed the Mediterranean to Europe, up from 3,900 in 2019. They made up the largest single group of migrants crossing the sea, about 20% of the total. For many, the hopes of ten years ago have given way to a depressing present: proud they may be of their country's political progress, but pride alone is not enough to persuade them to stay at home. ■

Egypt

Hot cakes

CAIRO

The patisserie police crack down on depraved desserts

THE CELEBRATION seemed innocent enough. A group of old Egyptian women gathered at the posh Gezira Sporting Club in central Cairo to mark a birthday. For some reason, it seems, they wanted to shake things up. So for dessert they indulged in cupcakes topped with sweets shaped like genitalia (male and female). They also gobbled a cake that looked like a pair of buttocks. Pictures posted on social media show the women chuckling; one holds a pastry up to her mouth, its phallic confection menacingly close to her lips.

When the photos went viral, things got sticky. Egypt's government does not think sexy cupcakes are funny. The baker was quickly arrested. She reportedly admitted, through tears, to making the pastries. Her customers had allegedly provided her with photos for guidance. She could face a charge of insulting public decency, punishable by up to two years in prison. "This won't be taken lightly," said a spokesman for the ministry of sports, which oversees the Gezira club. "Everyone involved will be held accountable."

Egyptian officials may be struggling to deal with covid-19 and a stagnant economy, but they somehow find time to police patisseries and protect the public from bawdy tarts. The sports ministry has formed a committee to investigate the party and decide what charges to recommend to the public prosecutor. An

MP called for the minister to testify before parliament. State media have shown blurred-out photos of the depraved desserts. Sharing photos of sweets with sexual themes is forbidden by Islam, tweeted the state's Islamic advisory body, without specifying where in the Koran it says so.

Egypt likes to talk about female empowerment. A new quota ensures that a quarter of the seats in parliament are held by women. President Abdel-Fattah al-Sisi has a similar proportion in his cabinet. But when it comes to morality, men judge and women must obey.

A burgeoning #MeToo movement was crushed last year after a number of women accused men from wealthy families of sexual violence. Some of the men were arrested—but so were witnesses, and even some of the accusers. The authorities have used a cyber-crime law to crack down on women dancing on TikTok, an app for sharing short videos. At least ten have been arrested for inciting "indecency" with mildly suggestive gyrations. Two were recently acquitted, but are still being held on human-trafficking charges somehow related to their dancing.

Mr Sisi presents himself as a moderate alternative to the stern Islamists he toppled in a coup in 2013. But Egypt remains deeply conservative. If the president really wants to set a different tone, perhaps he should let his people eat cake—even if it has a sugary penis on top.

**Schools and covid-19**

Slight return

Why America has done such a poor job of keeping schools open compared with other rich countries

ONLINE CLASSES make Miemie Jefferson frustrated, and when she is frustrated she often screams and bites herself. The 15-year-old from Seattle has Angelman syndrome, a genetic condition that causes severe physical and learning disabilities. Before the pandemic she attended a mix of general and special education classes at a mainstream school, assisted by an aide who stayed by her side all day. Since March she has been stuck at home. Miemie is non-verbal and cannot operate a computer; her mother, Anneli, says remote learning "makes no sense". A few months ago her school said it was preparing to welcome her back to campus. She is still waiting.

Ten months after America's classrooms closed, most of the country's children are still learning from their living rooms. About half of them are enrolled in schools providing only remote learning, according to data collected by burbio, a tech firm that is tracking the reopening. Less than one-third have the option of attending school

every day. Even where in-person schooling is available, many parents are choosing to keep their children away. Less than 40% of young children have been signed up for the two days a week of in-person schooling that Chicago's school district is preparing to provide.

This compares shoddily with most rich countries. Almost all European ones have opened schools fully for at least some period since the first lockdowns, according to data collected by UNESCO, the UN agency

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responsible for education. In November schools across France stayed open during a nationwide rise in infections that was more severe than any spike America has yet recorded. Pupils in some parts of Europe have had to return to periods of remote learning, but usually only after governments have exhausted other means of controlling rising hospital admissions.

Whereas in Europe decisions about re-opening schools have generally fallen to national or regional governments, responsibility in America has lain largely with officials in its roughly 14,000 school districts. A study of 10,000 districts published by Brown University found that local infection rates made little difference to whether they offered in-person or remote learning when the new academic year began in August. Local politics was more important. Districts in areas that supported Hillary Clinton in 2016 were a lot less likely to offer in-person learning than places that voted for Donald Trump, even after controlling for factors such as the density of the population and the varying strictures of America's 50 state governors.

This probably owes something to bungling in July, when Mr Trump insisted that schools open their buildings, come what may. "The decision about reopening became a decision about whether you trusted the president or not," says Emily Oster, an economist who has been tracking infec-

tion rates in schools. Few believed Mr Trump had a sound grasp of the science; by contrast, he sounded preoccupied with getting parents back to work before the presidential election in November. His empty threat to deny federal funds to districts that failed to offer in-person learning only sharpened partisan divides.

Michael Hartney, one of the authors of the Brown University study, says precedents set at the end of the summer have helped dictate how reopening has gone since. Teachers' unions have found it easy to argue that school buildings should stay shut, not least because America's infection rates have only risen since those choices were made. "Hyper-decentralised" governance of American schools has long given an advantage to its unions, he thinks, because they find it easier to make wild demands of district leaders than they would if they had to engage in higher-profile debates with federal authorities.

It is now widely recognised that months of remote learning have harmed poor children more than wealthy peers. But America's uneven return to school risks creating a situation in which these inequities grow even more severe. Suburban and rural districts are much likelier to offer in-person learning than big urban ones, which more commonly serve poor and minority families (see next story). A survey by the Pew Research Centre published in October found that 53% of children from low-income families were learning entirely remotely, compared with 40% for those with the wealthiest parents.

The fiscal stimulus signed off by Mr Trump on December 27th may help speed up reopenings. It included \$54bn to help public schools cover costs including masks and extra cleaning, four times the amount coughed up in an earlier splurge. In November New York City, then one of the few big urban districts providing in-person learning, juked a pledge to unions that it would close schools should the proportion of tests coming back positive in the city rise above 3%. It sent older pupils back to remote learning but said elementary-aged children could stay in classrooms even though infection rates outside school gates were rising. This was informed by research showing that young children have played little role in spreading the virus and are the least able to learn remotely. Some cities that have not yet welcomed back any children may adopt similar strategies to help schools reopen in the coming months.

America's new president, Joe Biden, promises yet more cash. He will have little direct authority over school districts' reopening plans. But he could do much to promote a more sober debate about the trade-offs involved in keeping children at home (a rolling survey conducted by the University of Southern California finds

that Americans believe themselves to have a 17% chance of dying if they catch the virus, ten times the true case-fatality rate). Robin Lake of the Centre on Reinventing Public Education, a think-tank, wants to see "national science-based guidance for school reopening" and more effort made to collect data about infections among students. According to Mr Hartney: "Teachers' unions will have to be more responsible when they cannot point to someone in the White House who is saying: 'You should in-

ject yourself with bleach.'"

Meanwhile Anneli Jefferson worries that Miemie's mood and mobility are deteriorating. She has always enjoyed dance classes, but her mother's efforts to recreate them in the living room have not gone well. She is no longer getting exercise from walking up and down school corridors. Nor is she capable of chatting to friends on social media. Instead she is spending a lot of time watching movies. "Her world has become very small." ■

Educating minority students

Obstacle coursework

BOSTON

The children who may lose most from closed schools will be the last to go back

CLOSING PUBLIC-school buildings during the covid-19 epidemic has had clear academic consequences. McKinsey, a consultancy, reckons pupils are likely to lose between five and nine months of learning on average by the end of this school year. Non-white students, the study reckons, will be six to 12 months behind. Many people, including President Joe Biden, want children to return to the classroom. However, the pupils who have experienced the greatest learning loss will probably be the last to return.

According to the Understanding America Study at the University of Southern California, 68% of white parents want their children to return to school this academic year. However, only 36% of black parents and 50% of Hispanic parents feel the same way. Much of this difference stems from systemic problems existing before the pan-

demic which, if left unresolved, could expose black and Hispanic pupils to covid-19 at higher rates than their white peers.

Black and Hispanic Americans have many reasons to be even more afraid of covid-19 than white families. According to the Centres for Disease Control and Prevention, they are four times more likely to be hospitalised as a result of the virus and three times more likely to die than white Americans.

This fear is compounded by lingering distrust of the medical system, resulting from past mistreatment of racial minorities and present-day discrimination. Alia McCants, a black parent in a suburb of New York City, says her decision-making was influenced by the "disproportionate impact" of covid-19 on her community. "I am much more cautious about exposure to the coronavirus because I know that the likelihood...that we would get the excellent care that a white family of similar means might get is less because we're black." Ms McCants and her husband decided to send their children to school in person in September, but reverted to remote learning when case rates began to rise in December.

As well as these concerns, many racial-minority families must contend with schools that have fewer resources to deal with the virus. Black and Hispanic pupils are more likely to attend low-income schools than their white peers. American schools are supported through a combination of federal, state, and local funding. Higher-income communities can typically raise more money per pupil through local property taxes.

Partly as a result of these funding disparities even before the pandemic, poor schools struggled with overcrowded facilities that lacked proper ventilation for sometimes windowless classrooms. Some ►



The lucky few

► teachers struggled to get hold of basic materials such as paper and pencils, with many resorting to their own money and fundraising websites like donorschoose.org to get the supplies they needed.

The epidemic has made these problems more urgent. According to the Learning Policy Institute, a think-tank, 10m pupils and 1m public school employees face heightened exposure to covid-19 as a result of defunct ventilation systems in public schools. Elizabeth Ramos, a teacher and union representative at Public School 72 in the Bronx, describes cold New York winter days when teachers and elementary pupils needed to keep windows open and wear coats to ensure adequate ventilation.

Fortunately, two covid-19 relief packages have provided additional funding for public schools: \$13bn disbursed in spring 2020, and \$54bn distributed in early January. Michael Griffith of the Learning Policy Institute says this additional funding will cover short-term pandemic needs, such as cleaning supplies and remote-learning technology, but not the long-term needs that have also been exposed. He estimates that schools will need an additional \$110bn or so from the federal government to address learning loss: \$75bn to pay for extra school days and \$36bn for small-group tutoring. He also estimates that schools will need an additional \$72bn to repair ventilation systems. Mr Biden has recognised this need, pledging \$130bn to support schools.

Future measures may also have to account for state revenue lost because of the virus. Kenneth Shores of the University of Delaware points to lessons from the American Recovery and Reinvestment Act, the bill passed in 2009 which included \$100bn for education. The bill worked well for the first two years by providing schools with one federal dollar for every dollar lost in the recession. However, after that, the federal government “didn’t have the political willpower or support to keep funding going”, says Mr Shores. This occurred even though 29 states needed more than six years to recover to pre-recession funding levels, according to the Centre on Budget and Policy Priorities, a think-tank. As a result, school budgets were cut and pupils’ test scores fell.

Throughout the country schools are facing dips in pupil enrolment, which means a significant number of children may have dropped out. Mr Biden has promised to reopen most schools, from kindergarten to 8th grade (ages 12-13), within his first 100 days in office. But this plan must consider the worries of families and teachers, or teachers and pupils may not return. When Chicago public schools partially reopened on January 4th, less than half the teachers required to be there showed up. And the city teachers’ union is threatening to strike. ■

Vaccinating America Here's how

BOSTON

The vaccination roll-out will improve with practice and federal support

ONLY EIGHT medical centres in the entire state of New York have managed to administer all the covid-19 vaccines they received. Cayuga Medical Centre, in upstate New York, is one such facility. It has used 100% of its vaccines—7,700 so far, about 700 each operational day—whereas the rest of the state has managed to administer only 77% of its supply.

With most Americans eager to get vaccinated, many are wondering why so many vials are sitting in storage. The answer mainly comes down to practice. Martin Stallone, CEO of Cayuga Medical Centre, attributes the system’s success to its ability to perfect complex logistics. Serving as a covid-19 testing site for nine months before the vaccination programme allowed Cayuga to streamline processes such as managing the flow of patients while keeping them far enough apart, processing paperwork and following-up with patients. “We have taken the lessons we learned by being an aggressive covid-testing site,” Dr Stallone explains. “We took that...and we applied it to our vaccine operations.”

Howard Koh, a public-health professor at Harvard University and former health commissioner for Massachusetts, emphasises the importance of such practice. He encouraged states to use a mass-vaccination campaign for influenza to “drill, work together and build a unified effort” in preparation for the covid-19 vaccine, but most did not. Furthermore, the federal covid-19

vaccination plan was released in September, just a few months before covid-19 vaccinations started in December. As a result, many sites lacked the time and preparation they needed to run efficiently.

Space helps too. Cayuga benefits from access to large, empty facilities to use as vaccination sites. The system made use of an empty Sears department store in the city to gain 50,000 square feet of vaccination space (almost the size of an American football field). This gives Cayuga the ability to process as many as 2,000 people a day. It can also access an additional 40,000 square feet of retail space—a former Bon-Ton store—should it need the capacity.

Although Cayuga has the resources it needs to operate efficiently, many other sites need support. President Joe Biden has pledged \$160bn towards a national vaccination plan, expanding testing and other public-health measures. His plan promises community vaccination centres and mobile vaccination units, to increase the share the federal government pays when reimbursing health-care companies for vaccine administration and to administer vaccines to 100m Americans by the end of his first 100 days in office.

Dr Koh reckons Mr Biden’s plan would give states what they need to meet their vaccination goals, and that over time the sites will gain the experience they need to run efficiently. “I’m confident [states] will rise to the challenge,” says Dr Koh. Meanwhile at Cayuga, vaccine supply is the constraint. Despite being able to administer 2,000 vaccines a day, Cayuga’s vaccination centre was closed on a recent Monday because it lacked vaccine doses. “The Sears building is...dark. It’s locked up. Nobody’s there, except maybe a custodian,” Dr Stallone said. “We can turn on the lights, and we can deploy our people to that location, if we are given the mission.” ■



Shots and chasers

Pennsylvania politics

The four-point touchdown

HARRISBURG

Unhappy Republican state lawmakers aim to change Pennsylvania's constitution

ORDINARILY THE swearing-in of elected lawmakers in Pennsylvania's state House is a formality. Pictures are taken. There is lots of smiling and shaking of hands. This year was different. A brawl nearly erupted when Jake Corman, the Republican president *pro tempore* of the state Senate, refused to swear in Jim Brewster, a Democrat who had just been re-elected. John Fetterman, the Democratic lieutenant-governor and Senate president, objected to the refusal. The Senate Republicans then voted to remove Mr Fetterman, who was presiding over the session, and replaced him with Mr Corman. In footage of the vote Mr Fetterman sounded incredulous and then irate. At first, he refused to give up his gavel. At one point both men attempted to recognise motions from the floor. Mr Fetterman called this "a fundamental assault on democracy", where the people's will and the courts were ignored because one party did not like the result. Tom Wolf, the (Democratic) governor, described it as a "shameful power grab".

Only 69 votes separated Mr Brewster from Nicole Ziccarelli, his Republican rival. His district spans two counties. Each county counted mail-in-ballots a little differently, with one allowing undated ballots and the other not. Ms Ziccarelli challenged these ballots. Pennsylvania's supreme court allowed the disputed votes to be counted and the state's secretary of state certified the results. This did not satisfy the Republicans, who continued to challenge

the votes in federal court. When a federal judge upheld the state court's decision, Ms Ziccarelli dropped her suit and Mr Brewster was at last sworn in on January 13th. "I hate to say this, being a political conservative," says Joseph DiSarro, a political scientist at Washington & Jefferson College, "but we may have to federalise elections and the rules...take it out of the hands of the states."

The ruckus on the state Senate floor highlights how bitter state politics has become. Two proposed amendments to the state constitution will add to that bitterness. Republican legislators want to change the way the state judiciary is elected. Some have proposed that judges on the state's highest courts—the supreme court, commonwealth court and superior court—should be elected in regional districts created by the General Assembly (that is, the legislature). Democrats call this judicial gerrymandering. The districts could be drawn to ensure one party controls a majority of the court seats. This idea has been floating around for several decades, but the recent court decisions related to state and federal election results, which found in favour of Democrats, have given the proposal momentum. Furthermore most of the judges are from in and around Philadelphia and Pittsburgh, so the more rural parts of the state are not being represented, according to the bill's proponents.

The second proposed amendment would curb the power of the governor, in a way that is reminiscent of how Wisconsin Republicans curtailed the Democratic governor's power in 2018. The Pennsylvania bill would reduce the governor's emergency declarations to 21 days from 90 days. Charlie Gerow of Quantum Communications, a Republican political consultancy, says this amendment, in effect, is a referendum on the performance of Mr Wolf. Republicans have called his pandemic shutdowns, as well as a dozen opioid-related emergency declarations, an overreach (though without the shutdowns, the state might have lost even more people than the 19,400 who have died of covid-19).

Mr Fetterman compares what is happening in Pennsylvania to American football. "It would be like if the Steelers lose a game, and then they try to change how many points a touchdown is [six points]. Well, we lost by a touchdown, so we're gonna change the rules. So now a touchdown is worth only four points." ■



The constitutional convention



The gun lobby

In the line of fire

DALLAS

What next for the bankrupt National Rifle Association?

AMERICA'S GUN lobby, the National Rifle Association (NRA), which enjoys non-profit status, is besieged by allegations of lavish spending and extravagance by its leadership, including its boss, Wayne LaPierre. According to a lawsuit filed last August by New York's attorney-general, Letitia James, the NRA diverted millions of dollars in donor funds for executives' personal use, including chartered jets for holidays and use by family members, luxurious clothing, gifts, private security, and more. The attorney-general of Washington, DC, has also filed a lawsuit against the NRA for misusing charitable funds. But the NRA is not one to bring a knife to a gunfight. On January 15th the group announced it was leaving New York, where it is incorporated, in order to file for bankruptcy and reincorporate in Texas.

Its headquarters, for the time being, remain in Fairfax, Virginia. The move appears to be an attempt to slow-walk the New York attorney-general's litigation and set up shop in a friendlier, pro-gun state. The NRA itself has said it is leaving the "corrupt political and regulatory environment in New York", calling its new plan "Project Freedom". When news of the NRA's bankruptcy and reincorporation broke, Texas's governor, Greg Abbott, tweeted, "Welcome to Texas—a state that safeguards the 2nd Amendment." It is true that Texan leaders are keener on cosying up to the NRA than New York's have been. Pro-gun rhetoric sits well with Republican primary voters there, and the state attorney-general, Ken Paxton,

► is unlikely to point the finger at a non-profit for financial mismanagement, considering his own indictments for federal securities fraud (which he denies), says Mark Jones of Rice University.

Yet it is not certain that Texan courts will be as hospitable as the NRA hopes. For one thing, New York may try to get the bankruptcy dismissed as a bad-faith filing. The NRA is filing in Texas because a subsidiary, which it incorporated only a few months ago, is based there. It is not possible to claim New York has no jurisdiction simply because the NRA does not want New York to have jurisdiction, according to Adam Winkler, a professor at the University of California, Los Angeles School of Law, who says that it is only “aspirational” that the NRA is abandoning New York.

The NRA, a close ally of Donald Trump, is one of the most powerful lobbying groups in the country and describes itself as America’s “longest-standing civil-rights organisation”. In 1871 the group was founded in New York by former Union soldiers who had fought in the civil war and believed that northerners needed better firearms training. For much of its early history the organisation focused on marksmanship, but in the 1970s it started taking a harder-line stance on policy issues, and now it fights any form of gun control as a step towards government confiscation of people’s weapons. This has resulted in the group staking out more extreme positions than many of its gun-owner members believe in, says Joseph Sakran, a surgeon and activist against gun violence.

The crossfire is only just starting. Tax authorities are said to be investigating Mr LaPierre for fraud relating to his personal taxes. Last year the NRA disclosed in a tax filing that executives had received at least \$1.4m in improper or excessive benefits. Mr LaPierre paid back \$300,000 in travel expenses that the group had covered. Some dealers in historic guns also grumble that the NRA has sold guns to board members that its members’ estates had bequeathed to the organisation, doing deals at friendly, below-market prices and depriving the non-profit outfit of maximum value for the sales. The NRA declined to comment.

Mr LaPierre has managed to stay at the helm, despite bad publicity, whistle-blowers, feuds with former executives and legal tussles, including one with a former public-relations agency, Ackerman McQueen, through which the NRA allegedly funnelled large, improper expenses (such as \$39,000 for a single day’s shopping at a clothing boutique in Beverly Hills). Mr LaPierre’s survival at the top may itself be evidence of the organisation’s cosy governance and board capture. Having remade American gun policy with its effective and widespread lobbying, the NRA seems disinclined to remake itself. ■

The death penalty Final throes

LOS ANGELES

Despite a spate of federal executions, use of the death penalty may be ending

IT WAS A Trump bump that was years in the making. Since July, after a 17-year hiatus, 13 prisoners on federal death row have been put to death. Dustin Higgs, who was convicted for his part in the murder of three women in 1996, could turn out to be the last for a long time, though. He died by lethal injection on January 16th, a day after the Supreme Court ruled that his execution could go ahead. In a cross dissent, Justice Sonia Sotomayor noted an “unprecedented rush of federal executions” in the past six months: three times as many inmates were put to death in that period as in the preceding six decades.

States usually account for the lion’s share of executions, but their number has been falling for years after many banned the practice or introduced moratoriums. Even states that continue now use it rarely. In 2020 only five—Alabama, Georgia, Missouri, Tennessee and Texas—put to death a total of just seven prisoners, the smallest tally in nearly four decades (see chart). For the first time there were more federal executions.

The return of executions was a goal of Donald Trump. In 2015 he called for the death penalty to be “brought back strong” in order to punish criminals. His first attorney-general, Jeff Sessions, explored how to revive the federal practice which had been stopped because of concerns over the lethal-injection protocol. Companies, pressed by activists opposed to the death penalty, had grown increasingly unwilling to supply the drugs frequently used in the injections. Hospira (now part of Pfizer), the only American maker of sodium thiopental, a barbiturate once commonly used in three-drug



Winning

lethal cocktails, stopped producing it in 2011. As a result the federal Bureau of Prisons launched a review of its execution procedures.

The review took long enough that, in 2014, a death-row inmate won an indefinite stay of execution: courts said the government must tell death-row prisoners how they would die. This question was not resolved until July 2019, when a new lethal method and source of drugs for federal execution chambers were found. William Barr, then the attorney-general, ordered executions to be resumed using pentobarbital, a powerful barbiturate that some states also use.

Some medical experts have argued that those who are given pentobarbital can experience sensations similar to drowning. In 2014 the drug was used to execute an inmate whose last words were “I feel my whole body burning”. Government lawyers have argued that use of the drug is not inhumane.

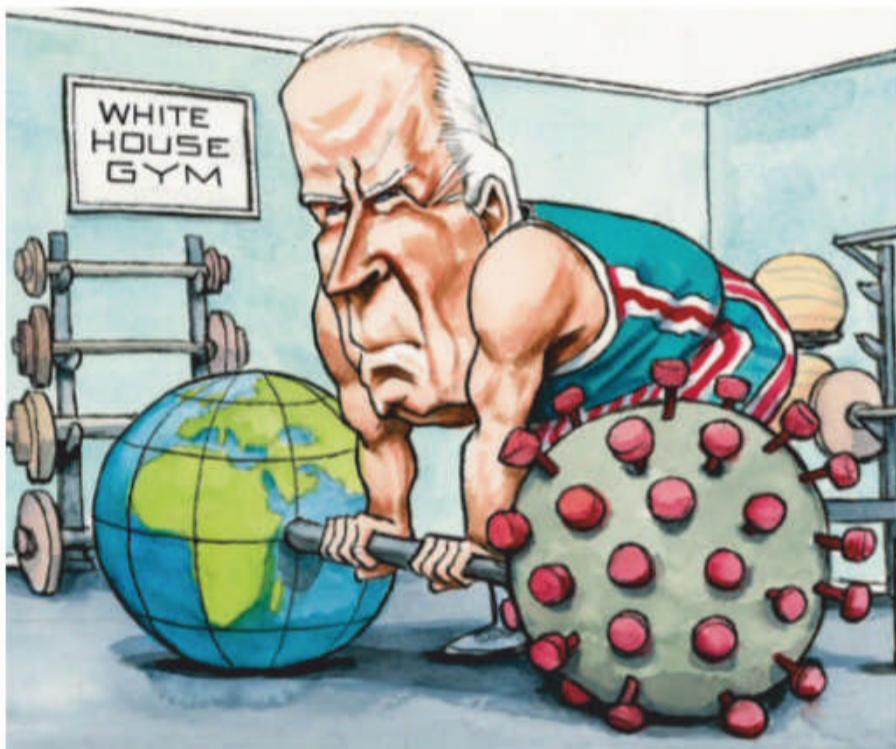
Were the killings of Mr Higgs and others rushed to take place while Mr Trump remained in office? On the face of it, yes. President Joe Biden has said he will end the federal death penalty, even as states execute ever fewer people. For some cash-strapped ones, the high cost of the death penalty is now prohibitive. Meanwhile, a growing share (though still a minority) of the public now says executions are immoral. As a result, and despite the events of recent months, America’s use of the death penalty could soon grind to a halt entirely.

Trump bump
United States, executions per year



Lexington | Back to the future

Joe Biden sets out to restore American leadership with an old team in a new world



NOT SINCE George H. W. Bush in 1989 has America inaugurated a president so well-known in world affairs as Joe Biden. A former chairman of the Senate Foreign Relations Committee, then vice-president for eight years, he has had a role in, or a say on, most foreign policy since the cold war. His chosen foreign-policy team, dominated by other veterans of Barack Obama's administration such as John Kerry and Tony Blinken—a former secretary of state and a prospective one who has briefed Mr Biden for decades—is almost as well-known. Yet for all these familiar elements Mr Biden's foreign policy is cloaked in uncertainty.

This reflects the altered circumstances in which he has returned to the White House. Having launched his campaign as a continuity candidate, drawn from retirement to defend Mr Obama's legacy, he faces huge problems that will make his administration very different from the "third Obama term" he initially seemed to promise. One is the bungled covid-19 epidemic, which has produced misery at home and more proof of America's abandonment of global leadership. In the depth of the Iraq war many Europeans thought better of the superpower than they do now. The crisis will also hamper Mr Biden's ability to repair the damage, by ensuring he is largely consumed by fighting fires at home.

The second problem, what to do about China, is more daunting. The president and his team all subscribe to the new consensus view that it is a formidable, long-term competitor. Contrary to Republican fears, there is no prospect of them reverting to the Obama administration's relatively benign vision of coexistence with China. Even those who are in retrospect least critical of that approach, such as Mr Blinken, a suave and understated diplomat, now sound hawkish by 2016 standards. And Mr Biden has appointed his most China-sceptical advisers to the top Asia jobs at the National Security Council and Pentagon. Foremost among this second group—categorised as "the 2021 Democrats" in an astute analysis of Mr Biden's team by Thomas Wright of the Brookings Institution—is Jake Sullivan, the national security adviser. Yet quite how these Democratic hawks will push back at China, how far Mr Biden will back them, and to what effect, remain to be seen.

The complexity of the new footing with China that Mr Sullivan and other reformists envision underlies that uncertainty. While

many in Congress, from both parties, hanker after the simplicity of an old-fashioned cold war, they want closer co-operation with China on some issues—including public health and climate change, a priority that unites the Democratic coalition—while checking or pulling away from it in other areas, including supply-chains, technology transfers and trade. Mr Biden is, for example, therefore likely to retain some of his predecessors' tariffs.

That is also where the Democrat's long-promised push to rebuild alliances comes in. As an alternative to new trade agreements or joining what remains of the Trans-Pacific Partnership, which his team appears to think politically impossible, he is expected to pursue more ad hoc agreements, issue by issue. Whether that will impress America's allies must also be seen. The EU's decision to go ahead with its investment agreement with China, after Mr Sullivan hinted it should hold off, points to their scepticism.

Mr Biden's and his advisers' other big ambition is to bring foreign policy and economic policy more into alignment. This is a familiar idea; Warren Christopher once vowed to put an "America desk" in the State Department. But the focus on national competitiveness has made it newly relevant. So has growing enthusiasm for industrial policy in both parties, rooted in loose monetary policy, scepticism about globalisation and a desire to address the economic grievances that have contributed to the rise of populism—another new problem Mr Biden must take into account. It is notable that Mr Sullivan, who as Hillary Clinton's former policy chief carries the scars of Donald Trump's election, has embraced much of the anti-globalism critique of the Sanders-Warren left.

Connecting security and economic priorities, the Democrats hope, might also attract the support of Republican hawks such as Marco Rubio, who have taken the same intellectual path, thereby shoring up the centre. This is a worthwhile aim, sharpened by the recent illustration on Capitol Hill of how hard-pressed the rational right is, and what might follow if it fails. It is also fuelled by concerns about the self-defeating politicisation of recent foreign policy—highlighted by the fact that neither of the two previous administrations mustered much bipartisan support for their signature schemes. This is a guarantee of changeable American leadership, off-putting to allies, and guaranteed to fail.

Yet though Mr Biden has in essence accepted the Republicans' thinking on China, it would be remarkable if many did support him. Foreign-policy realism has been largely replaced on the right by a never-say-die hawkishness, which permits no reasonable compromise, perhaps because it is partly intended to score points against the left. Mr Biden's Middle East policy, which is likely to hew to Mr Obama's commitment to containment and withdrawal, will antagonise Republicans especially. But, keen to accelerate Mr Obama's aborted pivot to Asia, the Democrats will press on. This will probably involve resuscitating the Iran nuclear containment deal Mr Trump abrogated—triggering a new cycle of partisan sparring, as mystifying to America's allies as it is self-defeating.

Over to Joe

Such are the ambitions and intellectual currents of the centre-left team Mr Biden has assembled. His utterances suggest he has moved with them. Yet the question, which not even his long record can answer, is whether he is committed to the hard policy slog, with few easy wins, that heeding his advisers on China could entail. Especially as events crowd in. Mr Biden starts his presidency with great experience and goodwill. But, in such testing times, the 78-year-old's leadership may be another source of uncertainty. ■

**SPECIAL
REPORT:**

Chinese youth

→ January 23rd 2021

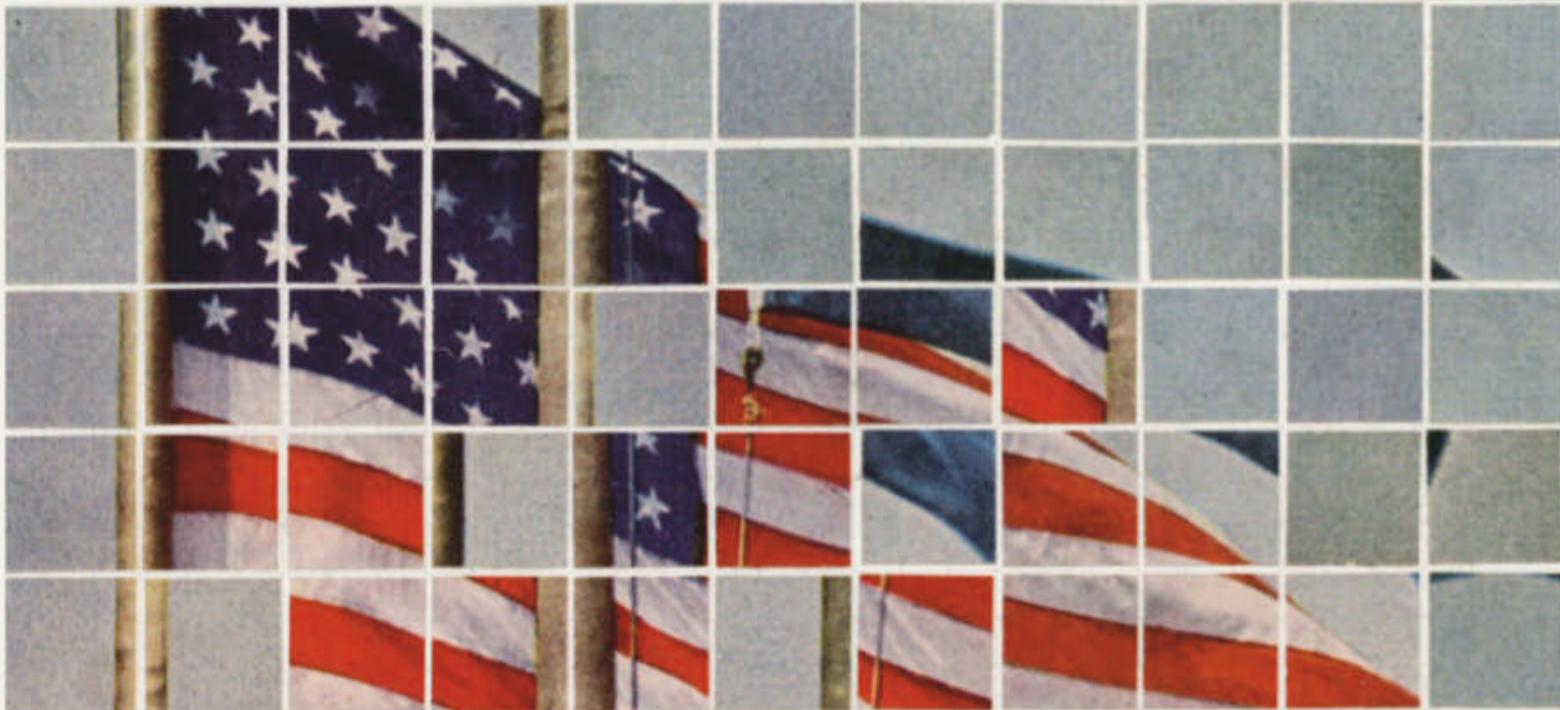
- 3 Why the young matter
- 5 The rural-urban divide
- 6 Patriotism and the party
- 8 Subcultures
- 9 Views of the world
- 10 Values and identity
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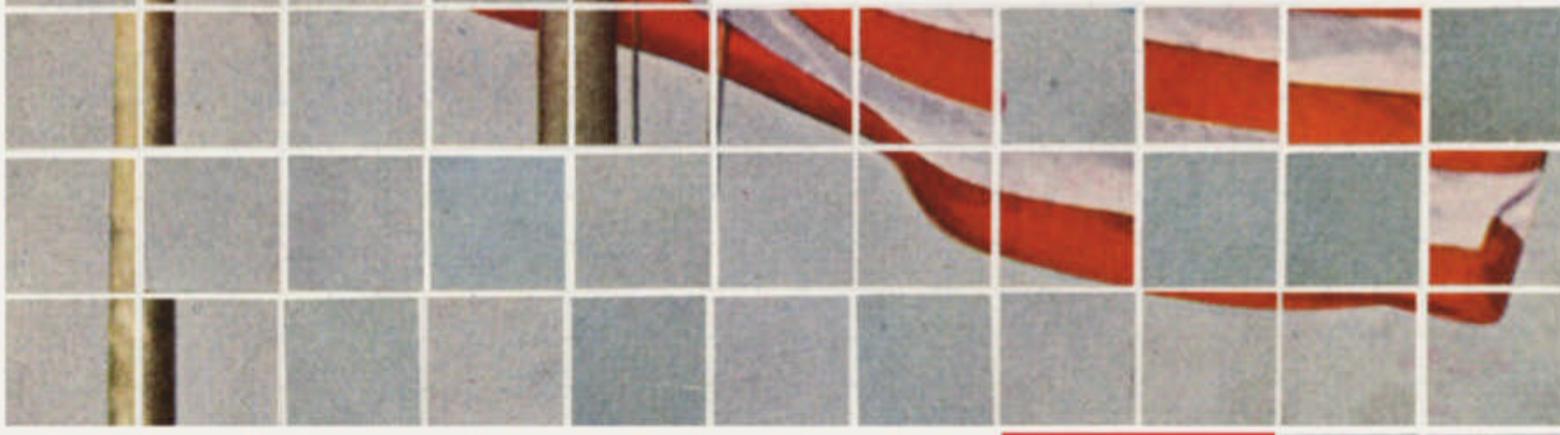
Generation Xi



Will America heal?



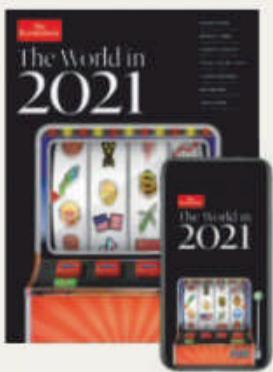
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Generation Xi

Young Chinese are both patriotic and socially progressive. That mix is already changing their country, says Stephanie Studer, our China correspondent

THE DAILY flag-raising ceremony at sunrise on Tiananmen Square draws a youthful crowd, often from out of town. Queues form even in the biting Beijing winter. The show is over in minutes: China's red flag is hoisted and an army band strikes up the national anthem. The first rays of sunlight illuminate the portrait of Mao Zedong hanging in the square. In a tribute known to all Chinese youths, Mao once said: "The world is yours as well as ours. But in the last analysis, it is yours. You young people...are like the sun at eight or nine in the morning...We put our hopes in you."

China's youth merit attention for the simple reason that they will one day be the people in charge. Over the next decade they will gain influential positions in China's booming private-sector firms—or set up their own. More than half of Chinese in their 20s express a desire to start their own business. Others will climb up the ranks of the ruling Communist Party. How they understand their country's past and what they ask of its future are essential to understand how they might one day lead China.

But China's youngsters also deserve scrutiny for what they are now: vitally, young. Youth often stands for trendsetting and rebellion. In China, the young must navigate an authoritarian state and a bruisingly competitive education system. This is when big life decisions are made and adult identities formed. China's young face unusual pressures. They were born under the one-child policy, a harshly enforced system that from 1980 to 2016 let most urban families have only one child (many rural families were allowed two, and ethnic minorities like Tibetans were in theory exempt). Without siblings, they shoulder alone the full weight of their par-

ents' (and grandparents') expectations: to excel at school, secure a stable job, marry and have children, all before the age of 30.

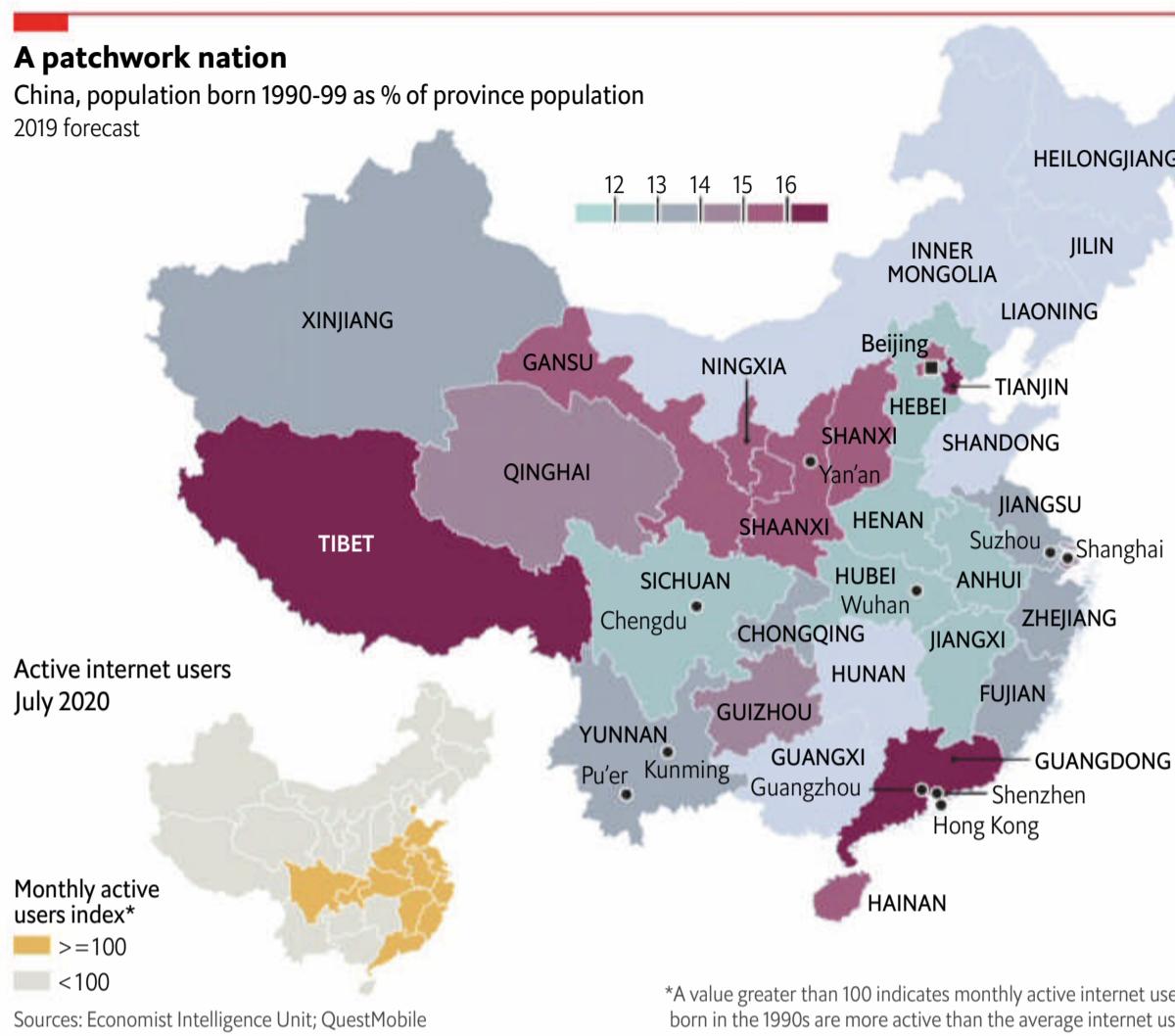
This special report focuses on those in their 20s. Many have spent some time living away from home, but are not yet in the thick of parenthood themselves. In China this cohort has a generational identity: the *jiulinghou*, or "post-90s", a shorthand term for those born between 1990 and 1999. They number 188m—more than the combined populations of Australia, Britain and Germany. The *jiulinghou* are already making their mark, in ways unimaginable to those born a decade earlier.

Many are defying social convention, often to their parents' alarm. The *jiulinghou* are China's best-educated cohort yet. Last year the country churned out a record 9m graduates. But increasing competition for good jobs means that returns to education are falling. Lots plump for stable civil-service jobs, yet some resent doing tedious work. One 27-year-old live-streamer who sells cosmetics asks why he should settle for a government job that is "bullshit and boring"? A pay cheque is no longer enough; young people want a sense of purpose. As labour-intensive manufacturing winds down, young migrants from the countryside are taking up gigs that give them more freedom in the booming informal sector.

Young Chinese are also making choices about when, whom and whether they wed. Their elders, who would once have made matches for them, have never been less involved. Newlyweds hit a ten-year low in 2019. Women in Shanghai marry on average at 29, later than Americans and a jump of six years in a decade. Even in rural areas the age is 25 and rising. Young Chinese are adept at ➤

A patchwork nation

China, population born 1990-99 as % of province population
2019 forecast



► avoiding traditional norms. Many gays and lesbians, who once felt compelled to marry straight folk, unite in “lavender” marriages thanks to matchmaking apps. (China does not allow gay marriage, and homosexuality remains taboo.) This pleases conservative parents while letting gay people choose their own partners.

The identities of the young are also shaped by the digital age. On social media they start trends, vent frustrations and circulate knowing memes. Despite pervasive censorship, they use China’s online networks to promote such causes as feminism, environmentalism and nationalism. When they feel insulted by foreign entities, be they k-pop bands or America’s National Basketball Association, millions clamour online for consumer boycotts that cow even mighty multinationals. Patriotic sentiment has long been strong. But increasingly youths do not question the regime’s claim that loving country and party are one and the same.

Where they now show reverence for the flag and the armed forces, young Chinese once displayed remarkable defiance. In June 1989 tanks and guns cleared student protesters from Tiananmen Square with murderous force. To many Westerners and older Chinese liberals, the young lack the qualities that made the Tiananmen generation remarkable: ideals, rebellion, even guts. The *jiulinghou* are seen as apolitical, except in their naive and brash patriotism; concerned with getting ahead, but only to buy the latest iPhone. Many see them as materialistic and entitled, a generation of “little emperors” doted on by their parents.

This does not always describe the *jiulinghou*. When police arrested a human-rights lawyer called Pu Zhiqiang in 2014 for joining a private memorial to the victims of Tiananmen, students uploaded photos of themselves to Weibo, a microblog, holding signs in his support. “We are the *jiulinghou*,” the message read. “We are certainly not brain-dead!...In fact, we are passionate, we are rising and we are ready to take on responsibility.”

This report argues that they are living up to these words. Yes, there has been no direct youth-led challenge to the regime. But

young people speak out for social causes. Many join volunteer groups or donate to charity. No generation has been more vocal in its support of LGBT and women’s rights. Students have backed factory workers trying to unionise, and staged silent street protests about climate change. This takes guts. Under Xi Jinping, China’s president since 2013, intimidation and arrests of activists have become common.

Young people do not intend to challenge the legitimacy of the ruling Communist Party. Their social liberalism has grown even as support for the party rises. The *jiulinghou* are comfortable with a rising, assertive China. The party knows how to play on this. It has hammered home that China stopped the spread of covid-19 within its borders as the West bungled its response. Spin doctors have not had to exert themselves on the calamitous failings of Donald Trump’s presidency. More overseas Chinese students are returning home, disillusioned with the West. Young pride feeds off a new worldly confidence.

Yet not every young Chinese holds rosy views of the party. In Hong Kong, young protesters fighting for Western freedoms have made clear their fury at their erosion by the Beijing government. Tibetan and Uyghur youths seethe in silence as brutal

state-led campaigns erase their cultures and languages. In Xinjiang more than 1m Uyghurs have been locked up without trial. Students are told their good behaviour decides if relatives get out. Ethnic Mongols in the northern province of Inner Mongolia staged rare protests last year over an order requiring more use of Mandarin in schools. Hundreds were arrested. Geriler, a young ethnic Mongol, says she feels “deeply unhappy” with the government, but also “terribly afraid”.

Jiulinghou lingo

China divides its generations by decades. The *qilinghou* (post-70s) are defined by childhoods after Mao’s death in 1976. The *balinghou* (post-80s) grew up as China reformed and opened to the world under Deng Xiaoping. It is often now argued that generations change every five years, or even every three—the talk is already of the *ling-linghou*, most of whom are still in school. To speak of millennials, whose definition in the West is those born between 1981 and 1996, is to shoehorn four Chinese generations into one.

The gap is easy to grasp if you ask parents to recall their 20s. They mention jobs allocated by the party through their *danwei*, a government-controlled work unit. Only with its permission could they marry and divorce. For years women had to report their periods to the *danwei* to ensure they were complying with the one-child rule. The *danwei* provided welfare benefits such as free housing, schooling and health care. Their children’s lives, by contrast, are defined by choice, individualism and more personal freedom.

The lives of *jiulinghou* share two features. One is that they began after the pro-democracy protests of 1989. The state relentlessly scrubs from the internet any reference to the bloody suppression of the Tiananmen protests. Terrified parents, not ►

Young people do not intend to challenge the legitimacy of the ruling Communist Party

► wanting to put ideas into children's heads, keep silent. Some youths know a terse official version that casts the students as rabble-rousers, and says nothing of their deaths. Some observers ask if this enforced amnesia could embolden the young to rise up again. Others argue that, because they do not know that the army gunned down students in cold blood and see only a China that has become richer and stronger under the party's rule, they are more likely than older generations to see it as a benevolent force.

The second feature is that those born since 1991 spent their late teens with Mr Xi in power. They might be called Generation Xi. Since primary school, they have received an education with more emphasis on patriotism than at any time since Mao, following an overhaul of the syllabus after Tiananmen. Students take obligatory courses on Marxism, nationalism and the doctrines of Mao; last year "Xi Jinping Thought" was added. This affects how they see the world. A survey in 2019 by *China Youth Daily*, a state organ, found that three in four of those born after 1995 think China is "not perfect, but always improving". But the first thing this report explores is a divide: between rural and urban youth. ■

The rural-urban divide

Homecoming

Rural and urban youth are closing the gap. But it remains large

NONE OF THE universities to which Lin Meizi, a farmer's daughter, applied was in her province of Yunnan, one of China's poorest regions. Young people often flee to join millions of other rural migrants seeking work in booming coastal cities. Few look back. Ms Lin got her break when she was accepted to study in a big Chinese city 1,400km away, then clinched a job straight out of university. But she turned down the offer—to return home to run her family's coffee farm.

Ms Lin, now 27, works in the mountains near Pu'er, the heartland of China's small home-grown coffee industry, among papaya trees and chickens. Until recently it was rare for a rural youngster to forgo an urban life. China's countryside has been drained of able-bodied villagers, leaving only the infirm, the very young and the elderly who care for them while their parents toil far away as cooks and cleaners, or in the factory towns of the east. Now a small but growing counterflow of migrants has begun to go home. They are known as *fanxiang qingnian*, or returning youth.

One reason for their return is that provincial China is more inviting. Quality of life has improved. New roads and high-speed railways make for easy travel to big cities from county seats that have themselves been transformed. Nicer apartment blocks, hotels and shops have sprung up, fuelled by growing disposable incomes. Nominal rural wages are rising rapidly, as labour shortages give workers more bargaining power, helping to close the chasm between rural and urban incomes.

More than anything, the internet has brought big-city life to provincial backwaters. The rural young shop on their phones like the urban young, spending hours on the same social media and video apps. With a few taps, they can get almost anything delivered thanks to the sprawling logistics industry underpinning Chinese e-commerce. Returning youth often find jobs selling stuff from premium tea to tofu. Since mid-2019, over 100,000 livestreamers have tuned in from farms to shift goods on Alibaba, a giant e-shop.

The internet has also brought country living to the town, fos-

tering a new urban romance with rural China. The feeling is encapsulated in *xiangchou*, longing for one's hometown—a Chinese form of "cottagecore". As young tourists increasingly shun big resorts for rustic retreats, rural youths see urban enthusiasm for their lifestyle. Dong Jianfa, a 29-year-old Yunnanese potter, left the provincial capital of Kunming to return to his family home, where he is reviving the old ceramics trade.

Where the grass is greener

Coffee once held no interest for Ms Lin (pictured below). Her family was the first to plant coffee trees in modern China, under a poverty-relief initiative financed by the World Bank in the 1980s. The beans were a way of making ends meet. But her time in the city, where she trained as a barista, showed her that coffee was a mark of urbanity. "My old city friends all envy my job in the mountains," she says. Live-streaming from the countryside, part of the urban *xiangchou* trend, is wildly popular. It has made celebrities of some. The most famous is Li Ziqi, who posts videos of herself foraging for wild herbs, picking cucumbers and cooking hearty dishes in Sichuan. Live-streamers capitalise on this spiritual need among China's middle class. Ms Li's personal food brand makes millions.

Attitudes to work are changing, too. Rural youths are no longer prepared to spend hours toiling on production lines as their parents did. Instead they pick up gigs as couriers or ride-hailing drivers, allowing them to stay closer to home and choose their working hours. The allure of "BeiShangGuangShen", as the rich cities of Beijing, Shanghai, Guangzhou and Shenzhen are known, is fading. "Initially everyone thought that if you wanted to make it, you had to go there," says Linda Qian of Oxford University, who studies rural nostalgia. Returning to one's township meant failure.

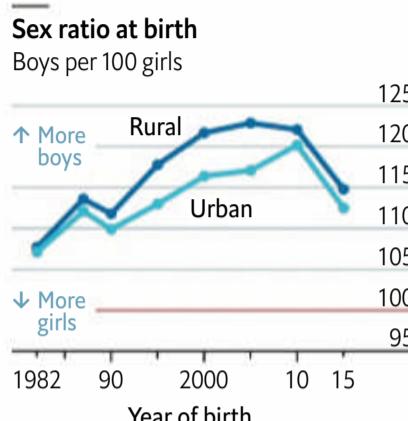
Now rural and urban youth speak of *chengshibing*, or "city disease": sky-high rents for small digs, bad air and long workdays. All prefer nicer working environments. To persuade more migrants to stay, some factories have gone so far as to set up day-care centres and stage matchmaking events for singles. In the decade to 2019, the proportion of rural migrants under the age of 30 living away from their hometowns almost halved, according to official statistics (though this does not include those moving from villages to thriving local county seats). ■



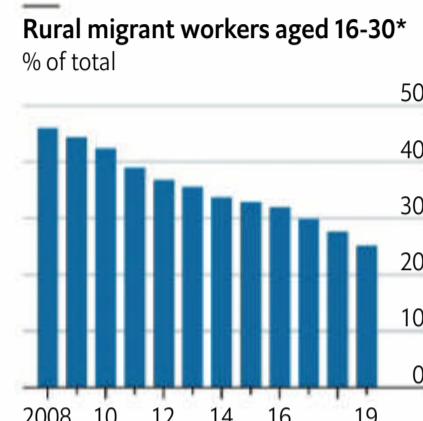
Raking in the coffee

Off balance

China



Sources: Unicef; Wind



*Domestic workers who have left their hometowns

▶ Young people can be fussier partly because parents are better able to support them. Few compete with siblings for household savings, built up over decades of economic boom. After attending vocational school until 17, Mr Dong lived at home for two years before he went to Kunming for his first full-time job. Not long ago his family would have sent him out to earn an extra wage after compulsory schooling, which ends at 15 in China.

State support helps. Rural revitalisation is a pet project of Xi Jinping, who has urged young teachers to go to backwaters. The Communist Youth League is helping 100,000 migrant youths return home to work by 2022. Netizens mock this as a revival of the brutal "sending-down" of urban youth to the countryside under Mao. The parallel is instructive. When the party praises rural life, it wants to create an outlet for millions of young dissatisfied migrants. Their retreat from big cities is an indictment of rampant inequality, and a sign of how hard it is to be upwardly mobile.

In China the urban-rural gap is codified through the *hukou* system of household registration. Some 60% of the population are urban, but only 44% hold an urban *hukou*. Those registered to live in villages are effectively barred from settling full-time in cities and sidelined at school. So rural and urban youth take distinct educational paths. In 2015 over 80% of all 15- to 17-year-olds were in school, up from half a decade earlier. But in rural areas many attend low-quality vocational schools, note Scott Rozelle and Natalie Hell of Stanford University in a book, "Invisible China". Mr Dong is not looking for better-paid work because he feels unqualified, despite studying architecture at a vocational school.

Young people are newly aware of rural-urban divides. Ms Lin was struck that her father earned less for 1kg of beans than the cost of a single cup of coffee in the city. "I thought, that's just not fair," she says. In 2020 she helped set up the Yunnan Speciality Coffee Community, a trade association to give young farmers more clout. Ferrying packages and food around town, working-class youths are more visible to city kids. When they strike to demand unpaid wages, sympathetic urban peers support them online.

One gap that gained nationwide attention last year was period poverty. An image was circulated on social media of 100 sanitary towels being sold online for under \$3. Two crowdfunding campaigns to send safe pads to rural teens raised over \$300,000. After a rural school placed these pads in a box outside the girls' toilets, students in better-off places began to do the same. In the process, many learnt that poor sex education and the stigma around menstruation are not inherently rural issues.

Another is domestic abuse. Last autumn Lhamo, a young Tibetan live-streamer, died from burns after being attacked by her husband during a broadcast. Fans tuned in to her videos because they

showed the unglamorous yet sunny sides of a life of scarcity. Hundreds of thousands took to Weibo to back a "Lhamo Act" to give victims of domestic violence better legal protection. It was another example of a scourge that crosses the urban-rural divide, but disproportionately hurts rural women.

Other inequalities go unnoticed. Graduates from rural families are twice as likely to be unemployed as city dwellers. The government reserves slots for graduates in the civil service and the army. But rural youths without a degree fare worst. They bore the brunt of covid-19 when villages were sealed off. The informal economy to which so many flock gives no job security or benefits. Urbanites rely on personal connections far more than their rural counterparts do. Mr Dong felt forced to settle for a job in Kunming delivering bottles of *baijiu*, a Chinese firewater, for 14 hours a day. Having gone to the city with high hopes, he left it feeling bitter.

The deepest divide has arisen because a preference for sons means that many baby girls were aborted under the one-child policy, skewing sex ratios. They are most unequal in the countryside: among those born in the 1990s, there are 117 boys for every 100 girls—the largest this gap has been for Chinese of marriageable age. As many as 40m young men have no chance of finding a mate, reckons Mr Rozelle. They are known as *guanggun*, or "bare branches" on the family tree. Unmarried and unemployed, these young men could one day be a destabilising social force.

For now, polls find that China's working class is not disaffected. Eileen Yuk-ha Tsang of the Chinese University of Hong Kong says that *guanggun* seek an outlet in brothels, often spending three-quarters of their wages on sex (as a temporary bartender in Guangdong, Ms Tsang interviewed 100 of them). Other studies suggest that populations with a large male surplus end up with greater rates of violence, crime and rape than the norm. Yet stiff punishment may deter many from such a path, Mr Rozelle thinks.

The Communist Party also offers a potent distraction: a heightened sense of national solidarity, encouraging people to grin and bear things, as they did under lockdown. As this report will explain, the party is hoping to co-opt restless youth by pandering to such patriotism. ■

Patriotism and the party**Partygoers****How nationalism is shaping the young**

YAN'AN, A MINING town of 2m people in Shaanxi province, is not the stuff of tourism brochures. Yet 50m Chinese come here on China's "red tourism" trail every year. The area's historical sites are among a hundred or so that have been spruced up to celebrate the communist past. Yan'an was the wartime stronghold of the communists under Mao Zedong from 1937 until shortly before they seized power in 1949. In those years, many youths streamed to Yan'an to join Mao's cause. Today, they flock in still.

Close to one in two red-tourism trips are made by Chinese under 30, says Ctrip, China's biggest travel firm. Young party members go to Yan'an to tour the caves that Mao plotted in. They end with renewed communist pledges or a boisterous rendition of "The East is Red". Students complete compulsory courses on party history and ideology that may involve a night in a cave. They cheerfully don replica pastel-blue army uniforms and red-starred caps, swinging satchels stamped with Mao's face. ▶

► Qing Wenhui, a 23-year-old trainee guide, says many young Chinese are “deeply stirred” by their visits. They quiz her on the hardships Mao endured (she knows to ignore questions about his mistresses). A romp round the caves and a peek at Mao’s wooden bathtub inspire more than textbooks, she says. A young maths teacher says he has come to grasp “how the Communist Party rose up” from these hills. “Never forget where you started, right?” he says with a grin, quoting a mantra of Xi Jinping’s.

Mr Xi wants to bolster faith in the party’s rule among the young. They feel none of the emotional attachment to it that their elders did. They have known neither famine nor crushing poverty. The state no longer has the hold over their lives that it did for their parents, when jobs, schooling, housing and health care were dispensed by *danwei* (work units) that would monitor them for signs of political waywardness. Four in five students are members of the Communist Youth League, which can be joined at 14 and be a launchpad to party membership at 18. But most see this as a mere résumé booster. Jobs in state-owned firms and the government often require it. Startup founders join the party to demonstrate political correctness (Jack Ma of Alibaba, an entrepreneur who inspires many youngsters, is a member).

In 2019 Mr Xi said the party had to “win over vast numbers of youth” to ensure its cause passes “from one generation to the next”. It has tried to do this by instilling patriotism at school, cultivating new youth appeal online and stepping up censorship. The result is a generation of youths that consumes vast amounts of foreign pop culture and fashion, yet feels more defensive than ever of China’s achievements. Plenty shell out for imported goodies. But more display their patriotism by wearing fast-improving local brands, from sportswear by Li-Ning, a brand owned by a former Olympic gymnast, to lipstick by Perfect Diary, a cosmetics firm.

This pleases Mr Xi, who has urged youths to show that national pride is “not a mere slogan”. Ask youngsters what they think of propaganda posters plastered everywhere, and many roll their eyes. Yet one line resonates: that the communists rescued China from a “century of humiliation” at the hands of foreign powers that began with the Opium war of 1839. Only by standing up to the West, the message goes, can China rise again.

Young Chinese often support boycotts against foreign brands and sports teams seen to have insulted China. Transgressions include maps of China that exclude Taiwan or show Hong Kong as a separate region. In 2019 so many fashion houses came under fire that the hashtag #LuxuryBrandsApologyDay went viral on Weibo. Anger erupted when Daryl Morey, manager of the Houston Rockets, a National Basketball Association (NBA) team, tweeted support for Hong Kong’s pro-democracy protesters. The backlash cost the NBA \$400m in lost revenue. State television did not air its games for a full year.

Almost all Chinese oppose independence for Taiwan and Hong Kong. Still, the NBA’s 500m Chinese fans were torn: wanting to defend their country’s sovereignty, yet upset at missing the games. It is often hard to tell if pressure for boycotts comes from netizens or party mouthpieces. In October a state-media offensive against BTS, a popular K-pop band, for a perceived insult to China’s role in the Korean war, fizzled out as outlets quietly deleted BTS-bashing articles. This suggests that party-run media are

keen to show they are in touch with youngsters, too.

Another tactic is to seem more hip. “Socialism is Kind of Cool” is a game show about Mr Xi’s life. Rap videos sing the party’s praises. It also adopts teen lingo. To elders, China is the “motherland”; to their children it is a *zhong gege*, or “big brother China”—the implication being it must be loved without question. The relationship between party and netizen is framed as one of idol and fan, fostering a new emotional connection to young people, says Liu Shih-Diing of the University of Macau.

The East is pink

Such appeals are also accompanied by more sinister methods. Soon after Mr Xi’s rise to power, officials were summoned to secret briefings about a party circular called “Document Number Nine”. The directive banned schools from teaching seven Western concepts, such as constitutional democracy, universal values, civil society and a free press. This had a big impact on universities as centres of student activism and political debate.

Consider the gap in experience between students born in the 1990s and those born in the 1980s. When Weibo was launched in 2009, many saw free expression flourish. But after uproar over a deadly train crash in 2011, censors clamped down. Fang Kecheng, a former journalist who studied at Peking University in 2004-10, says his “generational memory” is of swapping forbidden clips of the Tiananmen protests of 1989. Others recall experiences surfing Google, watching foreign documentaries on YouTube and chatting on Facebook. By 2010 those websites could no longer be accessed on China’s internet. Nobody born after 1992 could use Google, which left China after refusing to filter its search engine—though many young people interviewed for this report said they use virtual private networks to get on Instagram, Facebook or Twitter. Since 2015 many universities have set up departments to oversee teachers’ political thinking. First-year students at three-dozen of them now take a new mandatory course on Xi Jinping Thought, alongside long-standing compulsory ones on Marx and Mao.

By the time they get to university, students have already been primed by years of patriotic education at school. It was ramped up ►



Big Brother is watching you

► after Tiananmen, which party leaders saw as a failure of indoctrination. Greater emphasis was placed on China's past humiliation by foreigners. In 2004 new politics textbooks at secondary schools aimed to form a "correct worldview". A paper published in the *Journal of Political Economy* in 2017 duly found that students began to hold more favourable opinions of the regime, and less positive ones of democracy and free markets.

Another party tactic is to shape online discussion. Jennifer Pan of Stanford University finds that government-run social-media accounts post as much clickbait as do those of celebrities. Censors allow talk about topics on which they think most netizens will side with the government, finds Yiqing Xu, also at Stanford, and put a stop to heated arguments that could rile people. This defter touch is giving many youngsters the false impression that China's cyberspace is growing less, not more, restrictive.

The state also applauds influential bloggers who spew the party line (those who "write works of positive energy"). Among those it praises are a tribe called the *xiao fenhong*, or "little pink", who appear to be mainly young women. One early attention-grabbing stunt was bombarding the Facebook page of Tsai Ing-wen, a China sceptic, with negative comments after Taiwan elected her president in 2016. Netizen-led pressure campaigns on Weibo to shut down accounts that post dissenting views are multiplying.

Netizens still find ways to express dissent. After the central government imposed a national-security law on Hong Kong in June 2020, books about it received a small flurry of one-star ratings on Douban, a review site. Last year a contestant on "Rap for Youth", a popular reality show, posted an acrostic on Weibo that accused China's media watchdog of censoring lyrics that denounced sexual harassment. But as jingoistic voices grow louder, it is harder to find thoughtful political discussions online. Netizens self-censor, or do not post. Yaqiu Wang at Human Rights Watch, born in the 1980s, says young people no longer hear from Chinese public intellectuals such as the lawyers and activists who inspired her. Many have been silenced or punished.

Much of what youth display is performative patriotism, because it is easier and safer to side with the loudest voice. In a 2015 study, Huang Haifeng of the University of California, Merced, argued that propaganda can deter dissent by demonstrating the power of the state. In a patriotic-education test, he found that students who did best were not only the most critical of the regime in private, but also the least likely to voice dissent publicly. Yet patriotism is motivated by more than party devotion. A sense of community, a need to let off steam and a desire to protest are part of the mix. But as the next part of this report shows, a coarsening of views of the outside world among young Chinese is unmistakable. ■

How to rebel in China

Rave or pray

A CHINESE APHORISM teaches that "the young should never go to Sichuan, and the old should never leave". It is but the first rule broken by a wave of youthful newcomers. The ancients reasoned that Sichuan's joie de vivre would sap adolescent ambition. But today the stressed and the free-spirited come to Chengdu, the provincial capital, to go against the grain. For many, this means rejecting China's rigid formula for success in work and life.

The city of 16m brims with young subcultures, from rap fans and techno ravers to wearers of Hanfu, an 1,800-year-old style of dress. Its fashions are fresh and whimsical. Oxford Economics, a consultancy, predicts that by 2030 Chengdu's cool kids will spend over \$9bn a year on their clothes and shoes, as much as their counterparts in Melbourne or Miami.

No one is sure how this inland city got so edgy. Local hipsters point out that cool begets cool. Cheap rents, a culture of slow leisure—its ubiquitous teahouses serve it by the flask—and a permissive local government all help. But apparatchiks do not embrace countercultures, and that tension fuels its underground scene.

Twice they have shut down TAG, a small but beloved electronic-music club on the 21st floor of an office building. The club's owner, Ellen Zhang, has put TAG's "nice" techno beats on USB sticks and given them

to local officials to win them over. That helped: one has taken to playing the mix in his car on the way to work.

Ms Zhang kicks out unruly clubbers and drug users (whom China punishes severely). Fans do not just come for the music. TAG is a space where many feel "comfortable" and it is "easier to feel free than outside", she says. For long nights



Counterculture in Chengdu

that stretch past dawn, ravers escape "To Another Galaxy". Among the regulars is Shinjil, a soft-spoken teacher from Inner Mongolia, who left home on a whim because he could no longer stand his "clock-in, clock-out" job.

A few escape instead to a spiritual realm. Master Zhao, a 25-year-old Sichuanese monk, starts his day as Shinjil's ends, by banging gongs at 5am. He once worked in Beijing's art scene. He calls the monkhood, which he joined two years ago, "a profession of pleasure". He had grown tired of feeling he was never satisfied in life. "Even if you have 1,000 houses, you can only rest on a single bed," he points out sagely, sipping tea.

His path is still unusual. But a group of non-conformists in his generation call themselves "Buddhist youths". This is meant to show that they have no desire to achieve anything; instead of dreaming big, they accept being average. To show this they may eat the same meal every day, or yield to others over decisions. They say they are happy-go-lucky. Real monks sniff that they are slackers. Their passive rebellion irks the state. *People's Daily*, a government organ, warned Buddhist youths that they must not forget "the issues that we need to put our hearts into" (support for the Communist Party being presumably among them).

Views of the world

A bale of sea turtles

As attitudes to the West sour, students turn home

BAI SHUANG stayed overseas longer than most. After a degree in Paris, Ms Bai worked for a French company, then went to London for a Master's and got another job. By 2017 two forces pulled her home. First was her salary, which Ms Bai thought too low; she heard she could earn more in Shanghai's startup scene. The second was her parents, who were aghast at the terrorist attacks that rocked both her adoptive cities. China was safe, they said, and Ms Bai could "shine" here. "If there is a place where you can have it all, then why not?" Ms Bai reasoned. She bought a ticket home.

Ms Bai is a "sea turtle", a play on the Chinese homonym *haigui*, meaning "to return from abroad". Of the 6.2m Chinese who left to study overseas between 2000 and 2019, more than 4m have returned, says the education ministry. The rate of return has picked up. In 2001 just 14% went home. But in every year since 2013, China has welcomed back at least four in five overseas graduates. Amid the unusual stresses of covid-19, it is thought that 800,000 came home in the first nine months of 2020, up from 580,000 in 2019.

The pandemic has cut short stints abroad. When it is over, educational flows should pick up again. But a new confluence of factors had already been turning well-educated Chinese away from the West, and America in particular. More than just covid-19 and terrorist incidents are making the West seem unsafe and hostile. Trips to America by Chinese students fell by 70% in the first nine months of 2020 over a year earlier. But only 50% fewer Taiwanese and 56% fewer South Korean students went to America, despite the fact that both places beat back covid-19 as effectively as China.

One reason is that America is making it harder for Chinese graduates to stay. In 2018 it cut from five years to one the validity of visas issued to those in sensitive fields of study, including computer science. In September America revoked visas of 1,000 students and researchers whom it deemed security threats. Donald Trump repeatedly accused Chinese students of stealing American technology. In the words of Christopher Wray, his FBI director, China is no longer just a "whole-of-government" threat, but a "whole-of-society" one.

It is little surprise that young Chinese wonder if they are welcome. Last year over half of American youths polled by the Pew Research Centre expressed negative views of China. Across the population this number hit an all-time high of 73%. The feeling seems mutual. In a survey of 20,000 Chinese run by Cary Wu of Toronto University last April, four in five respondents under 30 said that they did not trust Americans.

The experiences of covid-19 and Mr Trump have formed views in young Chinese that will linger long after both are gone. Mr Trump threatened to ban Huawei, a national champion; TikTok, a winning export; and WeChat, a lifeline to family back home for those overseas. A popular joke online is that Mr Trump encouraged the Chinese to rally round the flag. In nationalistic circles he was even praised for

laying bare America's hypocrisy on espousing liberal values and openness.

Hate crimes against Asian-Americans in America have risen. Anti-Chinese sentiment can persuade Chinese overseas students—cosmopolitan, politically liberal types—to stick up for China. A study by Jennifer Pan and Yiqing Xu of Stanford University conducted in elite American universities found that students who encountered racist taunts were more likely to back China's political system. Those who had previously been least nationalistic showed the biggest rise in support for Chinese authoritarianism.

At home and overseas, young Chinese were appalled by how Western democracies botched their response to covid-19, when tough measures in China stopped it in its tracks. A survey last year by researchers at the University of California, San Diego, found that university-educated Chinese youths displayed the largest jump in support for Xi Jinping's regime. In a post-covid world its competence, public order and efficiency look attractive. This has been manna for propagandists, who have censored news of the early cover-up and suffering in Wuhan, where the virus was first found. One of those who wrote bravely about these themes was Fang Fang, a 65-year-old novelist. Millions rushed to read her online diary before censors took it down. Then news broke that her account was to be translated and published in America. The fiercest backlash came among young, keen readers of her work. After state media attacked Fang Fang, many felt she had "turned her pen into a knife, and handed it to the West".

The young pit the starry-eyed admiration of Fang Fang's generation for the West against their own clear-eyed confidence. They think China is best served by picking aspects of Western culture that suit it. "Lots of young people think that America is declining, and that its flaws could be solved with a Chinese political arrangement," notes Feng Chucheng of Plenum, a think-tank in Beijing. "They are more confident that we do not have to follow the same path—in fact, that our path might be better."

The thinking was that students abroad might embrace Western values. Now it often goes the other way. A saying popular with Chinese students overseas is: "Pretty mountains, pretty lakes, pretty boring", expressing their longing for China's efficient, clean and fast-paced cities. When Dylan Zhou arrived in San Francisco for a PhD in physics in 2017, he thought America was "really fantastic, really liberal". With time, Mr Zhou liked it less: its courts were too lenient, its policies for minorities too indulgent, and American investors would crack jokes he did not understand. Mr Zhou is returning to China early, to set up a fintech company.

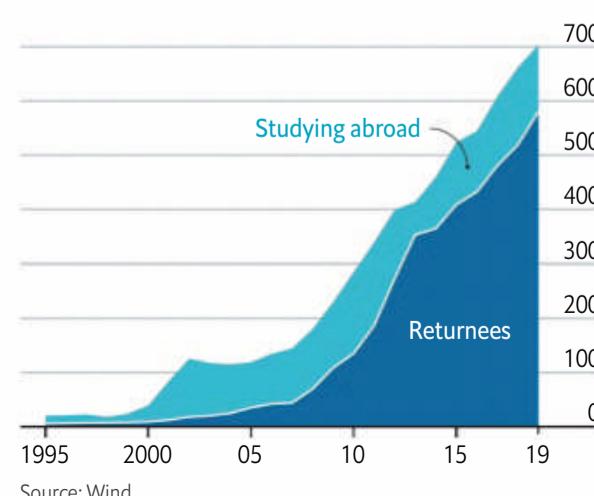
Like Mr Zhou and Ms Bai, who runs an online-learning startup, many are lured by China's zingy tech sector. Earlier returnees are credited with getting it off the ground, building local versions of Facebook and Twitter. Now Facebook and the rest steal ideas from pioneering Chinese apps, a source of pride for young Chinese. Financing from venture-capital funds is easier to come by. And if returnees have influential parents, their *guanxi*, or personal connections, can give children a head start.

Feeling territorial

A lack of sympathy for liberal values is becoming evident closer to home. Many of the grievances that drive Hong Kongers to protest, such as graduate unemployment and high house prices, once resonated with mainlanders. Luqiu Luwei, a journalism professor at Hong Kong Baptist University, says her mainland students were "full of

Gone away, and back

Chinese students, '000



► curiosity" during the mass sit-ins of the "umbrella movement" in 2014, rushing to observe and even join them. But the protests that roiled Hong Kong in 2019 left them cold. "Why are they allowed to be so disruptive?" her students asked. Police on the mainland called some students' parents to warn their children to stay clear of the protests. But Ms Luqiu also observes that few seek out news from sources other than Chinese media, which have vilified the protesters as separatists. This is despite the fact that Hong Kong's internet is open, so they do not need to use unauthorised virtual private networks to access foreign news sites, unlike on the mainland. Powerful domestic platforms such as Weibo, WeChat and Douyin mean few form the habit to read widely, thinks Ms Luqiu.

And what of young views of Taiwan, which China claims as its own? In 2011 China allowed students to study in Taiwan at a time of warmer ties with a China-friendly government. Thousands have thus been able to see democracy up-close in a place with a familiar language and culture. A few, like 27-year-old Anderson Yu, who arrived in 2011 from southern Guangdong province, relish the experience. "I love this place," says Mr Yu, who hears out pro-independence Taiwanese friends even if he is "sceptical". Lots of other young Chinese flock to the island for trinkets and pop culture.

But many experience discrimination from locals and barriers that stop them from applying for grants or staying on to work. Taiwanese youths mistrust China more than their elders do. Chinese students also make no effort to mix, says Mr Yu. Attitudes have hardened since Tsai Ing-wen was elected president in 2016 (and re-elected in 2020). Many are "upset that Taiwan is not grateful to China for the freedoms it has granted the region," says Mr Yu.

Soft power matters in shaping opinion. Older Chinese grew up listening to Cantonese songs and watching Taiwanese films, forming a special admiration for both territories. Youngsters do not have the same bond, says Fang Kecheng of the Chinese University of Hong Kong. They now watch their own shows—and Hong Kong youths tune in. This appreciation for home-grown culture can be a force for good. Many overseas students echo Ms Bai, the startup founder, when she says she returned to China "because if I am here, then I can change something". Whether on debating shows or through home-grown rap music, young people are creating new identities. The next chapter delves into some of them. ■

Values, identity and activism

The lives of others

Individualism reigns—and with it, more social responsibility

AT THE GoZeroWaste workshop in Suzhou, a canal town near Shanghai, a dozen young people learn to hand-sew face masks. The single-use, surgical sort are hardly in short supply, as no country makes more masks than China. Yet the masks, which contain plastics, are rarely recycled; and Suzhou's apprentices want to be greener. One participant says she is trying out vegetarianism, joining a tiny but growing group in China. Another "buys less stuff" since shopping binges began to "stress her out". A third says "we are tired of consuming. We want to produce something, too."

With China being the world's largest polluter, environmental awareness is rising among the young. Lots use Ant Forest, a carbon-account scheme set up by Alipay, a payments giant, that tracks green spending and grants credits towards planting trees. More donate old clothes to Feimayi, an online charity, and buy



#MeToo, Chinese-style

from Xianyu, a website owned by Alibaba that sells second-hand goods. Plant-based meat is finding fans. Vegan nuggets at a KFC branch in Shanghai sold out within an hour last year. Dicos, a local rival, has launched meatless patties in over 2,600 stores since October. The young say the pandemic has attuned them to their health and even to animal rights.

The *jiulinghou* are the first generation in China to have grown up amid consumerism. To their credit, many now seek to improve society. They proudly exhibit their values by dressing in home-grown brands or job-hopping to find work that suits them. Do-gooding is often part of the mix. To elders, taught in the Mao era to renounce individual dreams for collective goals, young people seem eccentric and headstrong. In their childhoods, eating meat was a rare indulgence and a stable income was a blessing. They call the young cohort "the lucky generation".

Youths object that they have heavy burdens of their own, from the *gaokao* university-entrance exam to bleak job prospects and unaffordable housing. In Beijing and Shanghai, average house prices are 23 times median incomes, twice the ratio in London. That is a source of particular anxiety for young men, because home-ownership is often seen as a prerequisite for marriage. Youngsters worry about the burden of caring for ageing parents, since China has few nursing homes and pensions are low. When asked in surveys to name their greatest source of happiness, having healthy parents comes second to having a stable income.

Much young resentment comes from a sense of having lost out on both the boom years and the government's former largesse. A widely shared joke encapsulates this: "The state gave houses to our parents, and now we pay for them; it raised the retirement age when we started working; the stockmarket crashed as we started buying; and when we thought we could enjoy being adults, the state told us to have a second child". (In 2016 China introduced a two-child rule, reversing its one-child policy.) The rags-to-riches stories that captivated their parents' generation feel distant.

One way to cope is to vent about this. Millions share memes and ►



► jokes online that sum up their frustrations. A new favourite is *nei-juan*, or “involution”, an academic term for the process when extra input no longer yields more output. Young people use it to describe the meaningless competition in which they take part, from the educational rat-race to the fight for a white-collar job. Office workers joke that they are *dagong ren* (primarily manual labourers) to deplore the monotony of their jobs. They are tired of working overtime and of China’s “996” regime, a work schedule of 9am to 9pm, six days a week, usually without extra pay.

As disillusionment sets in, young people question Chinese societal norms. Many tune into *Qipa Shuo*, a hit debating show. Its topics range from, “Should I stay in a city to pursue my career even if the air is polluted?” and “A job I like requires me to work ‘996’: should I quit?” to, “Would you choose to be an unmarried mother?” and “Is it a waste for a highly educated woman to be a full-time housewife?” Among fans the debate often continues, online and offline, after each episode.

Such themes reflect rapidly changing mindsets. A survey asking *jiulinghou* about dating and marriage found that more than half were happy to rent their homes as newlyweds. Seven in ten singletons said income was not the most important criterion in choosing a partner. Most said that the basis of marriage was a life shared by two like-minded people—a radical turn, considering that elders saw it as a contract between two sets of parents. In a society that for centuries held that a woman’s place was in the home, young mothers now increasingly reject old child-rearing norms.

Discrimination against women is on the rise, partly as the state tries to stimulate a baby boom. Government bodies have popularised a term for those unmarried beyond the age of 27: *shengnu* (left-over women). A backlash from young women has created a new genre of “she era” films that cheer for independent women. Last year’s hits included “Nothing But Thirty”, in which three heroines navigate far-from-perfect lives; and “Sisters Who Make Waves”, a reality show starring female celebrities over 30.

One outcome of the one-child policy is that families with

daughters poured their resources into them. This has nurtured a generation of educated young women who balk at gender inequalities or personal injustices. They demand investigations into harassment by male bosses and teachers, sometimes with success.

Several young people interviewed for this report said that seeing rescue efforts after an earthquake in Sichuan in 2008 killed 70,000 people gave them more sense of social responsibility. Many praised the *jiulinghou* for their acts of service during the covid-19 pandemic as doctors, teachers and volunteers. Young ethnic Mongols in Inner Mongolia and elsewhere set up O9, a bilingual WeChat account, to translate official advice into Mongolian.

Young people are testing the limits of a regime that has long been suspicious of citizen-led movements. In 2019 anger over 996 sparked an online movement by office workers to demand more humane hours. Feminism and LGBT rights have found vocal champions in the *jiulinghou*, no mean feat when the party insists on traditional family values as the basis for a harmonious society.

From streets to tweets

Activism has become harder under Xi Jinping. Many NGOs have been closed, notably on university campuses. In those that remain, monitors report on outspoken members to their university’s party authorities. In 2018 members of Marxist university clubs went to Shenzhen to support disgruntled workers trying to form an independent union (China bans them). Police arrested them. Women’s rights activists, known as the “feminist five”, were detained in 2015 for distributing leaflets decrying sexual harassment on public transport.

In 2012 two of the five walked with another friend through Beijing dressed in wedding gowns splattered with fake blood to raise awareness of domestic violence. They occupied men’s toilets to protest that women’s loos were too small. The press was sympathetic; some cities promised to install more cubicles. But as the movement grew, the authorities clamped down.

Among the few still taking to the streets is Ou Hongyi, an 18-year-old from Guangxi widely dubbed China’s first climate striker. Ms Ou protests in cities for Fridays For Future, a global green youth movement that calls on governments to take action. Some young people chat to her. But others “think we are threatening”, she says. “They tell us it looks like we want to overthrow the government.” She was briefly detained in September.

Young activists also campaign online. When millions were confined to their homes by covid-19, Guo Jing, a young feminist, set up “Vaccines Against Domestic Violence”. The initiative called on volunteers to listen out for abuse. LGBT advocates used China’s decennial census-taking in November to increase recognition for gay couples with a campaign called, “They are not my roommate, they are my partner”, encouraging gay couples to tick the “Other” box to describe their relationship.

Legal challenges have grown. Ms Guo was the first jobseeker to win a gender-discrimination case in 2014. A court in Beijing is hearing a case on sexual harassment brought by Zhou Xiaoxuan, a 27-year-old, against a television host. Ms Zhou is a frequent commentator on #MeToo issues. Courts have accepted cases by students over homophobia in textbooks. In October Ou Jiayong, a 23-year-old, lost a suit against the education ministry, but a hashtag on Weibo got 27m views. The professionalisation of China’s judiciary makes it harder for low-level officials to snuff out cases, says Darius Longarino of Yale University.

Volunteers are left alone if they fill gaps in state provision, as with covid-19. Yet they must work within confines set by the government. Police officers signed up to O9 in Inner Mongolia as “volunteers”; organisers felt they could not refuse them. Ms Ou approached green NGOs only to be turned away as too radical. Despite the risks, could young Chinese yet become a political challenge? ■

Children of the revolution

Circling the square

Freedom-seeking youths last rose up in 1989. Might they again?

THE RED building is a half-hour stroll from Tiananmen Square, yet few sightseers venture there. This former part of Peking University is now a state museum to China's first pro-democracy protest. In the 1910s the "new culture" movement flourished behind its walls. Members rejected old-world Confucianism for Western science, democracy, female emancipation and a global outlook. These, they reasoned, would help China stand tall.

In 1919 students marched to Tiananmen Square to decry China's weakness in accepting the Treaty of Versailles (it gave a former German colony in China to Japan). Two years later the Communist Party was founded. Today it claims the patriotic outcry of 1919 as justification for its rule—never mind that the protesters also wanted civil liberties. The contradiction was made clear when students invoking 1919 took to the square in 1989. They asked for democratic rights, but were silenced with tanks and guns.

Why has there been no youth-led challenge since? One answer is that the bloodshed at Tiananmen showed that protest is dangerous. This served as "a message that silenced a generation", writes Eric Fish in "China's Millennials", a book. Censorship has ensured that youths now know little about the 1989 uprising, so it cannot be an inspiration. Also, the 1919 protests were about China's place in the world. Today its standing is no longer in doubt. Young Chinese are proud that their country is respected—whether out of admiration or fear. Seeing how America and much of the rich world mishandled covid-19, many even wonder if Western values, including constitutional democracy, are all they are cracked up to be. In an uncertain world, Chinese order can feel reassuring.

Students went to Tiananmen Square in 1989 partly to protest against corruption and rampant inflation. Inspired by Mikhail Gorbachev's reforms in the Soviet Union, they hoped that conservatives in China would give way to a new group of liberals. Since then a long economic boom has lifted millions out of poverty. In the three decades since 1990, China saw an 11-fold rise in real incomes per head and a 15-fold increase in university enrolment. This has been the basis for the party's unspoken deal with its people: economic and social freedoms in return for political quiescence. When Xi Jinping came to power, disaffection over corruption was creeping back up. He waged a war on graft. Surveys find that young Chinese think it has been a success.

And what of democratic demands? Elsewhere, rising affluence and restiveness have gone hand-in-hand. South Koreans were living through an economic "miracle" when they toppled their dictatorship in 1987, only seven years after it had bloodily quelled an uprising. In China, political repression has reached new heights under Mr Xi, who has freely punished liberal academics and tycoons. Students who stood beside unionising factory workers in 2018 are still missing. This sends a chilling signal to dissenters.

China's young do not have deep feelings for the Communist Party. Instead, the party's legitimacy has rested on continued growth and the certainty that the next generation will be better educated, richer and happier. Yet graduates in cities feel enormous competition for limited jobs. They fret about unemployment or about being stuck in a dead-end job. They want more than just a 9-to-5 (or often 9-to-9) grind. Shunning monotonous factory life, youths are piling into China's informal economy. That leaves a big

portion of the workforce with low wages, no benefits and little prospect of upward mobility. More face a precarious future.

The party has made up for slower growth by ratcheting up nationalist feeling. Citizens are taught to believe that a patriot is one who stands with the party. Since the 1990s it has strengthened patriotic education from school to university. Party leaders seem satisfied: they are imposing a similar diet on rebellious youths in Hong Kong. Young mainlanders are vocal in their defence of China. But this youthful assurance can be channelled into other causes. More have learnt that they have the power to change things in society, whether by winning a legal case for LGBT rights or by volunteering as online counsellors during the pandemic. This confidence—in themselves, and in the fact that China can do better—is a powerful force.

Citizens tend to coalesce against a government when they feel it is failing them. It is possible that, as the party lets young people do good in "politically safe zones", more will be satisfied that things are improving of their own accord, says Yan Yunxiang of the University of California, Los Angeles. Yet repression is growing. For some young mainlanders, the brutal lesson of the protests in Hong Kong is that "demonstrating does not get you results with the Communist Party", in the words of a gay-rights campaigner in Chengdu. If the police cause no trouble for his NGO, "that is a blessing, and we cannot ask for more."

In the face of a strong and callous state, plenty of youths will admit defeat. But when earlier generations of students left China, they gave up on it. Now a majority plan to come back, worldly confidence acquired. Many feel hopeful about China's future—and have a desire to shape it. Once home, returnees will admit to frustrations over using technical runarounds to keep using their favourite apps. And they are stung when their posts are scrubbed from social media.

When the government whips up nationalist sentiment, it hopes young Chinese will turn away from the world. But their national pride is tied to being a proud part of it. Their experiences are formed, more than ever, by overseas travel and the internet. As global strikes inspire Ou Hongyi, the green activist, so does the #MeToo movement galvanise young Chinese feminists.

The Communist Party has shown a remarkable ability to adapt. Yet its tacit deal appears to be morphing into one that leans more heavily on brute repression and nationalism. If that is the bargain, self-assured young Chinese will at some point balk. Participants in every pro-democracy outburst in China have raised high the banner of patriotism, from 1919 to 1989. This tendency is not lost on Mr Xi, as much a manipulator of nationalism as he is afraid of it. But the party sees a useful distraction in teeth-baring patriotism. One day this may come back to bite it. ■

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

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Canada

Careless behaviour

OTTAWA

The pandemic has revealed long-standing problems in old-age care

IN LATE DECEMBER the Tendercare Living Centre in Toronto became the site of an angry demonstration. Forty-eight of the home's 200-odd residents had died from covid-19. Survivors' relatives gathered to demand that it employ more staff. A doctor said the home had mixed infected with uninfected residents and had too little oxygen to treat the sick. She described it as a war zone. A hospital took over its management. By mid-January, 74 residents had died.

The toll at Tendercare Living was an extreme example of a widespread problem. Deaths in Canada from covid-19 are about half those in the European Union as a share of population. Nearly three-quarters of the 14,000 Canadian deaths to mid-December took place in care homes. A study by the Canadian Institute for Health Information found that deaths in Canadian long-term care homes by late May were 25% higher than the average among 17 members of the OECD, a rich-country club, as a share of

their populations. On December 31st the *Toronto Star*, Canada's largest-circulation newspaper, published an editorial that took up the full front page decrying needless death in the long-term care system. It is "as if we have allowed [old people] to be put into coffins and buried alive before our very eyes", the newspaper wrote.

The crisis may soon subside. In Ontario, the most populous province (of which Toronto is the capital), all long-term care residents are due to be vaccinated by mid-February. But the problems highlighted by the pandemic will not disappear quickly. Canada consigns too many old folk to institutions, one reason why such a high proportion of covid-19 deaths has taken place in

them. They are poorly regulated and many are badly designed. The problems will grow more pressing as the population ages. The share of Canadians older than 65 is expected to rise from a sixth to a quarter by 2041.

In its treatment of old people Canada is an "international outlier", says a recent report by Queen's University's School of Policy Studies. Canada spends less than most rich countries on long-term care: 1.3% of GDP (including the cost of compulsory insurance) compared with 1.7% on average by members of the OECD. That money is skewed towards institutions such as Tendercare Living rather than towards helping people remain in their own houses. In Canada 42% of people over 80 who need constant care are in institutions, compared with an OECD average of 30%. Denmark, which passed a law in 1987 that effectively barred construction of collective facilities, spends less on institutions than on home care, which is much cheaper. Canada, by contrast, spends six times more on institutional care. "We don't do [home care] well. We default to institutional care," says Fred Horne, a former health minister of the western province of Alberta.

Canada's institutional largesse is not well spent. In part this is because care homes, like their residents, are old. Many were built in the 1970s, when four-person wards were standard. They have shared toi-

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— Bello is away

lets and little space for isolating sick residents. In 1998 Ontario's government said no new homes could have four-person wards. But it has continued to issue 15-year licences to homes that have them. In March last year nearly 20,000 residents—a quarter of the total—were still in four-person wards. Canadian homes have a lower ratio of staff to residents than the OECD average.

One problem is that, whereas there are national standards for health care, there is no equivalent for old-age care. The prov-

inces set standards and enforce them. Some do a poor job of quality control. Ontario used to conduct thorough annual inspections of all homes. But in 2018 its Conservative government, led by Doug Ford, began to restrict inspections mainly to facilities about which it received complaints. In the following year just nine of the province's 626 homes had full inspections.

Regulatory neglect compounds the problems to which old-age care is prone everywhere: low wages for doing a vital and de-

manding job, employees who quit often, and part-timers who work in several homes and get no paid sick leave.

Conditions are worse at for-profit homes, such as Tendercare, which make up more than a quarter of the total nationwide. In British Columbia, a western province, a third of homes are for-profit. They "pay lower wages, have lower staffing levels, hire more part-time and casual workers and have more [staff] turnover than non-profit homes", notes a recent study in the *Canadian Medical Association Journal*. The non-profits are run by municipalities, churches and other charities.

Covid-19 cruelly exposed the system's weaknesses. In March Mr Ford vowed to protect long-term care homes with an "iron ring". But outbreaks have occurred at 41% of Ontario's homes. During the first wave, health authorities gave top priority to limiting hospitalisations, so infected care-home residents were not sent for treatment. The homes' links to public-health agencies and acute-care hospitals are weak, making it hard for them to get advice on how to control the disease. Eventually hospitals took control of 18 care homes in Ontario, 15 of them for-profit institutions.

Testing of residents and staff was slow in the pandemic's early stages. Some provinces restricted workers to one residence, which forced care homes to use poorly trained workers supplied by agencies. Afraid of falling ill or being quarantined, some staff stopped coming to work, creating a shortage. In April Quebec, the French-speaking province, asked for 1,000 soldiers to help in long-term care homes. It guaranteed training to any person who applied and full-time jobs to those who completed it. This has eased staff shortages.

The covid-19 catastrophe may prompt reforms. A study by the Royal Society of Canada, an organisation of scholars, calls for more surprise inspections of care homes, with fines and penalties for non-compliance. The federal government, led by the Liberal Party, wants to replace provincial standards with national ones. It has offered provinces C\$1bn (\$790m) over two years, about 2% of the total spending on long-term care, for extra staff and to control disease outbreaks.

The government's ideas may not be ambitious enough. "The way this is being tossed around doesn't suggest any big rethink at a government level," says Mr Horne. Spending on care for old folk will have to triple, to 4.2% of GDP, unless Canada finds ways to keep more of them at home. "I can't ever imagine a government or a private sector building as many facilities as we will need," says Don Drummond of Queen's University. "That will be a good thing if it forces us to do alternatives." Covid-19 has sounded an alarm. A shortage of cash may cause politicians to heed it. ■

Brazil

A second wave of misery in Manaus

SÃO PAULO

People in the Amazon's biggest city thought they had herd immunity. They were wrong

IN SEPTEMBER A preprint appeared online with the startling results from a study of covid-19 antibodies in blood-bank samples from Manaus, a city of 2m people in the Brazilian Amazon: 66% of residents may have been infected, it said. The paper, which would later appear in *Science*, estimating an infection rate of 76%, seemed to confirm local rumours that Manaus had reached "herd immunity". In April it was the first Brazilian city to dig mass graves. By June burials were back to pre-pandemic levels.

"Herd immunity played a significant role" in controlling the virus, argued the preprint, entitled "Covid-19 herd immunity in the Brazilian Amazon". One of its authors, Ester Sabino of the University of São Paulo, now regrets the title. "We didn't think there would be a second wave," she says.

There is. On January 15th hospitals in Manaus ran out of oxygen. At least 51 patients died before army jets brought more. People who could buy oxygen to treat relatives at home. A hospital stationed police to turn patients away.

The reasons for the spike in Manaus are unclear. Perhaps a new variant—identified in 42% of samples collected in December—is more contagious. It could be that existing antibodies offer less protection against the variant, and that some cases are reinfections.

It could be that the study's methodology is flawed and that 76% was an overestimate. Blood donors are more likely to leave the house, and therefore to get infected, than most people, says Pedro Hallal, an epidemiologist at the Federal University of Pelotas. A nationwide study he co-ordinated, with population samples picked at random, found that just 15% of Manaus residents had antibodies in June. He thinks the preprint's authors were "not cautious enough" in interpreting their findings.

The title of the version in *Science* does not mention herd immunity. It has a more cautious conclusion: despite the high prevalence of antibodies, herd immunity may not have been achieved.

The earlier finding contributed to "a sensation that the pandemic was over", says Silvio Romano, ex-head of Hospital João Lúcio in Manaus. Beaches on the Amazon filled up. "Everybody started testing the limits," says Denis Minev, the CEO of Bemol, a department store. In December, as cases spiked, the governor ordered a lockdown, but revoked it after protests. Allies of Jair Bolsonaro, Brazil's anti-lockdown president, cheered. Manaus need not worry, tweeted an ex-minister; it has herd immunity.

Manaus will get worse before it gets better. Oxygen supplies remain low and Amazonas will get only 70,000 of the 6m doses secured for Brazil's vaccine roll-out (see Science section). Herd immunity is coming slowly and painfully.



Salvation in cylinders



Inoculating Asians against covid-19

A call for arms

DELHI, SEOUL AND SINGAPORE

Asian governments are hampering vaccination drives with extraneous agendas

INDONESIA'S PRESIDENT took the first shot. A doctor with trembling hands jabbed Joko Widodo on live television on January 13th, just two days after the national regulator approved the vaccine. India followed soon after, poking nearly 200,000 people on January 16th, starting with Manish Kumar, a cleaner at a hospital in Delhi. But it was the Philippines, where the first shipment of vaccines is not due until late February, that stole a march over its bigger neighbours. Members of the Presidential Security Group, an elite unit, inoculated themselves with smuggled, unlicensed shots as far back as September—"so that the president will be safe," the squad's commander said.

Few countries have handled vaccine procurement as shambolically as the Philippines, which dithered over signing a deal with Pfizer, an American firm, and ended up scrambling to secure shots from Sinovac, a Chinese one, at what many suspect

are inflated prices. But even countries with more competent leaders have made decisions that appear to prioritise factors other than public health in their vaccine roll-out, eroding public faith in the process.

India, which has suffered the world's second-highest number of infections, is a good example. It has done a lot right. Its health ministry devised special software to target and track vaccine recipients, and held dry-run trials at dozens of locations across the country. Its pharmaceutical firms, already the world's largest makers of vaccines, licensed foreign shots and devel-

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oped their own. And its drugs regulator was quick to act, approving Covishield, as AstraZeneca's shot is known locally, for immediate emergency use on January 3rd.

At the same time it gave the green light to Covaxin, a home-grown vaccine that has not completed the final phase of testing. This puzzled many health professionals, leading to speculation of political interference to promote an indigenous product, or of a clumsy attempt to bargain down prices by widening competition. Reports also emerged that the vaccine was being tested on poor, illiterate slum-dwellers who had participated in the trial solely because of the payment on offer, with only patchy checks on efficacy or side-effects. Bharat Biotech, the company that makes Covaxin, denies any misconduct and insists the vaccine is safe. Officials simply note that those who do not want to take Covaxin can refuse to be vaccinated.

That is what people appear to be doing, even though trust in doctors and medicines is typically strong in India. At Delhi's largest and most prestigious state hospital, the All India Institute of Medical Sciences, just eight of a scheduled 100 recipients showed up for their shots on January 18th.

Indonesian authorities have not been as high-handed or opaque as their Indian counterparts, but their strategy is also unconventional. Unlike many other coun-

tries, Indonesia is not putting the elderly—who account for 45% of covid deaths—at the front of the queue for vaccines. Instead, recipients must be between 18 and 59.

The government argues that it cannot vaccinate the elderly immediately because it does not know whether the vaccine produced by Sinovac (the only one approved in Indonesia so far) works on them. Anyway, says Siti Nadia Tarmizi, a spokesperson for the ministry of health, the government believes its youth-first strategy is the best way of reducing transmission, since more than three-quarters of those infected are aged between 19 and 59.

The government also hopes this strategy will revive a battered economy. Indonesia entered its first recession in 22 years last year. The number of unemployed has ballooned by nearly 10m people. Indonesia never instituted a nationwide lockdown for fear of pushing workers—60% of whom have only casual jobs as hawkers, motorcycle messengers and the like—into penury. By reducing transmission among 18- to 59-year-olds, “we do hope that we can start the economic activity,” says Dr Siti. However the data on whether Sinovac’s jab stops people passing on the virus (as opposed to falling ill from it) are just as scanty as those on whether it works on old people.

Problems like deciding whom to prioritise or which vaccine to administer are ones Filipinos would love to have. Instead, they will have to wait at least another month before needles start going into arms. Rodrigo Duterte, the president, was reluctant to pay upfront for Western vaccines. “There is nothing with finality, and you want us to make a reservation by depositing money? You must be crazy,” he said in September. Instead, Mr Duterte was confident that China, to which he has cosied up throughout his tenure, would ride to the rescue. His spokesman suggested that those who prefer Western vaccines suffered from a “colonial mentality”. Yet his government secured enough vaccine from China to inoculate barely a tenth of the population and had to turn belatedly to the Western firms again.

It is not the Philippines’ first vaccine fiasco. In 2016 the government began giving children Dengvaxia, a vaccine against dengue fever developed by Sanofi Pasteur, a French firm. After 800,000 children had had the shot, the company released fresh data suggesting recipients who had not previously had dengue might suffer an adverse reaction, causing mass panic. Confidence in vaccines plummeted: the proportion of Filipinos telling pollsters they “strongly agreed” that vaccines were important fell from 93% in 2015 to 32% in 2018. “The health department is very concerned about a repeat of a Dengvaxia-type controversy,” says Ron Mendoza, dean of the school of government at Ateneo de Manila

University. “They are trying to lay low. They know it’s being politicised.”

No country perfectly insulates public health from extraneous considerations, and none has a spotless record fighting covid-19. The government of South Korea, which has been more successful than most at slowing the disease’s spread, initially eschewed foreign vaccines, assuming that local firms could develop an indigenous one. Its confidence, unfortunately, was misplaced. All over the world, politics and health make poor bedfellows. ■

Assassinations in Afghanistan

Negotiating with terrorists

ISLAMABAD

The Taliban seem to be combining talks with a killing spree

THE TRAFFIC jams in Kabul, Afghanistan’s capital, have recently yielded a sombre new spectacle. Almost every day, drivers crawling along at rush hour have had to pass the blasted or bullet-riddled cars of those whose commute has ended in an assassin’s attack. Two female judges were shot dead on their way to work on January 17th. A car from the telecoms ministry was blown up the next day. The day after, in a province to the south, a journalist was hurt in a bomb attack. Some targets are big-wigs’ 4x4s, others are humble saloons.

The assassins’ favourite tactics are to sneak a “sticky bomb”—a magnetic one—onto or under a car when it is stationary, or simply to ride up on the back of a motorbike and open fire. Kabul’s traffic makes the



An everyday sight

targets sitting ducks.

Assassinations are nothing new. But the scale, timing and choice of victims in the latest wave are causing panic. As well as policemen and soldiers, they have included many civil servants, journalists and civil-society campaigners. The killings have proliferated despite peace talks between the government and the insurgents of the Taliban, which have been under way in Qatar for several months.

The Taliban deny involvement, but few believe them. No single group is likely to have conducted all the attacks. A variety of bomb designs has been used. Personal rivalries and organised crime may be behind some, as may other militant groups. But the Taliban are almost certainly the main perpetrators. They have long viewed government workers and the security forces as fair game. Judges responsible for jailing their comrades are also prized targets.

Moreover, violence has always been the Taliban’s main weapon. In their eyes, at least, their long campaign of both terrorist attacks and more conventional military assaults was the main reason America began negotiating with them in 2018 and struck an agreement to withdraw most of its troops from the country last year. The Taliban’s relentless violence has also helped ease doubts within the movement about negotiations with America and with the Afghan government.

American officials hint that the Taliban promised to scale back their attacks, particularly indiscriminate suicide-bombings, even though the accord the group signed in Qatar a year ago included no such pledge. There is speculation that the Taliban have upped the rate of assassinations to maintain pressure on President Ashraf Ghani’s government and to make it look weak. Humiliated by its inability to stop the killings, the government has vowed impotently to hang the culprits.

But there is a grimmer interpretation. The dead have recently included many journalists and civil-society activists, part of the thin layer of educated, modern-minded Afghans whom the Taliban may be singling out. Shaharzad Akbar, chair of the country’s human-rights commission, fears the loss of “one of [Afghanistan’s] most important gains, its educated and professional cadre, in what seems to be a systematic massacre”. Roland Kobia, the European Union’s special envoy, has likened the attacks to ethnic cleansing.

Against this backdrop, the American force in Afghanistan has shrunk to 2,500, its lowest level since it first arrived in 2001. All American troops are supposed to be out by May. President Joe Biden must decide whether to stick to this schedule or to delay on the grounds that the Taliban are violating the spirit of the deal. The insurgents’ calculus is unchanged: violence works. ■

Politics in Vietnam

Hammered and sickled

SINGAPORE

The Communist Party is in a weaker position than it seems

THOUSANDS OF SOLDIERS marched down the streets of Hanoi on January 10th in honour of the Vietnamese Communist Party's 13th national congress. The show of muscle was in keeping with the party's mood. Every five years apparatchiks convene to rubber stamp policies and a fresh slate of leaders. As they assemble for this year's congress, which begins on January 25th, some may feel exultant. With just 1,544 covid-19 cases and 35 deaths to date, Vietnam has handled the pandemic well. It was one of few countries whose economy grew last year, by nearly 3%. The public approve. In a survey conducted in May, which assessed how people from 23 countries rated their governments' response to the pandemic, Vietnam scored second best.

But once the backslapping concludes, the new leaders are likely to knit their brows in concern. Although the party does not allow any formal opposition, informal criticism has been growing. Improved education and internet access have exposed Vietnamese to "universal values like democracy and human rights", says Nguyen Khac Giang, an analyst who lives in New Zealand. Moreover, there were 65m social-media users in Vietnam in 2020, according to We Are Social, a British firm, out of a population of almost 100m. In contrast to the "authoritarian public sphere" offline, notes Mr Nguyen, "you have relatively liberal and free social-media platforms where you can speak out your views." Vietnamese have been doing so, about everything from corruption to pollution.

The party is trying to change that. Over the past five years it has arrested 280 people for "anti-state" activities, up from just 68 over the previous five years. It has instructed the state-run press to scrub the phrases "civil society" and "human rights" from its pages. And in October the government secured a promise from Facebook to comply with 95% of its requests to remove "malicious" posts.

This crackdown is a sign of how worried the party is about popular discontent, says Tuong Vu of the University of Oregon. Protests are, in effect, illegal in Vietnam, yet on many occasions over the past 15 years the government has had to change course in response to public pressure. In 2018 tens of thousands of Vietnamese took to the streets to protest against a law that would have created three special economic zones that Chinese companies would have been



Thirteenth time's a charm

able to lease for up to 99 years. After violent clashes between the police and the protesters, the government abandoned the scheme. Between 1995 and 2018 factory workers across the country organised over 6,600 strikes, according to Ben Kerkvliet of Australian National University. The government changed several laws in response to some of the workers' demands.

Trade will also be keeping Vietnam's leaders awake at night. Imports and exports were worth 208% of GDP in 2018 (the total is more than 100% because lots of components are imported, assembled into finished goods and then re-exported). That gives Vietnam's biggest export markets—America and the EU—leverage over the government. To secure trade deals with them, Mr Nguyen notes, it has had to make concessions. It recently promised the EU it would abolish forced labour and allow independent trade unions, for example.

Ever since the party initiated a transition from a centrally planned economy to a market one in the 1980s, the authorities have staked their legitimacy on rising incomes. In just 35 years Vietnam has been transformed from one of the poorest countries in the world to a middle-income manufacturing powerhouse. The Economist Intelligence Unit, a sister company of *The Economist*, thinks the economy will grow by 5.2% this year. But without a swift return to the 7% growth of recent years, it will struggle to absorb new entrants to the labour market, notes Mr Nguyen. Meanwhile, inequality is rising. In some provinces the richest 20% earn more than 20 times more than the poorest 20%, write Andrew Wells-Dang and Vu Thi Quynh Hoa of Oxfam, a charity. That is a sobering thought for whoever emerges from the congress as secretary-general. ■

Anime films in Japan

Record slayer

TOKYO

The right film at the right time helps Japan confront its demons

FOR NEARLY 20 years "Spirited Away", an Oscar-winning animation, reigned unchallenged as Japan's highest-earning film. But in the last days of 2020 the title was, well, spirited away by "Demon Slayer: Mugen Train", an adaptation of a hit *manga* (comic book). Set in the early 20th century, "Demon Slayer" follows a young boy, Tanjiro, as he and his comrades battle a band of demons who have killed his family and turned his sister into one of them, as demons do. "Spirited Away" took more than eight months to reach ticket sales of ¥30bn (\$247m at the time); "Demon Slayer" passed that mark in less than two (there was hardly any inflation in the intervening period). Box office receipts currently stand at ¥36bn (\$349m).

The film is one of several hits from the same storyline. The original *manga* series ran in the popular *Weekly Shonen Jump* from 2016 until 2020. Subsequent compilations have sold over 100m copies. A television show based on the series was named *anime* of the year in 2020 at the Tokyo Anime Awards Festival, an animation industry powwow. The series' theme song topped the pop charts. Marketing tie-ups saw "Demon Slayer" characters deployed to sell everything from rice balls to toy swords. Products linked to the series have brought in ¥270bn, according to the Daiichi Life Research Institute, a think-tank.

The series has permeated all walks of life. Suga Yoshihide, the 72-year-old prime minister, reportedly referred to one of its signature phrases—"total concentration breathing"—during a cabinet meeting. Primary-school pupils named Tanjiro their most admired person in a survey in November, just pipping their mothers (who came second) but well ahead of their fathers (who came a lowly fifth).

In part, "Demon Slayer" has covid-19 to thank for its success. The *manga* concluded in the early days of the pandemic, as many Japanese hunkered down at home. That fuelled fresh interest in earlier issues and in the television series released in 2019. Unlike longer-running series with daunting tomes of back issues, such as "Dragon Ball" or "Doraemon", the new and relatively compact "Demon Slayer" proved perfect for quarantine-era bingeing. The film's release, in turn, coincided with the lifting of restrictions on audience sizes at Japanese cinemas. Moreover, Hollywood studios were holding off releasing blockbusters at ►

► the time. "It launched when entertainment was limited, so people flocked to it," says Sudo Tadashi, an *anime* critic.

The story itself also carried a moral suited to the pandemic: good triumphs over evil, but only after great hardship. Some commentators even argued that the *oni*, or demons, in the series evoke those associated with plagues in the past, making their defeat especially sweet.

The success of the series also reflects big changes in the *manga* and *anime* business. For one thing, its creator, who uses an alias, is thought to be a young woman, a

rarity in a largely male industry. The female characters are less passive than in many other *manga*, says Ijima Yuka of Daito Bunka University: "In the past, women and girls were to be protected, not portrayed as fighters; in "Demon Slayer" women and girls fight." The more varied protagonists appeal to a wider range of viewers. "There are lots of characters and each one had individual flair, so everyone could find someone to empathise with," Mr Sudo says.

"Demon Slayer" also heralds a turn away from the all-controlling directors and closed distribution networks of old, argues

Matt Alt, author of "Pure Invention: How Japan's Pop Culture Conquered the World": "Streaming is unsettling the traditional giants." The *anime* version of "Demon Slayer" launched simultaneously on 20 television channels and 22 streaming platforms, including Netflix, Hulu and Amazon Prime Video, which helped it build a broader fan base, says Mr Sudo. It was not the creation of a single, driving figure, unlike "Spirited Away", which was written and directed by Miyazaki Hayao. He is one of the dwindling ranks of Japanese who have yet to see "Demon Slayer". ■

Banyan Pastoral care

Mongolia has largely ridden out the pandemic so far—but at a high cost

VAST, POOR and landlocked, Mongolia is hard to defend against covid-19. Yet its record fighting the plague had looked quite good until recently. Its first documented case of domestic transmission came only in November. Infections have since spread across the capital, Ulaanbaatar, home to nearly half the country's 3.2m people. The government claims, improbably, there have been no deaths.

A full-blown epidemic would completely unravel the threadbare health system. Yet a protest by hundreds of mainly young Mongolians in Ulaanbaatar's main square on January 20th highlights resistance to the government's oppressive approach. They were decrying the way a mother, diagnosed with covid-19, and her newborn baby were hustled out into the cold to a coronavirus unit. The health minister and a deputy prime minister offered to resign.

Mongolia's initial success came at a high price, says Sumati Luvsandendev of the Sant Maral Foundation, a polling outfit. The ruling Mongolian People's Party, which strengthened its hold in a landslide parliamentary win in June, has shown a heavy hand—after all, it is the successor to the party that ruled when Mongolia was a Soviet satellite. As the pandemic spread from China a year ago, it closed the borders even to the many Mongolians who work abroad. Most have still not managed to return.

At home, schools have been shut for nearly a year. The livelihoods of many Mongolians vanished when street stalls, beauty salons and other small businesses shut down. The government provided little support, says Oyungerel Tsedevdamba, a former minister from the opposition Democratic Party who runs an NGO encouraging better sanitation in the districts of canvas and felt *gers* (yurts) in

which 60% of the capital's population live.

Hunger stalks the *ger* districts, which house migrants from the countryside looking for a more prosperous life. Mongolia's herders are helping out their urban cousins. A recent campaign urged herding families to donate a sheep to city folk. They gave enough to feed 15,000 families.

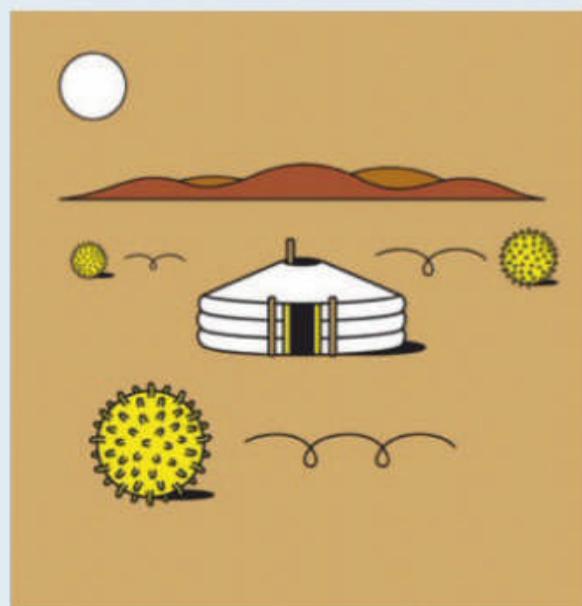
Not all is gloom. The banning of coal in favour of smoke-free briquettes for heating and cooking in the *ger* districts is improving Ulaanbaatar's pea-soup pollution. Businesses are starting to reopen, if haphazardly. The mining industry is booming again, with coal as well as copper from Oyu Tolgoi, a flagship mine, pouring across the border to China. Four years ago Mongolia faced twin fiscal and balance-of-payments crises. Today, mining revenue can stave off the worst. But that still leaves the government heavily in debt, and the economy ever more in thrall to its giant southern neighbour, a situation that worries nearly all Mongolians.

Yet Mongolia remains a land of frustratingly untapped potential. With 20 times more livestock—sheep, cattle, hors-

es, goats, yaks and camels—than people, it could make much more of its cashmere as well as its intrinsically organic meat. But, says Julian Dierkes of the University of British Columbia, that takes much better branding, quality control and, in the case of meat, logistical dexterity than the government and business have managed so far.

Politics suddenly looks brittle. The disciplinarian prime minister, Ukhnaagiin Khurelsukh, perhaps afraid his luck curbing the pandemic is running out, appears to fancy the relatively cushy post of president, for which an election takes place in June. The incumbent, Khatmaagiin Battulga of the Democratic Party, exemplifies the best way into Mongolia's macho politics: winning fame as a wrestler. His presidency is notable for its dearth of foreign-policy initiatives. Rather than vigorously strengthen ties with "third" neighbours such as America, Australia, Japan and South Korea as a counterweight to Mongolia's two actual ones, China and Russia, he has instead befriended that other muscily martial-arts fan, Vladimir Putin.

The Democratic Party's old guard, resistant to fresh blood, was punished in the parliamentary elections. Yet both main parties lack programmes and policies. Some modernisers, including Ms Oyungerel, lament a quasi-militarist flourish in politics—all salutes, medal-pinning and uniforms even for the civil service. She says she will challenge Mr Battulga for her party's presidential nomination. Liberal and, worse, a woman, the odds are against her. Yet her call for a new politics resonates with younger Mongolians. Right now the stage seems to be theirs. By refusing to accept his ministers' resignations, Mr Khurelsukh has put his government in jeopardy.



**Relations with America**

Xinjiang's shadow

NEW YORK

The persecution of Uyghurs will plague any effort to restore calm to troubled ties

IN ONE OF his last acts as Donald Trump's secretary of state, Mike Pompeo declared that China's repression of Uyghurs in Xinjiang was an act of "genocide". Antony Blinken, President Joe's Biden nominee to succeed Mr Pompeo, said he agreed. In the fog of a presidential transition, America thereby adopted the harshest language of any country in its description of the atrocities in China's far west. This will raise tensions and complicate relations between China and the new administration.

Mr Pompeo's use of the term "genocide" was not a formal legal judgment. It does not oblige Mr Biden to take any further action to punish China for its repression of Uyghurs, a mainly Muslim ethnic group. The Trump administration had already imposed financial sanctions and visa restrictions on numerous Chinese government entities, companies and officials—including Chen Quanguo, who is the Communist Party boss of Xinjiang and a member of China's Politburo. This month it declared a ban

on imports of goods made with cotton or tomatoes from Xinjiang, a big producer of both, because of the alleged use of Uyghur forced labour to produce them.

But Mr Pompeo's statement, and Mr Blinken's agreement with it, mark a step change in American rhetoric surrounding Xinjiang, where more than 1m Uyghurs and other Muslims have been sent to camps for "deradicalisation" (often, in fact, for showing pride in their culture and faith), and where women have been subjected to forced sterilisations and abortions to limit the growth of the Uyghur population.

State Department lawyers argued over whether "genocide" was the right term. Most dictionaries would say it is not. Genocide means the mass killing of a people or

an ethnic group, and no one has accused China of that in Xinjiang. However, the UN's genocide convention defines the term much more broadly, so that it need not involve any killing at all. "Measures intended to prevent births" count, so long as the aim is to "destroy, in whole or in part", a national, ethnic, racial or religious group. So, with the same aim, does inflicting "serious mental harm" on members of the group.

Governments have long been reluctant to take the convention literally, perhaps because it might then apply to rather a lot of them. America's State Department has previously described as genocide only atrocities that fit the dictionary definition, such as the slaughter of Tutsis in Rwanda or Yazidis by Islamic State.

However, according to a State Department official, information that came to light in 2020 about the extent of forced sterilisations in Xinjiang helped to convince some colleagues that "genocide" was an appropriate word. That Mr Pompeo deployed it only on his last full day in office, when he would not have to deal with the consequences, struck some observers as opportunistic. He may run for president in 2024.

China is furious. On January 21st it imposed sanctions on 28 Americans, including Mr Pompeo and other Trump administration officials, for their "crazy moves" against China. They will not be allowed to visit the country (including Hong Kong) ►

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► and face restrictions on doing business there. A Chinese foreign-ministry official said Mr Pompeo was making himself “a laughing stock and a clown”. But she avoided attacking the new administration. There may be hope in Beijing that, even if not in areas relating to human rights, Mr Biden will try to restore calm to the relationship.

Still, now that America has uttered the word genocide, the question is whether other Western governments will say it, too. Some may prefer to stick with a term like “crimes against humanity”, which Mr Pompeo also used, and which is far harder for China to dismiss. No doubt China’s government would rather argue about words than the facts on the ground.

Whatever the world calls the persecution of Uyghurs, it will be hard to stop. This month Canada and Britain made vague announcements about steps they would take to block imports of goods made with forced labour. But no government has yet followed America in imposing sanctions and no international body has tried to hold China to account. Many multinational firms have quietly been trying to extricate their supply chains from Xinjiang, but only a few have made public statements. Last month the European Union agreed an investment treaty with China that paid only lip service to the issue of forced labour.

Mr Biden may pay more attention to the Uyghur cause. Mr Trump appeared not to care: according to John Bolton, his former national security adviser, he told his Chinese counterpart, Xi Jinping, in 2019 that building camps for Uyghurs was “exactly the right thing to do”. Mr Trump withdrew America from the UN Human Rights Council in Geneva; the Biden administration is expected to restore its place. The council has never introduced a resolution on China’s atrocities in Xinjiang, but that could change with Mr Biden’s backing.

Mr Trump’s treasury secretary, Steve Mnuchin, hesitated to let human rights get in the way of trade. An official under Mr Pompeo says the State Department recommended sanctions against about a dozen Chinese officials and entities that were never acted on by the Treasury Department because of the potential impact on Sino-American ties. Those targeted would have included the Xinjiang Political and Legal Affairs Committee. This powerful security body remained untouched by the Trump administration. Mr Biden’s Treasury Department may take a different view.

The winter Olympics are scheduled to be held in Beijing in February 2022. Human-rights groups have called for a boycott, and some American senators have called for the games to be moved to another country. Mr Biden’s officials have not said whether they favour any such action. Regardless, some athletes and fans may choose to stay at home. ■

Social media

Wolf taming

A tweak by Twitter may have reduced the influence of China’s propagandists

TWITTER ACCOUNTS linked with China’s state media have been busy this month, as usual. They have questioned the safety of covid-19 vaccines made in the West while promoting China’s own. They have floated theories (again) about the pandemic having started somewhere other than China. They have promoted Potemkin tales of happy Uyghurs in Xinjiang, while attacking Western reports about horrors there. A misleading English-language video tweeted by *China Daily* called the BBC the “Biased Broadcasting Corporation”.

Official propagandists follow orders. In 2013 China’s leader, Xi Jinping, told them to “tell China’s story well” around the world, ie, to boast of its achievements. They have amassed large followings on Western social-media platforms, which are blocked in China. But the audience for their story may be dwindling, at least on Twitter. A new study by China Media Project, a research organisation in Hong Kong, suggests that Twitter itself has recently limited the reach and influence of accounts that are linked to China’s state-managed news services.

In August Twitter attached the label “China state-affiliated media” to accounts run by official mouthpieces including CGTN, a global broadcaster; Xinhua, the main official news agency; and newspapers such as *People’s Daily* and *China Daily*. It did the same to the accounts of journalists working for them. (Twitter also

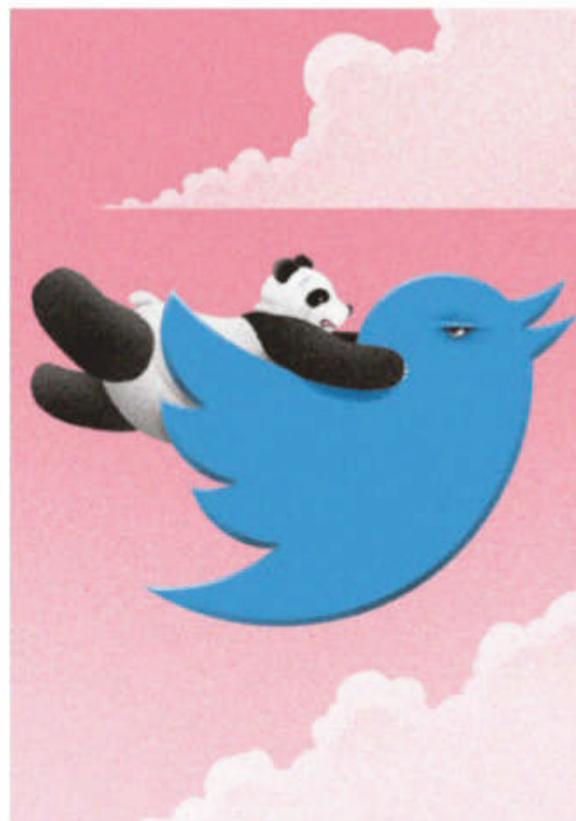
applied such labels to state-controlled media in a few other countries, as Facebook had begun doing in June.) At the same time Twitter said it would stop giving prominence to these accounts by displaying their tweets among “top” results in searches. (This followed a decision by Twitter in 2019 to bar state-linked accounts from advertising or promoting tweets on the platform; Facebook enacted a similar policy in June.)

China Media Project studied 33 affected Twitter accounts in China over 100 days. It found that most of them had experienced “significantly fewer shares and likes” for their tweets in the weeks following Twitter’s introduction of its labelling policy compared with the previous weeks. The three most popular accounts—those of CGTN, Xinhua and *People’s Daily*, which together have a following of 33m—experienced declines in retweets and likes of more than 20%. Likes for tweets by *Global Times*, a nationalist tabloid in Beijing, dropped more than 30%.

The findings raise questions about the role Twitter and other Western social-media platforms play in helping China’s propagandists fulfil Mr Xi’s wishes. In March 2020 Zhao Lijian, a foreign-ministry spokesman, prompted a furore (including in the White House) with a viral tweet suggesting that American military visitors may have seeded covid-19 in China. Mr Zhao is often called a “wolf warrior” because of his pugnacious style on Twitter (the nickname refers to the titles of popular Chinese films featuring a Rambo-like character). On January 17th he was prowling again, retweeting two posts by Liu Xin, a CGTN presenter, that called on Western media to focus on deaths in Germany and Norway of old people who had taken the Pfizer-BioNTech vaccine for covid-19.

Such posts, along with others promoting the adoption of China’s own vaccines abroad, suggest an attempt by China’s propagandists to sap faith in non-Chinese vaccines. That is reckless at a time when public acceptance of well-tested ones is so vital to ending the pandemic. (Twitter said Ms Liu’s tweets did not violate its rules.)

Donald Trump’s tweets about election fraud have raised similar concerns about the harm caused by disinformation supercharged by social media. This month both Twitter and Facebook suspended Mr Trump, prompting some to fret about the influence wielded by a small number of private companies. Simply labelling state media as state media is a less controversial approach, and it may work to some degree. Mr Zhao and Ms Liu have a total of more than 1m followers, but the diplomat’s recent retweets of Ms Liu’s concerns about vaccine deaths have not been shared nearly as widely as his troublemaking tweets of last March. The wolf warriors are still online, but their snarls are less audible. ■



Chaguan | Seizing the moment, cautiously

In its 100th year, expect China's Communist Party to sound radical at home and reassuring abroad



IN LATE MAY 1949, as China's civil war neared a blood-soaked end, America's consul-general in Shanghai, John Cabot, was startled when resident Western businessmen cheered the city's capture by Communist soldiers. Foreign traders and factory bosses admired the discipline of the troops, who declined gifts of food and handed out notices in English promising safety for "normal" businesses.

Blithely discounting the Communists' pro-Soviet, anti-imperialist rhetoric, the Westerners focused on the party's stated mission to save the country from hunger and want. That would surely involve trade with the West, and thus them. At the American Chamber of Commerce a day after Shanghai's takeover, Cabot found members convinced that they would thrive under Communist rule. "The rejoicing couldn't have been greater if the city had been liberated by American forces," the diplomat recorded drily. "I can't think why." He was right to be cynical. Before long Western businessmen were begging to sell assets and pleading for exit permits.

Scenes of wishful thinking fill an excellent new book about the founding year of the People's Republic, "China 1949: Year of Revolution" by Graham Hutchings. Those delusions were carefully nurtured by the Communist Party. Westerners were told, in effect, that economics would trump ideology. Chinese tycoons were assured by Mao that he planned to restrain, not abolish, capitalism. Several stayed. The luckiest endured only the nationalisation of their firms in the mid-1950s. Later, others were persecuted to death.

Back in 1949 this quelling of panic among the outgoing elites involved deft rhetorical conjuring by Mao and party leaders. For even as they downplayed their radicalism when addressing the old establishment, they successfully wooed ordinary Chinese with visions of transformation and revolution. Peasants were recruited to Communist armies with promises of land after the war, when rural property-owners would be destroyed as a class. Urban workers were led to expect liberation from exploitative bosses. Intellectuals and students were urged to help to build a modern country and end centuries of humiliation by foreign powers. Somehow the party managed to sell these two competing stories at the same time. One group found no place in either narrative, Mr Hutchings shrewdly notes. Liberal Chinese intellectuals, lawyers and journalists were losers in 1949, because their attachment to individual

rights and accountable government amounted to a creed of opposition. Mao had no tolerance for dissent, even from loyal patriots. Declaring China in need of salvation from domestic and external foes, the party's response involved strong, even iron-fisted, rule.

Jump to 2021, the centenary of the party's founding, and China's rulers face a revealingly similar challenge. Once again, they must tell two, contradictory stories about their country and its future. The first will be soothing. After four years of open competition with the Trump administration, involving tariff wars, tit-for-tat visa fights and barriers to trade in sensitive technologies, China would like to call a truce. Its rulers will ask to revive old economic dialogues and to seek new avenues for co-operation with President Joe Biden, in such fields as climate change or pandemic control. They have no illusions about returning to the days when American leaders actively welcomed China's rise. Still, in part to buy time while they seek greater self-reliance, Chinese leaders will portray their country as a source of stability and economic growth. China last year agreed two modest trade agreements, one with 14 Pacific neighbours and a second with the European Union. Its paramount leader, Xi Jinping, has suggested that China may join the 11-member Comprehensive and Progressive Trans-Pacific Partnership, a more ambitious trade pact that was proposed by America under Barack Obama, but which Donald Trump snubbed. In private, Chinese elites insist that Western critics mistakenly view their country as a threat because it is run by a Communist Party. They say the party is more pragmatic than ideological, with a doctrine that resembles a mishmash of nationalism, traditional Chinese culture and a vaguely leftish belief that capitalists, while good at innovation, should pay more heed to the national interest and not flaunt their wealth.

Talking about a revolution, just not to foreigners

The headache for China's leaders is that they must tell a different, intensely political, story to domestic audiences, as their party turns 100 in July. To inspire the masses and guide the work of officials, leaders must explain their vaulting ambitions for the country and the centrality of the party to them. They have already begun. On January 11th Mr Xi declared that China was entering a "new development stage", having achieved a first centennial goal of building a "moderately prosperous society". China's new goal is to be a "great modern socialist country" by 2049, when the People's Republic turns 100. In plainer language, China wants to be a superpower of unchallenged strength and influence.

In 1949 the party won power with offers of domestic redistribution. Today, the promise involves a global redistribution of wealth and geopolitical clout. On January 15th a senior security official, Chen Yixin, told colleagues that the great trend of the moment was "a rising East and a declining West". China has much to gain, he declared, if it can manage a protracted struggle with America and public-security risks at home. Once again liberals will be losers, for there is no room in Mr Xi's China for checks and balances on an all-powerful, all-controlling party and state.

China's smoothest envoys will spend 2021 assuring foreigners that these are slogans about long-term ambitions, and should not be taken literally. That is too glib. The world should take seriously Mr Xi's talk of China "becoming strong", after a period of "standing up" (a reference to nation-building under Mao), and decades of "getting rich" (a nod to market reforms unleashed by Deng Xiaoping). In China, leaders' speeches are not mere words. They are political marching orders. A turbulent year looms. ■



Messaging services

Global grapevines

Private messaging has become the internet's most important service. Now it is in the spotlight

WHATSAPP, WHICH 2bn people use to send some 100bn messages a day, is rarely in the news. When it is, the stories are mostly about whether, in order to increase competition, it should be hived off from its corporate parent, Facebook—a company rarely out of the news.

The difference in visibility is basic to the businesses involved. A social-media firm like Facebook exists to get things noticed, because its business model is based on selling attention to advertisers. What and who gain attention, and what can be done to withhold it from particular people and ideas, are contested issues. Messaging services like WhatsApp for the most part simply let people stay in touch with their families and chat with groups of friends and associates. In many places they increasingly offer ways to get in touch with businesses, too. They are of practical use in a way that social media are by and large not (never try to arrange cocktails over Twitter). But because they are removed from the public sphere they provoke far less outrage

and controversy, and far fewer arguments over regulation.

That may have started to change on January 6th, for two reasons. One was that Facebook announced a revision to WhatsApp's terms of service which many took to mean that their personal data would be used for a wider range of purposes. The result was a rush to download Telegram and Signal, two apps with much smaller user bases—around 500m for Telegram, far fewer for Signal—which market themselves on promises of enhanced privacy (see chart on next page). Between January 6th and 19th Signal was downloaded 45m times and Telegram 36m, according to Sensor Tower, a provider of data. Pavel Durov, Telegram's boss, called it the “largest digital migration in human history”.

January 6th's other precipitating event was the insurrection at the United States' Capitol. In its wake Apple removed Parler, a Twitter clone on which people expressed sentiments such as “we need to start systematically assassinating #liberal leaders”,

from its app store and Amazon stopped hosting the company in its cloud. As a result groups like the Proud Boys, “western chauvinists” with a taste for violence, flocked to Telegram.

The sort of things which had been said on Parler promptly began to reappear on some of Telegram's public channels. Telegram removed some of the public channels in question. But that will not have silenced such talk. According to Aleksandra Urman of the University of Bern, who studies the political use of online media, public channels are used to draw new members into private groups where talk may lead to action. And Telegram generally refuses to reveal what goes on in its private channels. Before Joe Biden's inauguration there was concern that these channels would be used to plan violent attacks. In the event, thankfully, such attacks did not transpire, but the risks remain.

Growth in the use of Telegram and Signal may well strengthen such worries. But the messaging services are also having a much broader and on balance salutary effect on online life. Social media provide a “public sphere” both global and raucous in which what is worst often spreads fastest. In the private worlds of messaging apps it has proved possible to rebuild some of the levees which allow the river of human discourse to flow healthily.

Conversations which cause controversy in public can be carried out in private with ➤

► more nuance and no trolling. A distinction can be made between performance and communication. In "The presentation of Self in Everyday Life" Erving Goffman, a 20th-century sociologist, distinguished between "front-stage" behaviour, which is observed by all and sundry, and the "back-stage" life of rehearsal and preparation in the company of others who are part of the same project. "For healthy psychology we need back and front stage," says Carissa Véliz of Oxford University. "[Online] we have been pushing back stage more and more into oblivion. Having more private messaging brings the back stage back."

I bet you're wonderin' how I knew

Messaging services differ from social media like Facebook, Twitter, Instagram and the rest in two fundamental ways. One is addressability. When users post on Facebook the company's software decides which of their "friends" will see the post automatically (others will find it only by looking). If the post proves popular the software will spread it further. When a user sends a message on WhatsApp, that message goes to only the person or group they designated. In messaging apps, people know to whom they are talking.

The other difference is one of business models. Social-media firms need to know what users are saying, visiting and liking in order to provide the services they sell to advertisers. And to maximise those sales they need algorithms that will offer users more things they will like, or at least be engaged by. Hence their interest in the viral. Messaging services have no cause to read over their users' shoulders, and in some cases lack the ability to do so even if they wanted to. Some have deliberately acted to suppress virality by limiting the ease with which things can be forwarded.

It is clear that people want what the services offer, perhaps more than they want social media. In 2019 Mark Zuckerberg, Facebook's boss, noted that "private messaging, ephemeral stories and small groups are by far the fastest-growing areas of online communication." The number of people in Europe who use Facebook every day (305m) has not increased since the end of 2019, according to the company's quarterly filings, and in the third quarter of 2020, for the first time, the number of daily users in North America fell—a remarkable development in the midst of a pandemic. Globally, according to Sensor Tower, the time spent using the five most downloaded social-media apps fell by 5% in 2020; time spent on messaging apps went up 2.3%.

Experience, particularly in Asia, shows that messaging services can serve as a platform for a lot of other things. In China WeChat is used for everything from covid-19 contact tracing to making investments; the same is true for KakaoTalk in South Korea.

In Japan and Taiwan a service called Line, built around messages exchanged between individuals and in groups of up to 500, can be used to read news, watch videos and call taxis. The companies make money by charging business users, by selling some of their online games and, particularly in the case of Line, from a market in "stickers" that allow messages to be festooned with indicators of every imaginable emotion.

Signal and Telegram, for their part, have no obvious plans for making money; they seek to provide space for private speech as a good in itself. Signal is a Californian non-profit supported by a grant from Brian Acton, the founder of WhatsApp, who made \$6.5bn out of the app's sale to Facebook, as well as by other donors. The service uses "end-to-end" encryption which makes it impossible for the company to see the content of the users' messages. WhatsApp licenses and uses the same technology. But Signal goes further in its protection of privacy by holding the absolute minimum of data on its users. In 2016 Signal was subpoenaed by a grand jury for information on two of its users. All it could offer was the date and time when an account associated with a specific phone number had been created and the date and time when it had most recently been used.

Moxie Marlinspike, Signal's pseudonymous founder, has said that he set it up because he wanted a way to talk to friends who were hopping trains and squatting in abandoned houses without fear of compromising them. But he also believes privacy is essential for social progress: there must be spaces in which laws can be broken lest society never move beyond bad ones.

Telegram does not use end-to-end encryption. Its resistance to snooping lies not in mathematics but in the globe-trotting

figure of Mr Durov, a Russian-born billionaire who funds the company with his own fortune. There are ways for the company to read the messages that sit encrypted on its servers in Dubai. But Mr Durov refuses to co-operate with all requests for information or censorship from Russia and with most of those made by everyone else. When Apple asked Telegram to stop its users from revealing the personal information of specific Belarusian police officers said to be beating protesters, according to Dr Urman, Mr Durov's response was simply to stop iPhone users from being able to access that information.

The fact that messaging companies do not know what goes on between their users has knock-on effects. Jonathan Zittrain, a law professor at Harvard University, says the biggest is the degree of community control it makes both possible and necessary for online communities. On social media like Twitter and Facebook discourse is ultimately governed by the corporate host or by agents and authorities of the state in which that host is based. In messaging's private spaces members play the governing role themselves. Mr Zittrain says that this "could lead to more enduring communities, without calling for extensive terms of service by infrastructure providers". In other words, private online spaces are good because they allow the individuals who use them to act with greater freedom and a stronger sense of the social.

Plans to make me blue

This comes with obvious risks. Dr Urman says that in the past two years she has seen radical speech disappearing from the public internet. It is reasonable to assume it now takes place in private. Alex Stamos of Stanford University, who used to be Facebook's chief security officer, says that venues outside the reach of companies or states are certain be used by people wishing to traffic in images of child sexual abuse and to plot terrorist attacks. He also says he is certain law-enforcement agents are already working to infiltrate such groups, though as yet he is unaware of any big busts that have involved activity on Signal or Telegram.

Clear evidence of a serious crime in a powerful democracy such as America being planned on Telegram might test Mr Durov's metal more than saying no to the Kremlin does. But if Telegram were compromised, Signal and its successors would persist, as would the almost-equally encrypted WhatsApp. Everyone wants some privacy and some people want a lot of it; people also like spaces which they can run themselves and where they will not be bombarded with ads or the opinions of interlopers. Messaging services give them those things, and many will want to keep them, come what may. ■



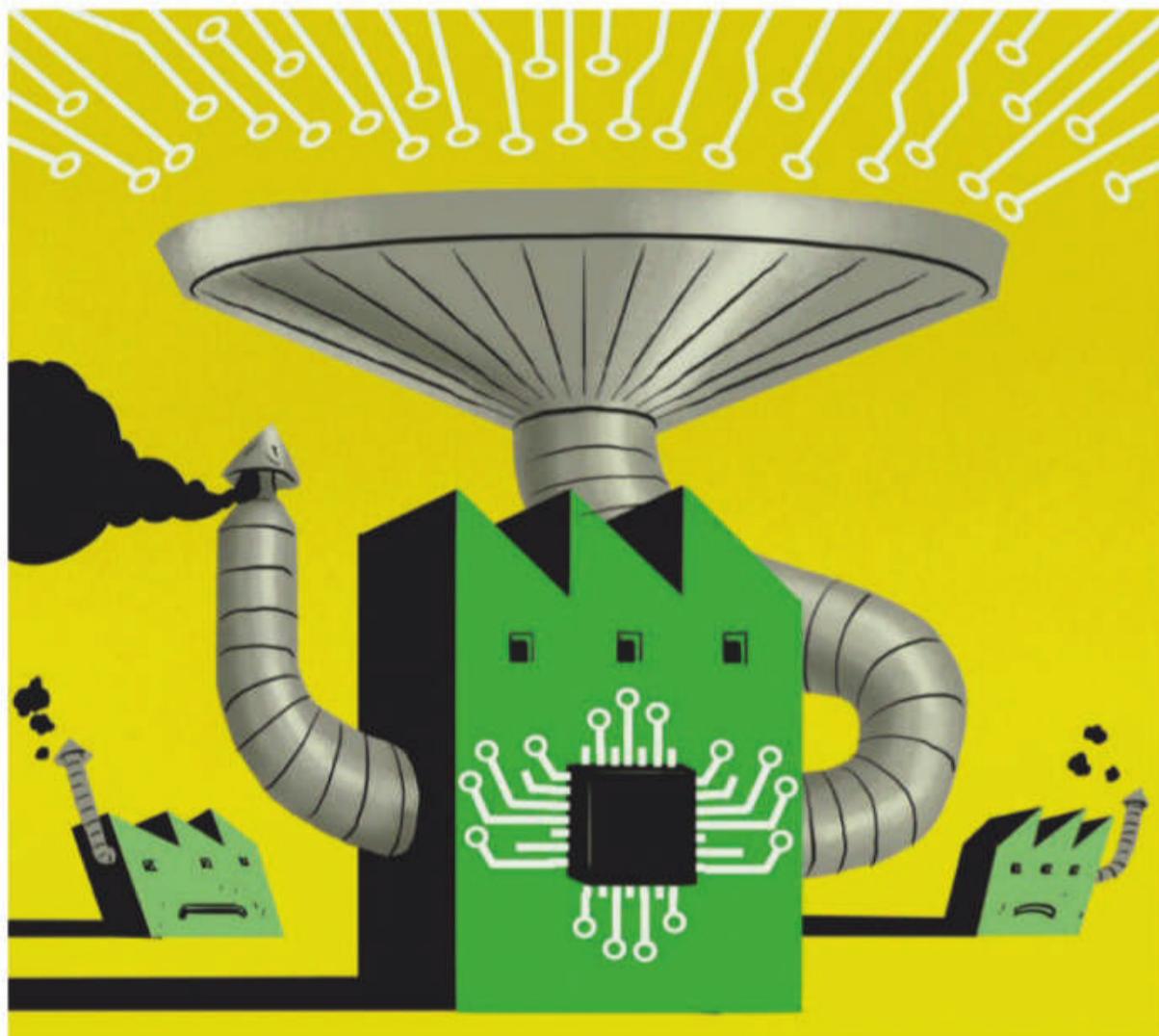
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Semiconductors

A new architecture

The global chip industry is becoming at once more diverse and more concentrated. The effects will be anything but nanoscopic

ON JANUARY 13TH Honda, a Japanese car-maker, said it had to shut its factory in Swindon, a town in southern England, for a while. Not because of Brexit, or workers sick with covid-19. The reason was a shortage of microchips. Other car firms are suffering, too. Volkswagen, which produces more vehicles than any other firm, has said it will make 100,000 fewer this quarter as a result. Like just about everything else these days—from banks to combine harvesters—cars cannot run without computers.

The chipmaking industry is booming. The market capitalisation of the world's listed semiconductor firms now exceeds \$4trn, four times what they were worth five years ago (see chart 1 on next page). Chipmakers' share prices have surged during the covid-19 pandemic, as work moved online and consumers turned to streaming and video games for succour.

This has propelled a wave of dealmaking. In September Nvidia, which designs powerful chips for gaming and artificial intelligence (AI), said it would buy Arm, a Britain-based company whose blueprints

are used in nearly all smartphones, for \$40bn. In October AMD, which makes blueprints for graphics and general-purpose chips, announced another megadeal—to acquire Xilinx, a maker of reprogrammable chips, for \$35bn.

Silicon splurge

Capital spending, too, is rising. Samsung, a South Korean conglomerate, wants to invest more than \$100bn over ten years in its chip business (although some of that will go to its memory chips used in things like flash drives rather than microprocessors). On January 14th Taiwan Semiconductor Manufacturing Company (TSMC)—which turns blueprints into silicon on behalf of firms like AMD and Nvidia—stunned markets when it increased its planned capital spending for 2021 from \$17.2bn to as much as \$28bn, in anticipation of strong demand. That is one of the largest budgets of any private firm in the world.

All this is happening amid a confluence of big trends that are realigning chipmaking. At one end the industry is a hive of

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competition and innovation. Established chip designs, including those from AMD, Nvidia and Intel, the world's biggest chipmaker by revenue, are being challenged by new creations. Web giants such as Amazon and Google, big customers of the incumbents, are cooking up their own designs. They are joined by a gaggle of startups, eager to capitalise on demand for hardware tuned for the needs of AI, networking or other specialist applications.

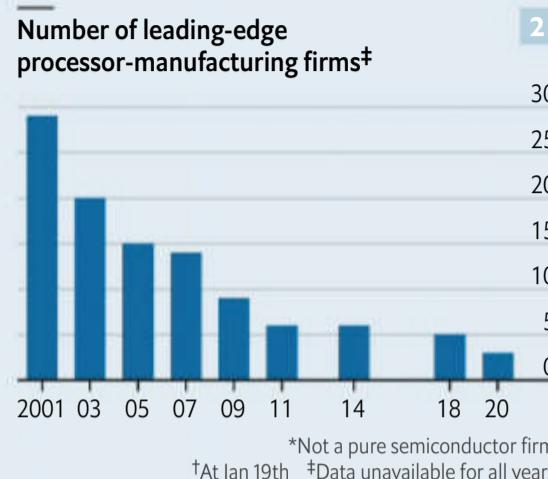
All this would be unequivocally great news for everyone, were it not for what is happening at the other end—in the factories where those designs are turned into electronic circuits etched on shards of silicon. The ballooning costs of keeping up with advancing technology mean that the explosion of chip designs is being funnelled through a shrinking number of companies capable of actually manufacturing them (see chart 2). Only three firms in the world are able to make advanced processors: Intel, TSMC, whose home is an earthquake-prone island which China claims as its territory, and Samsung of South Korea, with a nuclear-armed despotic neighbour to the north. The Semiconductor Industry Association, an American trade body, reckons that 80% of global chipmaking capacity now resides in Asia.

The vanguard may soon be down to two. Intel, which has pushed the industry's cutting edge for 30 years, has stumbled. On January 18th news reports suggested that the company (which was due to report its ►

Nanobucks



Sources: Bloomberg; McKinsey; *The Economist*



latest quarterly results on January 21st, after *The Economist* went to press) may begin outsourcing some of its own production to TSMC, which has overtaken it.

And the world economy's foundational industry looks poised to polarise further, into ever greater effervescence in design and ever more concentrated production. This new architecture has far-reaching consequences for chipmakers and their customers—which, in this day and age, includes virtually everyone.

Start with the diversification. For years technology companies bought chips off the shelf. In its 44-year history Apple has procured microprocessors for its desktops and laptops from MOS Technology, Motorola, IBM, and finally Intel. Soon after the launch of the original iPhone in 2007, however, the firm decided to go it alone. Later iterations of the smartphone employed its own designs, manufactured first by Samsung, and later by TSMC. That approach proved so successful that in 2020 Apple announced that it would replace Intel's products with tailor-made ones in its immobile Mac computers, too.

Two years earlier Amazon Web Services, the e-commerce giant's cloud-computing unit, began replacing some Intel chips in its data centres with its own "Graviton" designs. Amazon claims its chips are up to 40% more cost-efficient than Intel's. Around the same time Google began offering its custom "Tensor Processing Unit" chip, designed to boost AI calculations, to its cloud clients. Baidu, a Chinese search giant, claims its "Kunlun" AI chips outpace offerings from Nvidia. Microsoft, the third member of the Western cloud-computing triumvirate, is rumoured to be working on chip designs of its own.

Clever startups in the field are securing billion-dollar valuations. Cerebras, an American firm which designs AI chips, has earned one of \$1.2bn. A British rival called Graphcore, which has been working with Microsoft, was valued at \$2.8bn in December. On January 13th Qualcomm, a firm best-known for its smartphone chips, paid

\$1.4bn for Nuvia, a startup staffed by veterans of Apple's in-house chip-design team.

Custom silicon was an iffy proposition a decade ago. General-purpose chips were getting better quickly thanks to Moore's law, which holds that the number of components that can be crammed into a silicon chip should double every two years or so. Today the Moorean metronome is breaking down, as quirks of fundamental physics interfere with components measured in nanometres (billions of a metre). Each tick now takes closer to three years than two, notes Linley Gwennap, who runs the Linley Group, a research firm, and offers fewer benefits than it used to.

That makes tweaking designs to eke out performance gains more attractive, especially for big, vertically integrated firms. No one knows better than Apple exactly how its chips will interact with the rest of an iPhone's hardware and software. Cloud-computing giants have reams of data about exactly how their hardware is used, and can tweak their designs to match.

And whereas designing your own chips once meant having to make them as well, that is no longer true. These days most designers outsource the manufacturing process to specialists such as TSMC or Global-Foundries, an American firm. Removing the need to own factories cuts costs drasti-

cally. A raft of automated tools smooths the process. "It's not quite as simple as designing a custom t-shirt on Etsy," says Malcolm Penn, who runs Future Horizons, another chip-industry analyst. But it isn't a world away, either.

Although designing chips is now easier than ever, making them has never been harder. Keeping up with Moore's law, even as it slows, requires spending vast—and growing—sums on factories stuffed with ultra-advanced equipment: plasma-etching kit, vapour-deposition devices and 180-tonne lithography machines the size of a double-decker bus. After falling as a proportion of overall revenue, the chip industry's capital spending is ticking up again (see chart 3). In absolute terms, the cost of high-tech "fabs", as chip factories are known, has grown relentlessly—with no end in sight.

Today's state-of-the-art is five-nanometre chips (though "5nm" no longer refers to the actual size of transistors as earlier generations did). Both Samsung and TSMC began churning them out in 2020. Their 3nm successors are due in 2022, with 2nm pencilled in a few years later.

Intel outside

At the turn of the millennium, a cutting-edge factory might have cost \$1bn. A report in 2011 from McKinsey, a firm of management consultants, put the typical cost of an advanced fab at \$3bn-4bn. More recently, TSMC's 3nm factory, completed in 2020, in southern Taiwan, cost \$19.5bn. The firm is already pondering another for 2nm chips, which will almost certainly be more. Intel's stumbles have left it marooned at 10nm—and its boss, Bob Swan, out of a job. His incoming replacement, Pat Gelsinger, will need to decide if the company, which, unlike TSMC, also designs its chips, wants to keep making them. Potential new entrants face enormous barriers to entry. The economics of fabs pushes these up higher with every technological advance.

That matters. Not all chipmaking requires cutting-edge technology. Cars mostly use older, duller semiconductors. Miniaturisation may seem less of an imperative in roomy data centres. But it is crucial: there are some computations that only the most powerful chips can tackle.

And demand for these is likely to grow as silicon infuses products from thermostats to tractors in the uber-connected "Internet of Things". Between them TSMC and Samsung customers are already a "Who's Who" of big tech—Apple, Amazon, Google, Nvidia, Qualcomm (and soon, if the news reports are true, Intel itself). As things like cars become more computerised and go electric (see next article), the chips that go into them will become more advanced, too. Tesla, an American maker of electric cars, already relies on TSMC's 7nm fabs to make ►



Source: Future Horizons

► its in-house self-driving chips.

Asia's nanoscale duopoly remains fiercely competitive, as Samsung and TSMC keep each other on their toes. The Taiwanese firm's operating margins have been more or less steady since 2005, when 15 other firms were operating at the cutting edge. But the logical endpoint of the relentless rise in manufacturing costs is that, at some point, one company, in all likelihood TSMC, could be the last advanced fab standing. For years, says an industry veteran, tech bosses mostly ignored the problem in the hope it would go away. It has not.

Those worries are sharpened by the industry's growing political importance. As part of its economic war against China, America has sought to deny Chinese firms the ability to build leading-edge chip factories of their own. China has put semiconductors at the core of a multibillion-dollar plan to become self-sufficient in critical technologies by 2025—especially now that American sanctions have deprived it of some foreign imports.

The structural forces behind increased concentration are here to stay. America, worried about losing access to the most ad-

vanced factories, has given handouts to TSMC in return for a fab in Arizona. Samsung may expand the one it runs in Texas. Another package of subsidies and incentives is awaiting funding from Congress. The European Union, which has pockets of high technology in Belgium and the Netherlands, wants more of them. In December 17 EU countries agreed to spend tens of billions in post-pandemic stimulus cash to try to create leading-edge factories by the middle of the decade. The chip industry's history suggests these sums will only get more eye-watering with time. ■

Bartleby Hear, hear

The secrets of successful listening

WHEN PEOPLE talk, listen completely." Those words of Ernest Hemingway might be a pretty good guiding principle for many managers, as might the dictum enunciated by Zeno of Citium, a Greek philosopher: "We have two ears and one mouth, so we should listen more than we say." For people like being listened to.

Some firms use a technique known as a "listening circle" in which participants are encouraged to talk openly and honestly about the issues they face (such as problems with colleagues). In such a circle, only one person can talk at a time and there is no interruption. A study cited in the *Harvard Business Review* found that employees who had taken part in a listening circle subsequently suffered less social anxiety and had fewer worries about work-related matters than those who did not.

Listening has been critical to the career of Richard Mullender, who was a British police officer for 30 years. Eventually he became a hostage negotiator, dealing with everything from suicide interventions to international kidnaps. By the end of his stint in uniform, he was the lead trainer for the Metropolitan Police's hostage-negotiation unit.

When he left the force in 2007, he realised that his skills might be applicable in the business world. So he set up a firm called the Listening Institute. Mr Mullender defines listening as "the identification, selection and interpretation of the key words that turn information into intelligence". It is crucial to all effective communication.

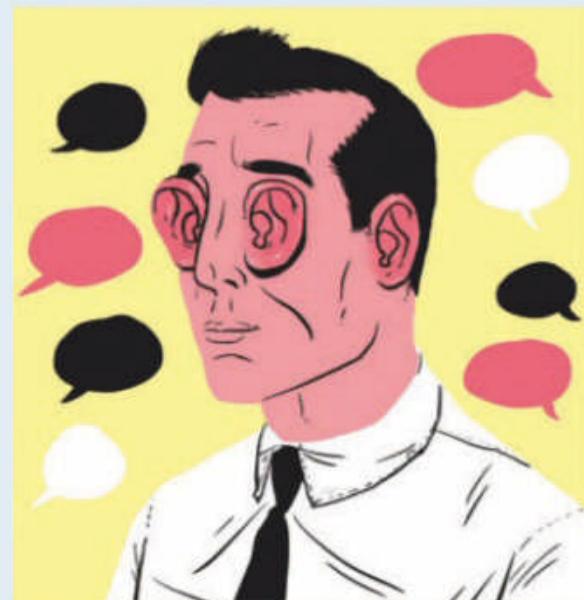
Plenty of people think that good listening is about nodding your head or keeping eye contact. But that is not really listening, Mr Mullender argues. A good listener is always looking for facts, emo-

tions and indications of the interlocutor's values. And when it comes to a negotiation, people are looking for an outcome. The aim of listening is to ascertain what the other side is trying to achieve.

Another important point to bear in mind is that, when you talk, you are not listening. "Every time you share an opinion, you give out information about yourself," Mr Mullender says. In contrast, a good listener, by keeping quiet, gains an edge over his or her counterpart.

Hostage negotiators usually work in teams, but the lead negotiator is the only one who talks. "What we teach is that the second person in the team doesn't really talk at all, because if they are busy thinking about the next question to ask, they aren't really listening," Mr Mullender explains.

The mistake many people make is to ask too many questions, rather than letting the other person talk. The listener's focus should be on analysis. If you are trying to persuade someone to do something, you need to know what their beliefs are. If someone is upset, you need to assess their emotional state.



Of course, a listener needs to speak occasionally. One approach is to make an assessment of what the other person is telling you and then check it with them ("It seems to me that what you want is X"). That gives the other party a sense that they are being understood. The fundamental aim is to build up a relationship so the other person likes you and trusts you, Mr Mullender says.

The pandemic has meant that most business conversations now take place on the phone or online. Precious few in-person meetings occur. Some might think this makes listening more difficult; it is harder to pick up the subtle cues that people reveal in their facial expressions and body language.

But Mr Mullender says that too much is made of body language. It is much easier to understand someone if you can hear them but not see them, than if you can see but not hear them. He prefers to negotiate by telephone.

Another key to good listening is paying attention and avoiding distraction. In the information age, it is all too easy for focus to drift to a news headline, a TikTok video or the latest outrage on Twitter. In another study in the *Harvard Business Review*, participants paired with distracted listeners felt more anxious than those who received full attention.

The lockdown has increased the need for managers to listen to workers, since the opportunities for casual conversation have dwindled. Mr Mullender thinks that many people have become frustrated in their isolation, which can lead to stress and anger. He thinks there may be a business opportunity in helping managers listen more efficiently, so they can enhance employee well-being. After a year of isolation, many workers would probably love the chance to be heard.

Carmaking (1)

Electric awe

A Tesla bull debates...

TESLA'S SHARE price will travel in only one direction—up. Despite accelerating in “ludicrous” mode, by more than 700% in 2020, Tesla has plenty left in the tank, to borrow a phrase that the firm is consigning to history. Its impact on the car industry cannot be overstated. But it is a mistake to judge it by the standards of the firms it will leave in its tracks. Tesla is a technology firm, set to disrupt not just carmaking but personal transport, energy (thanks to its battery technology and solar power), robotics, health care and more besides.

Its valuation is justified by its potential to dominate the future of mobility alone. Operating margins were close to 7% in the first nine months of 2020, higher than any big rival's—and rising. Its market is exploding. Electric vehicles (EVs) now make up around 3% of all car sales, of which Tesla accounts for a fifth. As regulations tighten and ranks of climate-worriers swell, a third of all cars sold globally will be electric by 2030—rising to over half ten years later. Even if Tesla won't make 20m EVs a year by 2030, as its boss, Elon Musk, hopes, it could control 25-30% of the EV market.

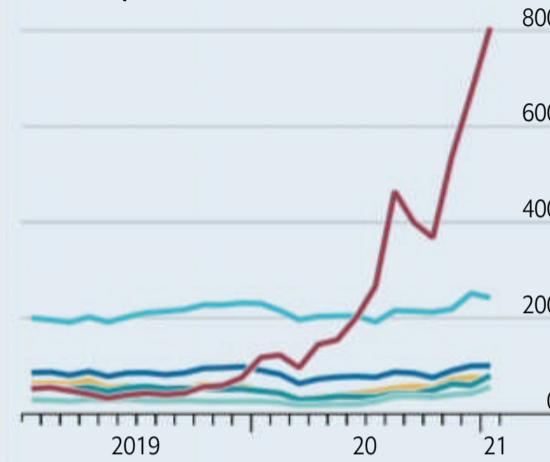
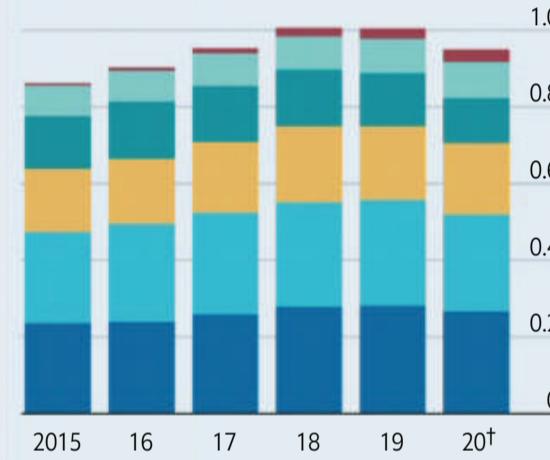
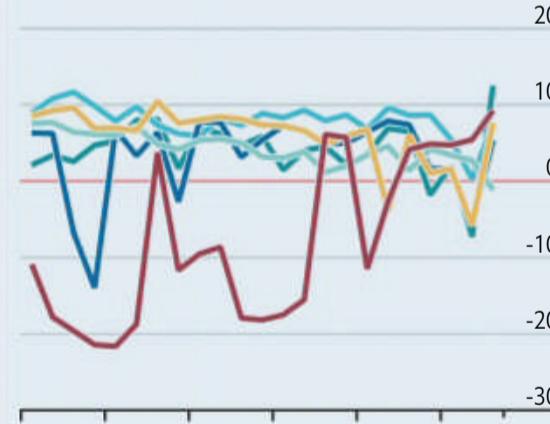
Tesla's “production hell” is in the past. It just about hit a pre-pandemic delivery target of 500,000 cars in 2020 and rapidly erected a new factory in China—which on January 18th delivered its first Model Y, a small SUV. Another will come online shortly in Germany. So will a new battery “giga-factory” in Texas. This, and the ease with which it raised \$12bn of capital amid the covid-19 crisis, shows it can expand at will.

The firm's proven knack for speedy innovation will let it keep an unassailable technology lead over both established carmakers, struggling to free themselves of the legacy of internal combustion, and newcomers looking to steal its crown. Like other tech Goliaths such as Apple, its products will continue to define the category. Mr Musk has remade the car into a connected electronics device that will soon drive itself. Autonomous technology is already fitted to many Teslas, awaiting regulators to approve it. This will put Mr Musk in the front seat of the robotaxi as the world moves towards mobility services.

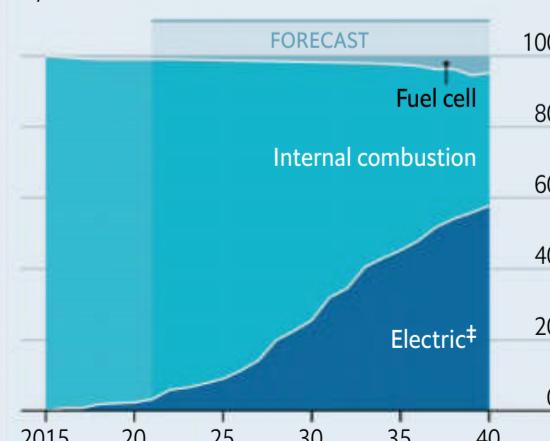
Tesla's greatest asset is Mr Musk, a visionary spearheading rocket trips to Mars, neuroscience, grid-scale batteries and other transformational technologies. Investing in Tesla is a bet on his genius for turning the future into dollars. ■

Elon's menagerie**Selected carmakers**

Tesla Volkswagen Toyota
Daimler General Motors Hyundai

Market capitalisation, \$bn**Revenues*, \$trn****Operating margin, %****Worldwide passenger-vehicle sales**

By drivetrain, %



Sources: Bloomberg; BloombergNEF

*Years beginning April for Toyota
†Estimate #Includes plug-in hybrid

Carmaking (2)

Electric shock

...a Tesla bear

TESLA'S SHARE price can travel in only one direction—reverse. A market value of \$800bn, equal to that of the next eight biggest carmakers combined, is predicated on Elon Musk's shake-up of the industry. Building a brand swiftly and making electric cars trendy is a real achievement. But Tesla's revenues come from selling cars. Sales are rising—yet would need to swell seven-fold to match Toyota's. Good luck.

Yes, Tesla missed a delivery target of 500,000 cars in 2020 by a mere whisker. But it once said it would be making 1m a year by now. A goal of 20m electric cars by 2030 looks like another wild over-promise. Mr Musk has admitted that unless costs are contained the share price may be “crushed like a soufflé under a sledgehammer”.

Competition is getting fiercer. Big firms dragged their feet on electrification for a reason. Batteries were costly—and electric cars, niche products for the rich. But prices have fallen, regulations have tightened and buyers want electric vehicles (EVs). The giants promise a traffic jam's worth: General Motors says it will have 30 models on the market by 2025; Volkswagen Group is eyeing 70 by 2030. Startups, many in China, are powering up. Mr Musk's technology lead is running out of road.

Rising profits in 2020 might reassure investors, but come mostly from selling carbon credits. And Tesla is not immune to the traditional forces that govern carmaking. Some models are ageing. Sales of Model S and Model X are falling and the firm is losing market share in Europe. In the first nine months of 2020 VW, Renault-Nissan-Mitsubishi and Hyundai-Kia all sold more EVs in Europe than Tesla did, according to Schmidt Automotive Research.

The hype about autonomous cars has worn off as developing self-driving systems has proven tricky. Tesla's pseudo-autonomous system requires constant monitoring by the driver. The full autonomy that would give robotaxis the freedom of the open road is years away. All this suggests Tesla will remain a niche luxury firm.

Then there is Mr Musk. He has toned down erratic tweets, like the one in 2018 implying Tesla was about to go private, which got him into hot water with regulators. But he is spreading himself too thinly between Tesla, SpaceX's rocketry and other ventures. The strains from Tesla's expansion could again bring out his demons—and spell disaster for shareholders. ■

Business schools

The class of covid-19

FONTAINEBLEAU, HONG KONG AND NEW YORK

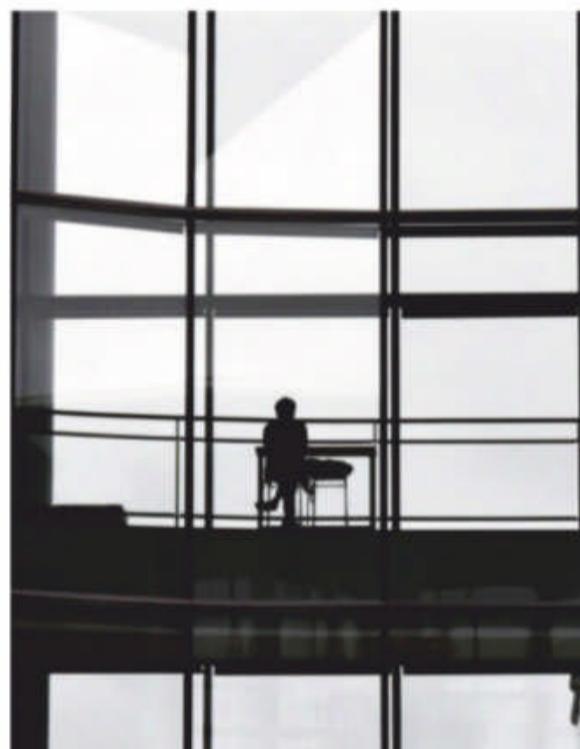
Once endangered, the MBA is emerging stronger from the pandemic

EDIEAL PINKER, deputy dean of the Yale School of Management, bristles at the suggestion that the MBA, long seen as a stepping stone to corporate success, has been made less relevant by the covid-19 crisis. The traditional two-year degree remains vital, he insists. “Do you think the problems the pandemic created for society and the economy are narrow specialised problems or complex ones that cut across sectors and disciplines?”

His words would have sounded odd a year ago. The MBA was falling out of fashion. With the global economy booming, the opportunity cost of this pricey degree (top schools charge \$100,000 or more a year) did not seem worthwhile to many. Some schools could not cover their expenses. In 2019 the University of Illinois said it would end its residential MBA programme. Dozens of middling schools have done the same in recent years.

Surely Mr Pinker’s defence of the MBA seems even odder in the new pandemic reality? On the contrary. “Students held up and schools stepped up,” says Sangeet Chowfla, head of the Graduate Management Admission Council (GMAC), an industry body. GMAC’s latest annual global survey of more than 300 business schools found that 66% of programmes saw applications rise. Has covid-19 saved the MBA?

At first the virus looked lethal. Lectures moved online, team exercises became socially distant and study-trips abroad were cancelled. That diminished the value of the MBA experience, which is “greatly enhanced by the opportunity to expand and diversify one’s professional network through in-person interactions”, says Scott



Lonely no longer

DeRue, dean of the University of Michigan’s Ross School of Business. Covid-19 restrictions hurt what Ilian Mihov, dean of INSEAD, a French school with campuses in Fontainebleau, Singapore and Abu Dhabi, calls “horizontal learning”—working in teams or discussing the day’s lessons over coffee. Ominously, INSEAD’s most popular MBA course last year was “Psychological Issues in Management”. “[I miss] interacting and having fun,” laments a student at New York University’s Stern School of Business. Columbia Business School has disciplined 70 students who violated covid-19 rules on socialising by travelling to Turks and Caicos for the autumn break.

Some students, angry about social isolation and online education, demanded refunds. Many foreigners, a cash cow for Western schools, stayed away (see chart). Mr Chowfla points to the “one-flight dynamic”: horror stories about students kicked out of dorms getting stranded on layovers while returning home put many Asians off American schools.

America’s loss was Europe’s gain. With more direct connections to Asia, London Business School, HEC Paris and other top European schools reported rises in applications. Some Asian schools, too, benefited. They kept their doors open to international students, thanks to their countries’ better handling of the pandemic. Hong Kong University Business School (HKUBS) saw a surge in applications from North

America and Europe in March. They tended to be students who aimed for MBAs in the West but picked Asia at the last moment, says Sachin Tipnis of HKUBS. Memories of the SARS epidemic of 2003 spurred HKUBS to act early. Rapid processing of visa applications and moving classes to larger lecture theatres allowed 90-95% of students to attend in person.

Travel and visa complications boosted domestic applications everywhere. In 2020 mainland applicants to China Europe International Business School (CEIBS), a top-rated business school in Shanghai, rose by 30%. The wish to stay local is driven by two things, explains Ding Yuan, its dean. The first is China’s economy, which grew last year while others shrank. That has made America and Europe a less attractive destination in general for ambitious managers. The second is a sense that the post-Trump West is less welcoming to Chinese.

Most surprising of all, given all that, American schools look poised for a banner 2021. After a few years of declining applications, MIT’s Sloan School of Management, Columbia Business School, the Wharton School of the University of Pennsylvania and other top American programmes now report double-digit growth. “We enrolled the largest full-time MBA class ever,” beams Madhav Rajan, dean of the University of Chicago Booth School of Business.

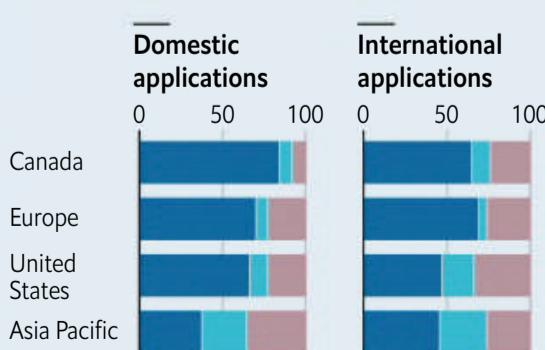
MBA applications typically rise in recessions, when a weaker job market means lower forgone salaries. But business schools deserve credit for adapting their business models—as their professors preach others to do. Many delayed the start of semesters, offered generous scholarships, waived exam requirements and liberalised policies on deferrals. Harvard Business School allowed students it admitted to postpone studies for one or two years. GMAC reckons that deferrals globally have shot up from about 3% to 7%.

Schools also boosted online and flexible degrees, which are surging, and integrated digital teaching into core MBA courses. Far from being “giant killers”, says Vijay Govindarajan of Dartmouth College’s Tuck School of Business, digital technology can help a top school “ensure its gold-plated MBA programme shines even brighter”. The Ross School is using tools akin to Netflix’s bespoke recommendations to create “personalised leadership and career development journeys” for students. And to graduates’ relief, recruiters are back. GMAC’s survey of firms that recruit at business schools found that 89% intended to hire MBAs in 2021, up from 77% last year. ■

Degrees of freedom

MBA applications, 2020 v 2019
% of programmes, by school location

■ Growing ■ Stable ■ Declining



Source: GMAC

This week we publish our annual WhichMBA? ranking of the world’s top full-time MBA programmes. Find it at economist.com/whichMBA2021

Schumpeter | Sberbank's second pirouette

The Silicon Valley fantasies of a former Soviet savings monopoly



TECH FIRMS with rosy business models are told to “pivot”—abruptly reinvent themselves in the hope that a new approach generates profits before venture capital runs out. YouTube is celebrated in business schools for hurriedly switching from a dating service to video-sharing; Slack ditched online gaming for corporate chat. Agile repositioning is not confined to Silicon Valley. In Russia the hustle to come up with the next tech darling has emerged from an unlikely quarter. Sberbank, once the Soviet Union’s sclerotic retail-savings monopoly, is ploughing billions of dollars into consumer technology. It is pitching clients digital services from food delivery to music streaming. Driverless cars and e-commerce will be next. Can the former spiritual home of financial bureaucracy, still majority-owned by the government, reinvent itself as Russia’s Netflix, Google and Amazon rolled into one?

Bewilderingly, the answer is: maybe. Sberbank has pulled off one long-odds pirouette—from a communist state enterprise, with all the attention to customer care and corporate probity you would expect, into a modern lender. By adopting decent governance standards and up-to-date lending practices it has seen off plenty of rivals and kept nearly half of all retail deposits in the country. Its brand remains strong. The state’s continued involvement—the Russian finance minister chairs its supervisory board—has helped reassure customers that the state will make them whole if things go awry. Two in three Russians are still its clients. The lousy interest rates depositors accept in return for this security ensure cheap funding for Sberbank—and some of the world’s juiciest lending margins. This has made it Russia’s most valuable listed firm, and Europe’s second-most-valuable bank behind HSBC.

The same man who turned the decrepit dinosaur into a nimble 21st-century lender now wants to choreograph its entry into big tech. German Gref has been boss since 2007. A descendant of German deportees exiled to Kazakhstan in 1941, he took the reins after a stint as a liberal-minded economy minister under Vladimir Putin, an old associate of his from their time in St Petersburg in the 1990s. Having succeeded at the humdrum task of offering better financial services to the masses—getting tellers to smile and vetting borrowers thoroughly—he now wants to move beyond being a

“boring banker”, as he has put it. Tech looks just the ticket.

Just as likely these days to sport tech’s *de rigueur* t-shirt and jeans as he is a suit, Mr Gref has a vision of Sberbank as a purveyor of everything digital. Where some firms offer services to consumers, others to businesses or governments, he has designated Sberbank as a “B2C2B2G” company. The roster of current and planned offerings ranges from cloud-computing to ride-hailing, virtual assistants, e-health and its own cryptocurrency. Forget banking: the firm has rebranded itself as Sber.

The model Mr Gref has in mind is not American or European but Asian. Far-eastern “super-apps” have emerged offering a wide array of services under one roof. The likes of WeChat in China or Grab in South-East Asia have thrived by disrupting old financial institutions. Sberbank wants to be the disruptor instead. It has spent around \$2bn on technology and acquisitions, for example of an internet-media group. A further \$3bn-4bn splurge between now and 2023 should help it build out an “ecosystem” of apps with a target of annual sales (including by third parties on Sberbank’s platforms) of around \$7bn. That would be enough to be among Russia’s top three e-commerce firms within three years, before taking the crown by the end of the decade.

Sberbank starts with ingrained advantages. Its banking app is already the third-most-popular in Russia, and draws rave reviews. Its customer base of nearly 100m is an unrivalled franchise. And, in a country that defies easy logistics, a network of 14,000 branches can double up as last-mile delivery points.

The logistics headache, along with a dollop of protectionism, help explain why mere billions are enough to make a credible push into digital services in Russia. Western giants have been all but frozen out. Local companies such as Yandex (which started out in search) and Mail.ru (email and social media) lack the resources to transform themselves. Sberbank’s fat banking profits enable it to do just that. Troves of consumers’ credit data are equally useful.

On paper, then, Mr Gref’s vision makes a fair bit of sense. Implementing it is another matter. Sberbank has tried to join forces with tech groups in the past, notably Yandex and Alibaba, a Chinese giant, but the joint ventures met an acrimonious end. False starts have meant that it still needs to build an Amazon-like e-commerce operation around which its e-empire would revolve. Russian online services are growing rapidly, not least thanks to covid-19, but are mostly unprofitable. Others have spotted the super-app opportunity, including mobile-telephony providers, as well as Yandex and Mail.ru. And few precedents exist for an incumbent bank anywhere successfully parlaying its franchise into a wider ecosystem, points out Gabor Kemeny of Autonomous, a research firm.

Getting dizzy

The push into tech is partly the consequence of banking becoming less lucrative; margins are forecast by Sberbank to come down from their giddy heights as low interest rates bite. Overseas expansion once looked promising but was all but kiboshed by Western sanctions imposed on many Russian firms after Russia annexed Crimea in 2014.

The B2C2B2G opportunity is real. But is it worth it? In contrast to flailing Silicon Valley upstarts Sberbank does not need to pivot. Even under its own bullish forecasts for a thriving digital ecosystem, in ten years 70% of profits would still come from the legacy banking business. Most bosses would love to turn their firm into the next Alibaba. Sberbank’s shareholders seem happy for Mr Gref to give it a whirl. Others will be studying his progress carefully. ■

**America's recovery**

Fire without fury

Will Joe Biden's fiscal stimulus and the Fed's loose monetary policy overheat the American economy?

ON JANUARY 20TH Joe Biden entered the White House during an economic crisis for the second time. On January 14th he unveiled his plan for dealing with the downturn wrought by the pandemic. Viewed from the bottom up, it combines vital spending on vaccines and health care, needed economic relief and other, more debatable handouts. Seen from the top down, it is a huge debt-funded stimulus. Mr Biden's plan is worth about 9% of pre-crisis GDP, nearly twice the size of President Barack Obama's spending package in 2009. And it is big, too, relative to the shortfall in demand that America might suffer once it puts the winter wave of covid-19 behind it, given the stimulus already in place.

A natural question to ask, then, is whether the proposal, admittedly an opening gambit in a negotiation with Congress, might overheat the economy if implemented. The most prominent figure to warn that this may happen is Larry Summers of Harvard University. His criticisms are notable both because he was an adviser to Mr Obama and because he was hitherto per-

haps the world's foremost advocate of deficit spending. "If we get covid behind us, we will have an economy that is on fire," he said on January 14th.

There are three main reasons to suspect overheating might be on the cards: emerging evidence that the downturn may prove temporary; generous stimulus; and the Federal Reserve's monetary-policy strategy. Take first the evidence that today's downturn might be more temporary hiatus than prolonged slump. The number of non-farm jobs remains around 10m, or 6.3%, below its pre-pandemic peak—similar to the shortfall seen in 2010. Yet after the first wave of infections last year, unemployment fell much more rapidly than forecasters expected. If job creation were to return to the average pace achieved between June and November 2020, the pre-pandemic peak in employment would be reconquered in less than a year. It was not until midway through Mr Biden's second vice-presidential term that such a milestone was reached last time.

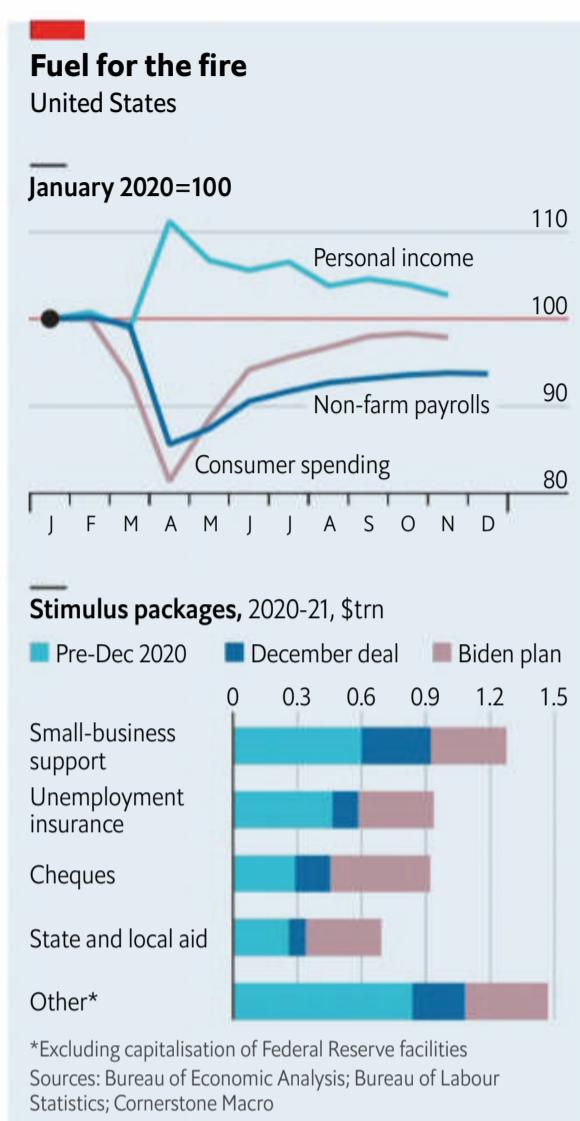
Bolstering the case for a rapid rebound

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is the fact that economic disruption appears concentrated in certain sectors, rather than spread widely. America shed jobs, on net, in December, but only because the leisure and hospitality industries were hit by social distancing. The ratio of job openings to unemployed workers remains high and, outside the affected sectors, wage growth has not fallen much. The shortfall in spending is also concentrated. Consumer spending in the week to January 3rd was down by just 2.8% compared with a year earlier, according to Opportunity Insights, a research group. Yet retail spending on goods was 16.5% higher; it is restaurants, transport and entertainment that are in trouble. And stimulus has more than made up the disruption to incomes in 2020. In November Americans' total after-tax income was 4.3% higher than a year ago.

Indeed, the arithmetic of stimulus is a second reason why the economy may heat up. Before December, total fiscal stimulus in 2020 amounted to almost \$3trn (about 14% of GDP in 2019), much more than the probable fall in output. Social-distancing measures meant that much of this cash piled up in bank accounts. According to Fannie Mae, a government-backed housing-finance firm, by mid-December Americans had accumulated about \$1.6trn in excess savings. It is hard to know what might happen to this cash pile; economists typically assume that households are much less likely to spend wealth windfalls (such as the gains from a rise in the stockmarket) ►



than income. But if people instead regard these excess savings as delayed income, then the cash hoard represents stimulus that has not yet gone to work, to be unleashed when the economy fully reopens.

In December President Donald Trump signed into law another \$935bn of deficit spending, which extended unemployment benefits, provided more support for small firms, and sent most Americans a cheque for \$600. This ensured that lost income would continue to be replaced. Mr Biden's proposed \$1.9trn of stimulus, which includes another \$1,400 in cheques, would make the total fiscal boost in 2021 roughly equal to that in 2020.

Jason Furman, another former Obama adviser, calculates that the combined impact of the December package and the Biden plan would be about \$300bn per month for the nine months in 2021 for which the measures will be in effect. By comparison, the shortfall in GDP, compared with its pre-crisis trend, was only about \$80bn in November. Typically, Keynesians argue that fiscal stimulus boosts the economy because of a sizeable "multiplier" effect. But the case for the stimulus to be as large as Mr Biden's proposal "has to be that you think the multiplier in 2021 is really small", says Mr Furman. Otherwise, it seems destined to take total spending in the economy beyond what it can produce next year, resulting in a burst of inflation.

Were the economy to show signs of such overheating, the Fed might typically

be expected to raise interest rates to cool things down. Indeed, since January 6th, when the Democrats won the crucial Senate seats in Georgia that might allow them to pass a big stimulus, the ten-year Treasury yield has risen from about 0.9% to around 1.1%. The yields on inflation-linked bonds have risen roughly commensurately, suggesting that bond investors have been expecting higher real interest rates, rather than just higher inflation.

But the Fed is tripping over itself to signal that monetary policy will remain loose—a third reason to expect overheating. The time to raise interest rates is "no time soon", said Jerome Powell, its chairman, on January 14th. He also pooh-poohed the idea that the Fed might soon taper its \$120bn monthly purchases of Treasuries and mortgage-backed securities. Mr Powell says the Fed has learned the lessons of 2013, when its hints that it might taper asset purchases sent bond markets into a tizz. Monetary policymakers still say that preserving "smooth market functioning" is one of the goals of their purchases, even though no dysfunction has been seen in bond markets since the spring.

The Fed is so willing to keep the pedal to the metal because, in contrast to the recovery from the financial crisis, it is seeking to overshoot its 2% inflation target, in order to make up for continuing shortfalls. The strategy, announced last summer, is still being digested by investors. It is unclear whether policymakers are committed to "average inflation targeting" as an end in itself, or simply as a means to stop inflation expectations from slipping too much during the downturn, argues David Mericle of Goldman Sachs, a bank. Given that inflation expectations have risen recently, that distinction might prove important. Regardless, the Fed has been clear that it will not raise rates until inflation is "on track to moderately exceed 2% for some time".

Those who are zealously committed to breaking the world economy out of the low-rate, low-inflation trap of the 2010s might welcome the even larger burst of inflation that the current fiscal and monetary policy mix could enable. The Fed, however, is not in that camp. Were overheating to provoke it into earlier rate rises than markets expect, the assumption of cheap money that underpins today's sky-high asset prices and the sustainability of rocketing public debt might begin to unravel.

Such a scenario remains a tail risk. The most likely outcome is that Congress agrees on a smaller stimulus than Mr Biden has proposed, and that overheating, if it occurs, proves temporary. Beyond that, nobody really knows how fast the economy can grow without setting off inflation. Should economic policy stay in uncharted territory, though, its speed limits may be tested more frequently. ■

Inflation

Bottlenecks

Will they cause prices to soar?

LOGISTICS MANAGERS have gained a few grey hairs over the past year. When the virus first spread, they faced a collapse in demand. Now they are scrambling to fill a surge in orders. One in five purchasing managers report "port" or "shipping" delays, the most since 2004, says IHS Markit, a data provider. Such is the shortage of container space that the Freightos Baltic Index, a measure of container prices, rose to over \$4,000 on January 15th, compared with \$1,200-\$1,600 in 2019.

For most goods shipping makes up a tiny share of a product's total cost, says Florian Frese of Container xChange, an online platform. But other prices are rising too. Commodities are on a tear. A survey by IHS Markit found that manufacturing-input prices last month rose at the fastest pace in nearly ten years.

Some sectors are also experiencing a dearth of components. Jonathan Smoke of Cox Automotive, a consultancy, describes how production problems related to the winter wave of covid-19 and chip shortages are tightening the supply of new cars in America. Mr Smoke expects prices of used vehicles to be 30% higher in April than they were a year earlier (admittedly, relative to a low base). According to a survey of small and midsize importers using the Freightos platform, a third of the 77% encountering supply-chain disruption in the past six months raised product prices as a result.

So far, these pressures have not translated into wider consumer-price inflation. That is partly because demand, although recovering, is still subdued. It is also because the products affected by snarled supply chains make up a relatively small share of consumption; meanwhile price growth in other areas, such as travel and tourism, is tepid. Once supply-chain disruptions are resolved, elevated input prices should sink back.

If annual inflation does rise over the coming months, that will be because prices will soon be compared with a much lower base, owing to the oil-price falls of last spring. Analysts at Capital Economics, a consultancy, reckon that energy prices depressed headline inflation in OECD countries by an average of around 0.6 percentage points in November—but by April will buoy them by a whole percentage point.

Wall Street's banks

Topsy turvy

NEW YORK

Have banks now got too much cash?

THE FATES of the economy and banks are normally closely entwined; when customers endure misfortune, loans go unpaid. The summer was marked by a lull in covid-19 cases and recovering economic activity. Winter has brought with it more infections and shutdowns. Yet banks' profits were slender in the summer and, as fourth-quarter earnings released between January 15th and 20th revealed, fattened at the end of the year. What is going on?

One explanation is that the trading desks and investment banks housed in most big banks have fared well, thanks to a rush of initial public offerings and booming markets. Profits were sky-high at banks that earn most of their revenues from investment banking and trading. Goldman Sachs made \$4.5bn in the fourth quarter, half its annual profits in 2020. JPMorgan Chase's investment-banking profits in the same quarter almost doubled on the year. The firm's total earnings were a record \$12.1bn in the fourth quarter.

The bread-and-butter business of commercial and consumer banking also did well. This is, in part, an accounting quirk. When expectations of repayment tumble, banks must write down the value of their assets, which they book as a loss. As a result, many reported slim profits (and in some cases, losses) in the second and third quarters, even though borrowers mostly repaid their loans. Though delinquencies inched up in the fourth quarter, it also contained hope—in the form of a vaccine.

Recovery equals repayment. So America's biggest lenders—Bank of America, Citigroup, JPMorgan and Wells Fargo—have favourably re-evaluated their loan books. In September JPMorgan expected as much as \$33.6bn of its \$1trn loan book to eventually go unpaid. By the end of December a little under \$1.1bn was written off for good. But the bank also now thinks that around \$1.8bn that it had previously expected to be lost will be repaid. These averted hypothetical losses add to profits.

This bonanza is a victory for those who spent the past decade attempting to make banks safer. In the past investment-bank earnings were more tied to the economy, thanks to fat portfolios of assets like mortgage-backed securities. Now banks must hold so much capital against volatile assets that they do not bother. When markets whipsawed last year they earned the upside (bumper trading revenues) without

the downside (losses on volatile assets).

But this earnings season has also revealed how sensible rules can go awry in bizarre times. Banks are usually keen to amass customer deposits. They are cheap sources of funding; the more deposits a bank holds, the more it can lend. Over the past year, monetary easing by the Federal Reserve has injected vast amounts of cash into the banking system and led deposits to balloon. In 2020 an additional \$580bn or so piled up at JPMorgan, and \$360bn at Bank of America. On one earnings call an analyst called these deposit mountains an "embarrassment of money for the industry".

Yet post-financial-crisis rules make this cash pile a problem, not a victory. Big banks

face high capital requirements if they grow too large. The penalties would be worthwhile if there were enough profitable opportunities. But loan demand has been low. System-wide loan-to-deposit ratios have plummeted, from 94% in 2008 to 64% last year. The result is that some banks are attempting to shoo away deposits. Jamie Dimon, JPMorgan's boss, told investors that the bank had asked some of its big corporate customers to move their cash, reducing the deposit base by \$200bn. The firm may "shy away from taking new deposits", said Jennifer Piepszak, its chief financial officer. The covid-19 crisis has shown the resilience of the financial system. But it has also revealed its oddities. ■

China's economy

Southern tiger

SHANGHAI

As northern China struggles, the south surges ahead

DON'T INVEST beyond Shanhaiguan" is a popular quip in China, referring to a pass in the Great Wall that leads to the north-eastern rust belt. Online pundits have updated the maxim to "don't invest outside the Southern Song", a dynasty that fell almost 750 years ago whose territory was roughly the same as China's southern half today. The joke has a nub of truth: China's southern provinces are outperforming the north in nearly every economic dimension.

Figures released on January 18th showed that China's GDP grew by 2.3% in 2020. The recovery was unbalanced, with factories at full throttle but consumption subdued. That should improve after the pandemic ends. The north-south imbalance, though, is likely to outlast it.

The south's share of GDP has risen to a peak of 65%, from 59% in 2015. Some of that is down to luck. The north, home to China's largest coal mines and oil reserves, was caught out by falls in com-

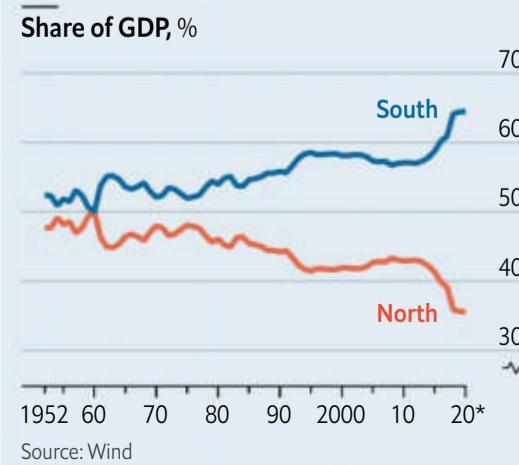
modity prices after 2013. It also boasts big industrial firms; China's shift from construction-fuelled growth towards consumption and services has hurt.

Northern officials have tried harder to goose up growth, to the region's detriment. In 2013, the peak of China's building frenzy, investment in assets such as roads and factories reached an eye-watering 66% of GDP in the north versus 51% in the south. Southern officials have been more hands-off. China's two most dynamic regions are in the south, anchored by Shanghai and Shenzhen. The south also makes the smartphones and sofas lapped up globally. Its foreign-trade surplus last year was about 7% of GDP. The north ran a 2% deficit.

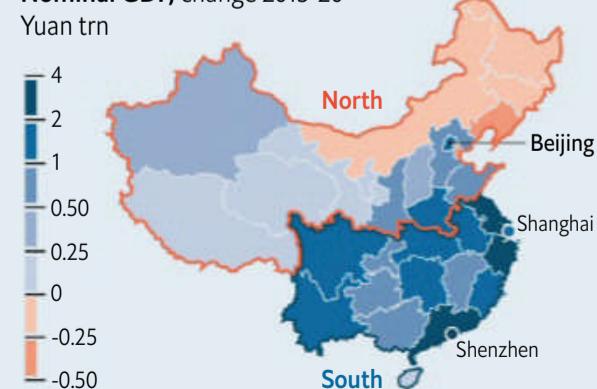
To add insult to injury, the north has also been disrupted more by sporadic covid-19 outbreaks. Geography is part of the problem: a harsher winter makes the virus more transmissible. The north is stuck out in the cold.

It's grim up north

China



Nominal GDP, change 2015-20





Cross-border crime

Tilting the scales

We investigate the uncomfortably close links between the Swiss and Russian authorities in a huge money-laundering case

IN 2014 SWITZERLAND'S then attorney-general and two colleagues posed for a photo with several other people on a boat on Lake Baikal in Siberia. The picture shows the men relaxing together on the deck. But their host was no ordinary sailor. He was one of Russia's top prosecutors, later implicated in efforts to stymie a major international money-laundering case that his very guests were investigating.

The story behind the photograph involves an intriguing cast. It includes the Russian lawyer who met President Donald Trump's campaign team in 2016, an encounter that featured in the Mueller report into Russian interference in that year's election. Another starring character has been linked to corruption investigations at FIFA, world football's governing body. The money-laundering case, and allegations of cosy relations between Swiss law enforcers and Russian counterparts, threaten to make a mockery of the Alpine country's efforts to shed its global reputation as the home for shady people's cash.

At the heart of it all is the loot from the so-called Magnitsky case. In 2009 Sergei Magnitsky, a lawyer, died in a Russian prison after trying to investigate a fraud in which Russian officials and police officers, with the connivance of the courts, purloined a \$230m tax refund for an investment firm, Hermitage Capital Manage-

ment. Bill Browder, the firm's founder and Magnitsky's employer, has worked since to expose the scam. His lobbying has led several countries, including America and Britain, to pass "Magnitsky laws" that sanction foreign officials who commit human-rights abuses or steal money. An EU-wide version was adopted on December 7th.

Mr Browder's team has tracked the money from the fraud to 26 countries, including Switzerland. Around \$11m in Credit Suisse has been tied to Vladlen Stepanov, the husband of the official who approved the bogus tax refund. The couple have been hit with American sanctions. An undisclosed sum in UBS, another bank, was linked to Dmitry Klyuev, a Russian businessman also subject to sanctions. And over \$7m in UBS was held by Denis Katsyv, another business figure, and firms linked to him. In 2017 one of the firms, Prevezon, agreed to pay \$5.9m, without admitting guilt, to settle a US government asset-forfeiture suit over the case.

The Russians have all said the money in their accounts is unrelated to the alleged fraud and deny wrongdoing. But Mr Browder disagreed. In 2011 Hermitage filed a criminal complaint over the \$230m theft with Swiss prosecutors. They launched a probe and froze the accounts. But despite progress in related probes elsewhere and plenty of evidence joining the dots, there

have been no indictments or seizures. In November the Swiss prosecutor's office said it planned to close the investigation and release most of the money in the accounts to their Russian owners. It also signalled that it may remove Hermitage as a plaintiff following a legal challenge, which *The Economist* understands to be from Prevezon. That would leave Hermitage unable to appeal the decision to drop the probe.

The Swiss have "capitulated" in the face of Russian efforts to sabotage the case, complains Mr Browder. He is not alone. Several Swiss politicians have raised the issue in parliament. A group of 20 lawmakers from several European countries signed a declaration bemoaning the reported closeness of Swiss investigators to Russia in the Magnitsky case. In December an American senator, Roger Wicker, wrote to Mike Pompeo to urge the secretary of state "to ensure that mutual legal assistance work with Switzerland does not inadvertently become a vector for Russian influence".

The Swiss officials in the case all deny any bias. The attorney-general's office says that the link between sums suspected of being laundered in Switzerland and an offence committed abroad "must be established with a sufficient degree of certainty", and that it was "justified" in closing the case after conducting a thorough investigation. However, documents seen by *The Economist*, including court records, raise disturbing questions about the integrity of the Swiss probe.

By 2013 there were three Swiss officials involved in the investigation. Patrick Lamon had just taken over as lead prosecutor. At around the same time, a police officer with expertise in Russia, "Viktor K", was seconded to the prosecutor's office to assist with the case. (*The Economist* cannot publish his real name without falling foul of Swiss law, which shields individuals who are not publicly known figures, including those convicted of crimes, from having their identities revealed.) Michael Lauber, Switzerland's attorney-general, oversaw their work. What followed was not exactly an arm's length investigation.

Boars, bears and choppers

In 2014 Viktor K went on a boar-hunting trip with a Russian prosecutor, Saak Karapetyan. According to court documents, they stayed at a lodge in the Yaroslavl region, 320km from Moscow, and the tab was picked up by an oligarch involved in energy and property. That summer all three Swiss men schmoozed with Mr Karapetyan on Lake Baikal. The Russians paid for the boat trip. In September 2015 Mr Lamon and K travelled from Zurich to Moscow on a plane owned by the Russian state, at the invitation of the prosecutor-general. Some of the expenses were paid by the Russians. K stayed on for another hunting trip with Mr ►

► Karapetyan. (K did not respond to questions from *The Economist*.)

Who was this hospitable Russian prosecutor? Evidence has emerged that Mr Karapetyan may have played a key role in covering up the \$230m fraud. In 2014 he sent a letter to America's Department of Justice refusing help in the Prevezon case and insisting that the company and its owner were innocent. Mr Karapetyan, who died in a helicopter crash in 2018, had accused Mr Browder of being behind the heist.

Intriguingly, a DOJ investigation concluded that the letter had been drafted with help from a lawyer advising Prevezon, Natalia Veselnitskaya. The DOJ has charged her with obstruction of justice in connection with its case against Prevezon. She is also known for meeting senior figures from Donald Trump's presidential campaign, at Trump Tower in June 2016. Team Trump had been led to believe it might get hold of dirt on Hillary Clinton. Instead, according to several participants, Ms Veselnitskaya turned the conversation to the Magnitsky Act, which she had been lobbying to have repealed.

In that same year Hermitage filed a request to indict Mr Stepanov, who, it argued, could not adequately explain the lawful origin of the funds in his Swiss account. Four months later Mr Lamon turned down the request, citing insufficient grounds for indictment. (Hermitage later tried to have him recused for bias, but a court rejected the request.) In August 2016 K saw Mr Karapetyan again. This time they went bear-hunting in far-eastern Russia, where they were taken by helicopter to a lodge owned by another oligarch. The two men discussed the Magnitsky case for several hours, according to K's statement.

On his return to Switzerland the policeman requested a meeting with Andreas Gross, a Swiss politician who had written a report on the Magnitsky case for the Council of Europe, accusing Russia of "a massive cover-up". Later, K told a court: "My task was to show that the report does not constitute the absolute truth, that nothing has been verified, and that it is just Browder's version...I told Lamon that we must discontinue the investigation immediately." Mr Gross says of his meeting with K: "I agreed to go because I thought he wanted my help. But it turned into an interrogation that lasted all day. It felt like he was a Russian investigator, not a Swiss one." Mr Browder claims that K wanted to discredit the report in order to close the Swiss case.

Soon afterwards, Mr Karapetyan asked K to come to Moscow to discuss a "confidential" matter. K asked his supervisor in the police if he could make the trip. The request was denied—but he went anyway. According to court documents, he used his diplomatic passport without permission. He paid for his flights, but the cost of his

stay in Moscow was covered by the Russians. While there, "he was invited to discuss some problems in the jointly processed cases," according to a Swiss court ruling from 2018. It describes his Russian host organising a meeting with the female lawyer of a defendant in the Magnitsky case, "without him [K] knowing anything beforehand". The lawyer is believed to have been Ms Veselnitskaya, the anti-Magnitsky lobbyist in the Trump Tower meeting.

The hunter is hunted

Back in Switzerland K's bosses were reportedly livid about his trip. On his return, the police filed a criminal complaint against him for four offences, including the abuse of office and bribery. But in January 2019 Mr Lauber's office dropped the charges for a lighter one, "acceptance of advantage". This carried a maximum three-year sentence.

Viktor K lost his job, in part because of the unauthorised trip, and was convicted over his bear-hunting excursion. Yet there was no jail time. He did not even have to pay a fine: a SFr9,000 (\$8,950) penalty was quashed on appeal—a ruling which, ac-

A disturbing series of events

Selected developments in Magnitsky case worldwide and in Switzerland

Dec 2007	Fraudulent tax refund of \$230m paid to companies stolen from Hermitage
Nov 2009	Sergei Magnitsky dies in Russian prison
2011	Hermitage files criminal complaint over alleged laundering through UBS and Credit Suisse; Swiss attorney-general opens investigation
Dec 2012	US Congress passes Magnitsky Act
Jul 2013	Russian court posthumously finds Magnitsky guilty of tax fraud; his former boss Bill Browder is also convicted
Early 2014	Viktor K's first hunting trip to Russia
Aug 2014	K's trip, with Patrick Lamon and Michael Lauber, to Lake Baikal
Sep 2015	K and Lamon return to Russia; K stays on for second hunting trip
Aug 2016	K's third hunting trip
Nov 2016	K interrogates Andreas Gross, author of critical Magnitsky report
Dec 2016	K makes unauthorised trip to Moscow
Feb 2017	Swiss police charge K
2017	\$230bn money-laundering scandal erupts at Danske Bank, fuelled in part by revelations about the Magnitsky money trail
Jan 2019	Lauber drops charges against K, replaces with lesser offence
Jan 2019	US charges Natalia Veselnitskaya with obstruction of justice in Prevezon case
Nov 2020	Swiss signal closure of investigation and return of most of the frozen money
Dec 2020	EU Magnitsky law passed

Source: *The Economist*

cording to the court, was aimed at "facilitating his...reinsertion" back into his profession. That was not the only thing about the courts' treatment of the policeman that struck some as unduly lenient. His conviction was expunged from the criminal record. Three-quarters of his lawyer's fees were reimbursed by the state. He was acquitted over the two other trips on the grounds that any bribery would have taken place in Russia, not Switzerland—even though Swiss law covers offences that affect an official's work in his own country, which this appeared to do. The attorney-general's office did not appeal this ruling.

At the same time, according to the transcript of a hearing in June 2019, Russian officials singled out K for praise. The prosecutor-general said his "activity...has significantly contributed to the collaboration of the Russian and Swiss authorities".

Mr Lauber stirred further controversy last year. The *Financial Times*, citing letters sent by his office to Swiss lawyers, reported that he planned to share sensitive testimony relating to the Magnitsky case with Russian counterparts. His office declined to confirm this. Mr Browder says the letters are authentic. The decision to transfer the information angered many politicians in Europe and America, since it contravenes guidance from Interpol and the Council of Europe, of which Switzerland is a member.

As things stand, most of the frozen money in UBS and Credit Suisse will go back to the account-holders. The remainder—as little as \$1.1m—covers the amount deemed to be provably illicit. But how the Swiss attorney-general's office calculated this has raised yet more eyebrows. It chose to use a "proportional" method, under which the share of money counted as tainted is heavily diluted if—as happened in this case—it is commingled with other funds while being moved around.

This approach runs counter to a UN convention on organised crime, which allows far more money to be seized, even if it is mixed with other funds. It also goes against common practice, including that in Switzerland, says Mark Pieth, an expert who helped write the country's anti-money-laundering laws. "The theory they applied is just wrong," he says. "It's an argument you'd expect a desperate defence lawyer to use, rather than a prosecutor obliged to follow the money. To my eyes it looks like they were working against their own interests. It's weird." The attorney-general's office says the stingy methodology reflects the "link [that] can be established between the assets seized in Switzerland and the predicate offence committed in Russia".

Mr Browder has threatened to sue the two Swiss banks for breaching American sanctions if they unfreeze the accounts. (Both banks say they do not comment on existing or potential client relationships ►)

► but are committed to complying with all applicable laws and regulations.) He is expected to mount a legal challenge in the next few weeks.

Mr Lauber is no longer overseeing the case. He stepped down as attorney-general in August, after a court found he had covered up a meeting with Gianni Infantino, head of FIFA, and lied to supervisors while his office probed corruption at the organisation. The Swiss parliament has waived his immunity in the case, paving the way for criminal proceedings against him. Mr Lauber has denied wrongdoing. He de-

clined to answer questions from *The Economist*, citing the fact that he was no longer attorney-general. The FIFA and Magnitsky cases suggest that the Swiss federal criminal-law system is "in deep trouble", says Mr Pieth. In both, he says, prosecutors were unprofessionally close to third parties. Crucially, key meetings went unrecorded.

The tale of Russian money and cosy official links does not paint a flattering portrait of Switzerland, home to two big financial centres, Geneva and Zurich, and the largest market for offshore private wealth. There is no doubt the country has become less wel-

coming to dirty money over the past decade, including national wealth looted by kleptocrats. It is also more willing to help other Western governments pursue tax-dodgers, even handing over account data once deemed sacrosanct under its secrecy law. Yet the Magnitsky case undermines this tentative progress. Mr Browder goes further. The public evidence, he argues, points to conduct by Swiss officials that "strongly suggests something untoward is going on". "This is not something anyone should expect from the Swiss. It makes them look like a banana republic." ■

Buttonwood University challenge

The returns on housing investment are not what they are cracked up to be

BUTS, IT IS said, have a penchant for nostalgia. So take a trip down memory lane to the autumn of 1997, a happier time. The British economy appeared to be gathering speed. The Bank of England raised interest rates to 7.25%. But how resilient was the consumer? A drop in retail sales could be put down to Princess Diana's funeral. The bigger puzzle was the property market. House-price inflation on the Halifax measure was in the mid-single digits. The Nationwide index had it rising into the teens. It was unclear which of these gauges was right.

Trying to work out whether the economy is strong or very strong is a nice problem to have. But this episode from the 1990s highlights something else. Measuring house prices is trickier than measuring the price of shares or a basket of consumer goods. Getting a good handle on total returns is harder still. Long-run ground-level data on rental income and maintenance costs are rather scarce.

A new paper* deals with these difficulties by drawing on the archives of the endowment funds of four Oxbridge colleges, which for centuries have been big investors in property. Two of them (Trinity College, Cambridge, and Christ Church, Oxford) were founded by Henry VIII, who conferred a portfolio of land on both. The study finds that after-cost returns to housing were considerably lower in the 20th century than previously thought. Property is a far less attractive investment than you might expect.

Only a small fraction of houses change hands each year. They may not be representative of the overall stock, and thus of changes in housing wealth. The average sales price might rise from one period to the next simply because more houses that are bigger, of better quality or in nicer locations are being bought and

sold this year than last year. This is why most closely watched gauges, including the Halifax and Nationwide indices, adjust transactions for characteristics such as the number of bedrooms. Still, some quality improvements (or degradations) will evade even the most careful statistician.

The Oxbridge archives are rich enough to allow for the construction of something like an ideal property index, however. The study's authors dredged for detailed data on sales and purchases (from transaction ledgers) and on rents and maintenance costs (from rent books) over the period from 1901 to 1983. To keep quality constant, they tracked the growth in rents on the same properties from one year to the next. They then linked these annual rates in a chain to create a quality-adjusted long-run series of income growth. This series has the added advantage of being based on cashflows, rather than the rent required by the lease, which is not always paid. (Rent holidays were a thing before this pandemic.) Alongside this, the authors put together a long-run series of gross yields by matching the transaction data with the

income figures. They arrive at a net yield by subtracting maintenance costs.

The authors used these ingredients to derive a consistent measure of long-run returns. The results are fascinating. The net annual real return on residential property was 2.3%. That is surprisingly low. By comparison "The Rate of Return on Everything", an oft-cited study published in the *Quarterly Journal of Economics* in 2019, puts the net returns on British housing at 4.7% over the same period.

What explains the discrepancy? Perhaps the Oxbridge sample is not representative of the returns that could have been achieved. Put bluntly, the colleges might have had duff portfolios (or especially bad tenants). The evidence on whether college endowments are good investors is mixed. But the study is clear that portfolios were well diversified by region and type, and were managed with a strong eye to long-term returns. Another explanation is that the bottom-up Oxbridge-based study is closer to the truth, because it has a better handle on the more distant past. Top-down housing data in Britain before around 1970 adjusts for neither mix nor quality. What looks like price appreciation or rising real rents may simply be quality improvement.

Look ahead, and there are big challenges for property investors. The pandemic will change how people live and work, and thus where they live and work. Understanding the past is scarcely any easier. In the current circumstances it is not only Britons who might be wallowing in nostalgia. But it would be a mistake to exaggerate how good the past was.



*"The Rate of Return on Real Estate: Long-Run Micro-Level Evidence" by David Chambers, Christophe Spaenjers and Eva Steiner, *Review of Financial Studies* (forthcoming).

Free exchange | Hard lessons

New research on the 1930s and 1940s uncovers the links between hardship and political ruptures



WHEN DO ECONOMIC crises have destabilising political effects? Economic anxiety in the aftermath of the global financial crisis of 2007-09 sparked a political backlash—fuelling, for instance, the Brexit campaign in Britain. President Donald Trump drew support from America's neglected rust belt. The Depression of the 1930s wrought much more devastating political consequences in Europe. The question seems pertinent again, given the economic and social trauma caused by the covid-19 pandemic.

Over the past decade many economists have taken an interest in the political effects of economic shocks. A study of European regions after the financial crisis found that a one percentage point increase in the unemployment rate was associated with a 2-3 percentage point rise in the share of votes captured by fringe parties, for instance. Establishing how one factor causes another is tricky work, however, and often means taking account of subtle social forces. Three new studies use the collapse of democracy in Europe in the 1930s and the 1940s to consider the interaction between economic and social factors. The research suggests that crises most threaten democratic institutions when they aggravate underlying social vulnerabilities.

A new paper by Sebastian Doerr of the Bank for International Settlements, Stefan Gissler of the Federal Reserve, José-Luis Peydró of Imperial College London and Hans-Joachim Voth of the University of Zurich examines one of history's darkest chapters. The Depression enabled the Nazis' rise to power; the party went from receiving just 2.6% of the vote in 1928 to 37.3% in 1932. But economic pain was not the only factor that sent voters into the Nazis' arms. The authors note the critical historical importance of the banking crisis that erupted in 1931 and felled two of Germany's largest lenders, Danatbank and Dresdner Bank. Cities dependent on the banks experienced sharp declines in income as a result of the failures—of more than 20% over the course of the crisis, or about eight percentage points more than the German average. But while the crisis boosted support for the Nazis in places with deep ties to Danatbank, it had little effect on Nazi voting in those with closer links to Dresdner.

The reason, the authors reckon, is that the head of Danatbank, a Jewish man named Jakob Goldschmidt, was a principal target of a

Nazi propaganda campaign blaming Jews for Germany's economic problems, while Dresdner's manager was not. Danatbank's collapse translated into the biggest gains for the Nazis in cities with a history of persecution of Jewish minorities or support for anti-Semitic political parties, where the propaganda message was most eagerly received. The Depression created an opportunity for extremists, but it was the complementarity between hardship, the Nazis' narrative about it, and communities' underlying bigotry that raised Adolf Hitler to power.

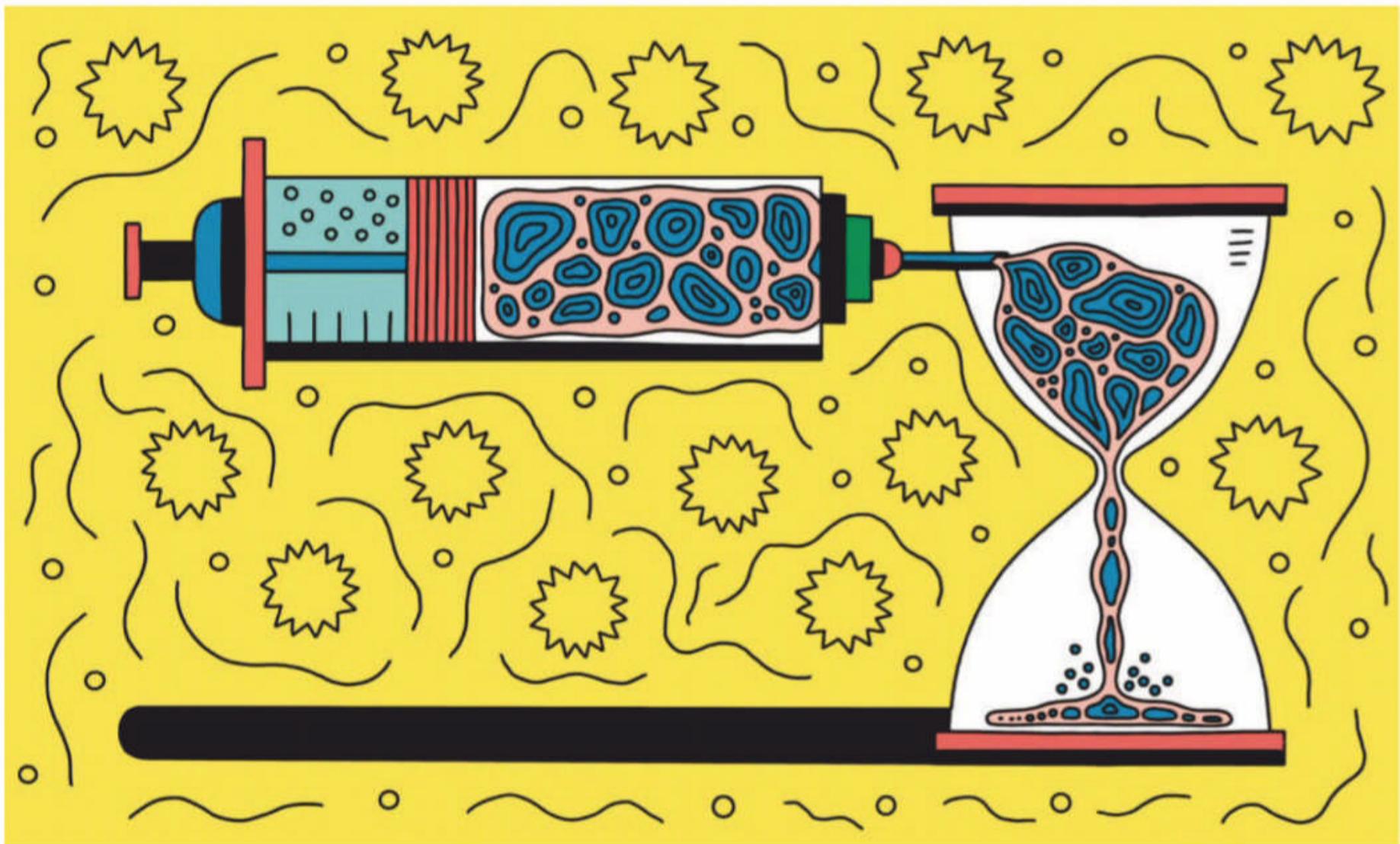
The wartime collapse of French democracy, too, was owed in part to existing social faultlines. In 1940 France was recovering from economic depression and besieged by German troops. In July that year the French parliament voted to give dictatorial powers to Marshal Philippe Pétain, a hero of the first world war, who led an authoritarian and collaborationist regime. But support for Pétain was not uniform, argues new work by Julia Cagé of Sciences Po, Anna Dagozzi and Saumitra Jha of Stanford University and Pauline Grosjean of the University of New South Wales. Instead, their research suggests, familiarity with Pétain and his role in the Great War seems to have increased some communities' susceptibility to authoritarian values.

The authors note that roughly half of the French infantry served in the battle of Verdun between February and April 1916, when Pétain led the French forces there (other generals took over until the battle's end in December). At the time, French regiments were typically made up of men drawn from the same region. The experience at Verdun thus exposed a large share of the population of some communities but not others to Pétain's leadership. The authors reckon that those who fought under Pétain developed personal and reputational connections to him that shaped their ideological evolution. Communities with soldiers who had served at Verdun under Pétain contributed 7-10% more collaborators per capita (and 8% fewer people to the French resistance) than other regions. By contrast, areas with troops that fought at Verdun, but under other generals, showed no significant increase in collaboration.

Networks of influential individuals seem also to have contributed to Italy's descent into fascism, according to recent research by Daron Acemoglu of the Massachusetts Institute of Technology, Giuseppe De Feo of the University of Leicester, Giacomo De Luca of the University of York and Gianluca Russo of the Pompeu Fabra University in Barcelona. Support for the socialists in Italy rose sharply after the first world war. In response to this, the centre-right establishment, fearful of the socialists, threw its support behind Benito Mussolini's fascists. Economic elites played an important role in financing and encouraging this shift, the authors argue; the biggest gains in support for the fascists occurred in places where entrepreneurs and rentiers accounted for a larger share of the local population.

Of red scares and pills

Results like these suggest that whether economic crises prove destructive of democratic institutions depends in large part on social forces that can be slow-moving. Plausible authoritarian explanations for what went wrong can influence voters' willingness to tear down political systems. So, too, can the extent to which influential people hew to or defect from prevailing norms. Fixing what's broken ought to be governments' priority when a nasty shock hits, but the work does not end there. A full recovery may also require clear communication about what went wrong and why—and vigilance in the face of efforts to undermine democracy. ■



Covid-19 vaccines

The time has come

How quickly can covid-19 vaccination make a difference? Israel has some answers

HOSPITALS AROUND the world are, once again, buckling under a torrent of covid-19 patients. In places as far apart as London, Cape Town and Los Angeles ambulances wait for hours to unload the sick, and refrigerated lorries have been brought in to hold the dead. Vaccines are the only way out of this. The question is, how quickly can they turn things around?

Vaccines reduce deaths and hospital admissions in two ways: they protect the vaccinated directly, stopping them becoming ill; and they offer indirect protection to the unvaccinated, because those already jabbed will be less likely to infect them. Measuring the combined effect—and how quickly it kicks in—is possible only where mass vaccination is well under way. But early results are starting to arrive.

Most countries are vaccinating their elderly first, along with health-care workers. The preponderance of covid-19 deaths—around 85% in England, for example—are of people aged 70 or over (see chart 1, overleaf). People on covid-19 hospital wards are

often that age, too. Hospital admission rates and deaths should both, therefore, fall sharply a few weeks after a large share of the elderly get their first jab. Hospitals will nevertheless struggle until lots of middle-aged people are also vaccinated. This is because, at the moment, the worst pressure is on intensive-care units (ICUs), and most patients in these are in their 50s and 60s. That may seem odd, given the higher death rates among the elderly. But ventilators and other organ-support machines impose a lot of stress on the body, and older people are often too frail to be put on them. Covid ICUs at English hospitals, for example, currently treat about as many patients

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aged 20-49 as patients aged 70 or more.

This pattern means that where vaccination is slow, the number of covid-related deaths of middle-aged people may increase in coming weeks and months, as ICUs fill up. Normally, these units have one nurse per patient. Increasingly, however, ICU nurses are having to care for several patients each. Two recent studies, one from England and one from Israel, have concluded that when the covid ICUs they looked at were filled to maximum capacity, mortality in them was some 20-25% higher than would have been expected given the characteristics of the patients involved.

Mass observation

With this in store for many countries, Israel is the place to watch for the first evidence about how mass vaccination may change things, for it has vaccinated its citizens faster than anywhere else. By January 19th, a month after the campaign had begun, Israel had given 26% of its 9m people at least one dose. As has happened elsewhere, it started with older people. And for them, some results are now emerging.

In a recent analysis, Ran Balicer of the Clalit Research Institute in Tel Aviv and his colleagues compared, day by day, a group of 200,000 over-60s who had been vaccinated with an otherwise-similar group of unvaccinated individuals. They tracked differences in infection rates between the groups by comparing test results for people ►

► in them who were tested for covid after reporting pertinent symptoms or close contact with someone who had previously tested positive.

For the study's first 12 days, positive test rates remained identical between groups. On the 13th, the vaccinated group's rate fell slightly. Then, on day 14, it dropped by a third. There has been some disappointment that this drop was not greater, but the vaccine in question, the Pfizer-BioNTech offering, is intended to be given in two doses, so the picture will not be clear until the second doses have been administered, and results from younger people have been included, too.

The early effect on hospital admissions of Israel's mass vaccination campaign has been trickier to measure, because of two confounding variables: the country's national lockdown, which tends to reduce the rate regardless of the effect of vaccines, and the spread of B.1.1.7, a variant of the virus first found in Britain, which is a lot more contagious and so tends to push the rate up. This combination of factors is, though, also being experienced in many European countries, and in parts of the United States, so what happens in Israeli hospitals now is a harbinger of what those other places can expect in coming weeks and months.

A sign that vaccination is starting to give Israeli hospitals some breathing space emerged a fortnight after January 2nd, the day when the proportion of those over 60 who had been vaccinated reached 40%. The number critically ill with covid-19 in that age group grew by about 30% in the week before January 2nd, and also in the following week—but by just 7% in the week after that (see chart 2). By contrast, among those aged between 40 and 55 (who were vaccinated at a much lower rate at the time) the weekly change in the number of critically ill remained constant, with a 20-30% increase in each of those three weeks.

Taking such early results into a model of the epidemic's trajectory, Eran Segal of the Weizmann Institute and his colleagues



reckon that covid-19 deaths in Israel could start tapering off early in March, even if the lockdown ends, as planned, in the last week of January. Their prognosis assumes that the pace of vaccination holds up, and that 80% of adults get their second dose by the end of February. (The other 20% are people who cannot be vaccinated for reasons such as allergies, or who refuse to be vaccinated.)

Suffer the children?

Even a campaign as efficient as Israel's, though, leaves many unjabbed. Besides refuseniks and adults who cannot be vaccinated, no covid-19 vaccine has yet been approved for use in children. Children rarely suffer badly if infected, but they can still pass the virus on. That may result in future, albeit less widespread, outbreaks.

Usually, vaccine trials in children start with older ones and work their way down. Clinical trials of several covid-19 vaccines in children as young as 12 have started, and results may be available by the summer. Trials in those younger than this will, however, take longer. A covid-19 vaccine for most children is thus unlikely to be approved before 2022. Until then, curbing the pandemic will be hard if many adults refuse to roll up their sleeves for a jab. ■

Chinese covid vaccines

Shots in the dark

China's jabs may have a big role. But there is doubt about their efficacy

IN MEDICAL SCIENCE, fortune rarely favours endeavours that begin by skirting phase-three trials—those that test a new drug or vaccine on lots of people in a rigorously controlled way. Yet this is exactly how a number of Chinese covid-19 vaccines arrived in the world last year.

Rumours started in June that workers at Beijing airport were being given untested vaccines. As the year progressed, health officials confirmed that China had started mass inoculations—even though vaccines against SARS-CoV-2, the virus that causes covid-19, had not been through phase-three trials in the country. By November, one of these vaccines had been given to nearly 1m people. Scientists abroad fretted over the safety of such a huge, uncontrolled experiment.

Despite their aberrant start in life, however, vaccines from three Chinese firms, Sinopharm, Sinovac and CanSino, are now making their way through what look more like proper trials, if of varying quality, in different parts of the world including Bahrain, Brazil, Chile, Indonesia, Mexico, Turkey and the UAE. Yet recent results from those of these trials that concern Sinovac's vaccine have caused much confusion. A trial in Brazil reported an efficacy of 50% or, depending how the data are interpreted, 78%. Earlier trials of this vaccine, in Turkey and Indonesia, had reported efficacies of 91% and 65% respectively. But data to back those numbers up are scarce.

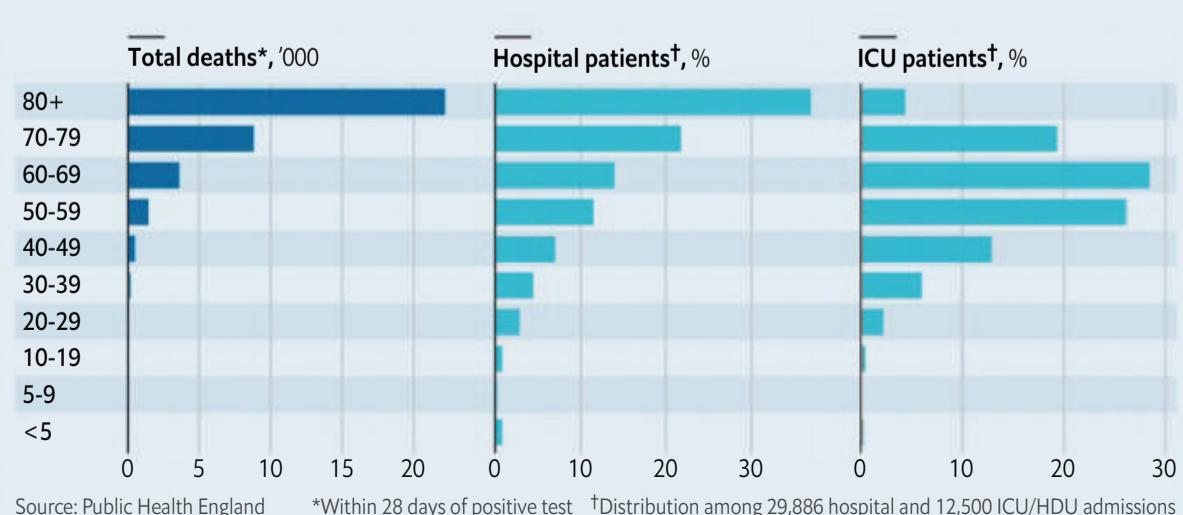
One probable reason why the efficacies recorded by these trials vary so much is that the results from Turkey and Indonesia were based on far fewer participants and fewer recorded cases of covid-19 than those from Brazil. This makes it hard to work out accurate figures for them. Trials in different countries also differ in the way they are run—another possible source of inconsistent findings.

The Brazilian trial is the largest, and probably the best run, of the bunch. It involved more than 10,000 volunteers who were health-care workers. Maurício Nogueira, a professor of virology at a state medical school in São Paulo, who is one of the principal investigators involved in this trial, points out that 50% is a conservative estimate of the vaccine's efficacy. He offers three reasons.

One is that, because of the trial participants' professions, they were more frequently exposed to high concentrations of

The grim reaper

Britain, confirmed covid-19 cases, by age group, June 29th 2020-January 10th 2021



► virus than was the average Brazilian. A second is that health-care workers are more likely than others to notice that they have a symptom of covid-19. The third is that the trial used a particularly sensitive definition of what constituted a potential case of the disease that should therefore be put forward for testing. This was that participants should be tested after reporting only one symptom, rather than three, as demanded by some other trials. The trial's organisers say that if these "very mild" cases of covid-19 are ignored, and only "mild", "severe" and "fatal" cases considered, then the vaccine's efficacy reaches 78%.

This sort of after-the-fact tinkering is frowned on by statisticians. Brazil's medical regulator has nevertheless decided that, though Sinovac's vaccine may not be the best in the world, it is still useful. The country will now roll out millions of doses under an emergency authorisation.

For many other countries, though—namely those without some independent way of reviewing the data—it is more difficult to have confidence in the Sinovac vaccine, even though it has the potential to be quite useful. Even a vaccine that is only 50% effective meets international thresholds for vaccine efficacy laid down before the pandemic began. And Sinovac has said it could make 600m doses this year—a helpful contribution to the general weal.

And yet

Deployed globally, this and other Chinese vaccines could offer enormous potential. Doubts, though, continue about them because of the scarcity of data provided by the firms, the lack of transparency over their development, and conflicting reports from trials. Reports that Chinese commentators feel the need to snipe about Western vaccines seem to suggest a lack of confidence in home-grown products. In Indonesia there are already signs of wariness over the Sinovac vaccine, although the Sinopharm vaccine has been more warmly received in the UAE and Bahrain.

For vaccines from China to be widely accepted, the trial and manufacturing data surrounding them need more independent evaluation. Lawrence Gostin, head of the O'Neill Institute for National and Global Health Law at Georgetown University, in Washington, DC, says scrutiny, and then authorisation, by the World Health Organisation (WHO) would bring a huge boost to the legitimacy and profile of Chinese vaccines around the world.

Experts from the WHO are currently in China to assess whether Sinovac's and Sinopharm's manufacturing processes comply with international standards. Next, they will need to look at data on quality, safety and efficacy. Despite their inauspicious start in life, it is possible these vaccines could prove their worth. ■

Aquaculture

Godzilla the rotifer

A mutagenic technique employed for plants is used on animals

THE WORLD'S fisheries are overexploited. One way to relieve pressure on them is to increase the yield of fish farms. And one way to do that is to improve the quality of the food fed to the livestock in those farms. Abe Tomoko, of the RIKEN Nishina Centre for Accelerator-Based Science, in Wako, Japan, has a novel proposal for doing this. In her role as director of the centre's beam mutagenesis group, she has overseen the creation of 30 novel cultivars of crops and ornamental plants generated by the selective breeding of promising mutants created using radiation from a particle accelerator called the RI Beam Factory. This time, though, she has applied the technique to animals.

The young of farm-raised fish species such as yellowtails, halibut, bream and bluefin tuna are fed with live prey. For the smallest fry these are often rotifers, a phylum of tiny animals discovered in the late 17th century by early microscopists. In particular, farmers use a complex of 15 species known collectively as *Brachionus plicatilis*. The members of this complex are, in turn, divided into three groups classified by size: ss, the adults of which are 170-190 microns long; s, with adults 190-240 microns long; and L, with adults 240-320 microns long. Members of these different groups are fed to progressively larger fish larvae.

Above the size of L rotifers, however, farmers switch phylum and feed their charges crustaceans called brine shrimps, the smallest of which clock in at 400 microns. That leaves a size gap which fish do

not like. They often develop badly at this stage of their growth, and sometimes resort to cannibalism. Dr Abe and her colleagues therefore wondered, as they describe in *Bioscience, Biotechnology & Biochemistry*, whether they could plug the gap between the biggest rotifers and the smallest brine shrimps in the way that new plant cultivars are created, by bombarding rotifers with carbon or argon ions spun up to high speed in the beam factory.

Rotifers are famously asexual. The last time members of one group of the animals, the bdelloids, had sex is reckoned by zoologists to have been about 80m years ago. Members of *Brachionus plicatilis* are not as sex-starved as that, but they still reproduce for the most part by parthenogenesis. Indeed, the variety Dr Abe chose to work with, known as the Notojima strain, is, like the bdelloids, an obligate parthenogen. For this sort of mutagenic work, however, parthenogenesis is an advantage. It means that a successful mutated line of rotifers will not be diluted by the genetic mixing caused by sexual congress.

The Notojima strain is the largest L rotifer used by Japanese fish farmers. In her quest to make it larger still, Dr Abe exposed batches of the animals to ion beams of various strengths and compositions, and then put the survivors through three rounds of proliferation and selection of the largest of their offspring, to try to come up with the Godzillas of the rotifer world.

The upshot, out of more than 3,000 mutant strains that were larger than normal, was three promising lines which, at 350-370 microns long, nicely plug the size gap, and which are also more fecund than their ancestors. Both of these characteristics make the new strains ideal for use as fish food, and three subsequent years of study have shown them to be stable. Godzilla may be fictional. But the idea that radiation, used carefully, can create animals that are giants of their kind, is not. ■



Making oxygen

Magnetic moment

A new approach may make oxygen-manufacturing much cheaper

OXYGEN IS VITAL. Literally so for breathing, and thus for many hospital patients. And metaphorically for industries ranging from steelmaking to pharmaceuticals, which use it in their processes. The world market for the gas is therefore large. Various estimates put it as having been between about \$28bn and \$49bn in 2019.

It could, though, be larger. In a set of reactions that also involve oxygen and steam, fossil fuels such as coal and natural gas can be turned into hydrogen, a source of energy, and carbon dioxide, which can be separated and sequestered underground. That might allow their continued employment in a world of restricted greenhouse-gas emissions. It would, however, require a cheap and abundant supply of oxygen. Which is why America's Department of Energy is sponsoring a project intended to pull oxygen from the atmosphere with magnets.

Dry air is a mixture of 21% oxygen, 78% nitrogen and 1% argon, with a few other trace gases such as carbon dioxide. At the moment, most of the world's pure oxygen is made by the liquefaction and subsequent distillation of air, to separate it into its components. This is done in large factories. The other source of oxygen, somewhat less pure, is small, mobile plants called oxygen concentrators. These either absorb the nitrogen into a porous substance called a zeolite, leaving behind a gas that is 90% oxygen, or force air through membranes more permeable to one gas than the other, yielding a somewhat less rich mixture. The alternative of magnetic separation is the brainchild of John Vetrovec, boss of Aqwest, a technology firm in Larkspur, Colorado.

Though oxygen cannot be magnetised permanently in the way that elements like iron can, it is attracted by magnetic fields. As a consequence, when air is pumped through such a field its oxygen gets concentrated in those places where the field is strongest. This concentration-enhancement is small. But if the oxygen-enriched part of the air stream could be separated from the oxygen-impoverished part, and then treated in the same way over and over again, it could be enriched to the point where it was pure enough to be useful. Dr Vetrovec thinks he knows how to do this.

A previous attempt by a different group of engineers used pulsed electromagnets. This, though, required both high pressure,

Where a rodent lives may determine how clever it is

AESOP'S FABLE about the town mouse and the country mouse concentrates on the dangers of city living and rather sneers at its advantages. Yet advantages there are, for mice and men alike, as long as those involved are able to grasp them. That, though, requires an ability to respond successfully to novel problems. So a pair of researchers in Germany have looked to see whether urban mice are better at doing this than rural ones. Their conclusion, just published in *Animal Behaviour*, is that they are.

Valeria Mazza of the University of Potsdam and Anja Guenther of the Max

Planck Institute for Evolutionary Biology, in Plön, captured 17 striped field mice from farmland and 14 others from various places in central Berlin. They kept these animals in a laboratory for a year, to acclimatise them, and then challenged them with various tasks which, if performed successfully, would yield a reward of food. Tasks included opening the window panes of a house made of Lego bricks; opening the lid of a Petri dish; and yanking out a wad of paper jammed inside a clear plastic tube. As a control, all the mice were also given a naturalistic task that involved digging through a heap of bedding to find a reward.

Both groups seemed equally eager to participate in the tasks, but the urban mice were better at solving the novel ones. They had a 77% success rate, to the rural mice's 52%. When it came to the control task, though, both were equally good, solving it 85% and 88% of the time respectively.

The researchers' next object of investigation is whether the urban mice had learned their smarts prior to their incarceration, or had inherited them, suggesting they were the product of natural selection acting on their city-dwelling ancestors. This will involve raising mouse pups from the two populations in identical laboratory conditions. Dr Mazza and Dr Guenther hope to have the answer later this year.



The dish lid? It's all in the paw-action

which is expensive to create, and the electromagnets themselves, which are costly to buy and costly to run. Dr Vetrovec intends to perform his version of the trick at atmospheric pressure, and using permanent magnets. Both of these modifications greatly reduce power consumption. In fact, the device's only moving part is the blower which pushes air through it.

It's a gas

The magic extra ingredient Aqwest brings to the party is an array of structures called microchannels. These are tubes less than a millimetre in diameter that are intended to carry liquids or gases. Crucially, their narrow bores ensure the laminar flow of any fluid passing through them. Translated from physics-speak, this means they cause no turbulence, and therefore no mixing of their contents. That allows them to act as gas separators in the firm's device.

On the face of things, the initial results do not look that impressive. Prototypes

yield a concentration increase of around 0.1% per passage, though Dr Vetrovec thinks his team can raise this to 0.4%. The key, though, is the repetition. Like the tale about a vizier who asked his king, as a reward for some service, for a grain of rice on the first square of a chess board, two grains on the second, four on the third, and so on, the oxygen concentration rises rapidly with successive iterations. Thirty passages at the higher rate would yield a 90% concentration of oxygen—and that would be commercially useful.

Whether this approach actually will prove cheaper than the established alternatives, and whether, if it does, that will really save fossil fuels' bacon, remain to be seen. But some versions of a green-energy future involve the use of a lot of hydrogen, so better ways of generating that gas are always welcome. In the meantime, oxygen's many other users would surely welcome a cheaper source of supply. The idea of doing this with magnets is attractive. ■



Human capital

Trouble in the country

WEICHENG, HEBEI PROVINCE

The biggest obstacle to China's rise is poorly educated rural children

Invisible China. By Scott Rozelle and Natalie Hell. *University of Chicago Press*; 248 pages; \$27.50 and £22

THE CHINA that most foreigners see is modern and metropolitan. The skyscrapers glitter. The bullet trains are fast and comfortable. Anyone who visits only Beijing, Shanghai or Shenzhen would conclude that China was already a rich country.

Yet there is another China: poor, rural and scarcely visible to outsiders, especially when covid-19 has made travel so hard. Toilets can be holes in the dirt, tricky to find in the dark. Women sometimes break river ice to wash clothes by hand. In many villages, most working-age adults have moved to the cities, where they lay bricks, deliver packages and only occasionally return to see their children. "It's a hard life being away from your family so much," one migrant in Hebei province told this reviewer.

Granted, rural Chinese are far better off than they used to be. In the 1950s, when

Mao Zedong forced them onto collective farms, tens of millions starved to death. Now they generally have enough to eat, and proudly insist that guests in their draughty homes have second helpings of oily noodles. But a crisis is brewing in these villages, argue Scott Rozelle of Stanford University and Natalie Hell, a Californian researcher, that could prevent China from attaining Xi Jinping's dream of widespread prosperity. Two-thirds of Chinese children are rural, partly because rural parents have more babies than urban ones. And rural Chinese children—the workforce of the future—are doing terribly at school.

China has invested huge amounts in physical infrastructure, but neglected its

human capital. Do not be fooled by league tables, such as the OECD's PISA rankings, that show Chinese high-school students outperforming those of nearly every other country. The Chinese figures are not for the whole country, but only for the better schools in the richer cities.

The children of rural migrants are barred from such schools, thanks to China's brutal *hukou* (household registration) system, which excludes people with rural origins from many public services in big cities. Migrant workers' children must either pay to attend awful urban private schools or stay back in the countryside with grandma and go to a mediocre government school there. Such discrimination is keenly resented.

Healthy bodies, healthy minds

After decades of research, Mr Rozelle and Ms Hell present some startling data. Their team gave an IQ-like test to thousands of rural Chinese toddlers. They found that more than 50% were cognitively delayed and unlikely to reach an IQ of 90 (in a typical population, only 16% score so poorly). There were several reasons for this.

Half of rural babies are undernourished. Caregivers (often illiterate grandmothers) cram them with rice, noodles and steamed buns, not realising that they also need micronutrients. Studies in 2016 and 2017 found that a quarter of rural children in central and western China suffer from

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► anaemia (lack of iron), which makes it hard for them to concentrate in school. Two-fifths of rural children in parts of southern China have intestinal worms, which sap their energy. A third of rural 11- and 12-year-olds have poor vision but no glasses, so struggle to read their schoolbooks.

Some of these problems would be laughably cheap to fix. A pair of glasses costs \$30. Multivitamin pills are a few cents. De-worming tablets cost \$2 per child each year. One reason the problems persist is that harmful myths abound. Many rural folk believe that—as a grandmother told this reviewer—glasses are bad for children's eyesight. Some fret that de-worming pills reduce fertility in girls. A recent study found that 99% of Chinese farmers gave their pigs de-worming drugs, but hardly any did the same for their children.

Rural children fall behind long before they are old enough to go to school. Whereas urban parents constantly talk to their babies, rural grandmothers often strap them to their backs while they work in the fields, keeping them safe but barely stimulating their minds. The segregation of rural children into second-class schools then widens the gulf between the two Chinas.

Among the entire labour force in 2010, 44% of urban and 11% of rural Chinese had graduated from high school. Among the current crop of students, the figures are much better: 97% of urban students graduated from high school in 2015, and 80% of rural children went to a high school of some sort. But the rural "high schools" were often dreadful, opened rapidly to meet official targets and staffed by teachers with little interest in teaching. The authors tested thousands of children at "vocational" rural high schools, and found that 91% had learned practically nothing: they scored the same or worse on tests at the end of a year of schooling as at the beginning.

Currently, 70% of the Chinese workforce is unskilled. Such labourers can do repetitive factory work, but as their wages rise, those jobs will move to poorer countries such as Vietnam. To escape from what economists call the "middle-income trap", China needs rapidly to improve its people's skills, so that they can handle more complex tasks. Yet its workers are far less educated than those in other middle-income countries, such as Mexico, Turkey and South Africa. They are also less educated than workers were in countries that recently grew rich, such as Taiwan and South Korea, when those places were no better off than China is today.

Much of the blame for all this rests with Mao, whose Cultural Revolution was "perhaps the largest intentional destruction of human capital the world has ever seen". But the authors also blame "an almost unbelievable oversight" on the part of China's more recent leaders. Correcting that is ar-

guably the most important challenge facing China's current rulers. They have the resources to succeed. A country that invests a whopping 43% of GDP can surely afford to spend a bit less on bridges and a bit more on its people's brains. The authors offer sound prescriptions: improve rural schools, end discrimination against rural children, teach rural parents to read to their babies (instead of policing how many they may have), and so on.

If rural Chinese do not learn essential cognitive skills, the authors predict mass unemployment, social unrest and perhaps a crash that would "lead to huge economic shocks around the world". China's rulers should order crates of de-worming pills—and copies of this book. ■

American foreign policy

Satan's slips

America and Iran. By John Ghazvinian. Knopf; 688 pages; \$37.50. Oneworld; £35

FOR OBSERVERS of Iranian-American relations, it is comforting to learn that ties were not always so torturous. For most of America's history, Iranians prized it as an anti-imperial power that had sloughed off European colonialism. They wooed it in search of an ally to check Russian and British ambitions. In 1854 the shah wanted to fly American flags from his merchant ships. On the eve of the first world war,



When Nixon met the shah

Iran's nascent parliament recruited W. Morgan Shuster, an American lawyer, to run the treasury, stave off grabbing foreigners and preserve Iran's independence. When Cossack troops booted him out, crowds of Iranians waving the Stars and Stripes lined the streets to send him off.

Alas, America's bigwigs were largely uninterested. They liked Persian carpets and pistachios, but only missionaries really made the effort to visit. After the first world war oil proved more of an inducement—dressed up in President Woodrow Wilson's lofty principles of self-determination. But even then few thought Iran was worth a showdown with Britain. Only after the second world war did the threat of communism persuade a president, Dwight Eisenhower, to get involved. In 1953 America joined Britain in toppling Muhammad Mossadeq, the elected prime minister, and reversing his nationalisation of the Anglo-Iranian oil company. In return the shah, Muhammad Reza (pictured with Richard Nixon), let American firms handle 40% of the country's oil.

Thereafter, as John Ghazvinian, an American academic of Iranian origin, tells it, America usurped Britain's role as colonial bully. It turned the shah into a vassal who answered to the American ambassador, not his own people. He was America's biggest arms purchaser and bought more British Chieftain tanks than Britain had in its own army. While professing support for the Arab oil embargo, he dutifully supplied Israel with half its oil during the war of 1973. To muffle cries for the restoration of democracy, the CIA (and Mossad) helped him establish the Savak, his secret police.

The Islamic revolution of 1979 that ousted the shah might have been a chance for change. Many in the West considered the clerics a lesser evil than the pro-Soviet communists who had just taken over in next-door Afghanistan, and were vying for power in Iran. But the abduction of 52 American diplomats for 444 days was too humiliating an affront to America's psyche for relations to be normalised. In the new regime's early years, American officials cut secret deals to supply the ayatollahs with weapons via Israel. But over the decades, instead of easing, the stand-off hardened.

Mr Ghazvinian recounts a tragic story of Iranian overtures spurned by Americans in cahoots with their Israeli and Saudi allies. When President Hashemi Rafsanjani offered to accept whatever deal the Palestinians made with Israel (so opening the door to implicit Iranian recognition of Israel), America shut Iran out of its Middle East peace conference in 1991. Jilted, Iran staged its own summit with Hezbollah, Hamas and Islamic Jihad. A decade later, President Muhammad Khatami condemned the 9/11 attacks, proposed a "dialogue among civilisations" and let American jets bound for

► Afghanistan use Iranian bases. George W. Bush dubbed Iran part of his “axis of evil”.

In May 2003, two months after America invaded Iraq, Iran proposed a grand regional bargain, which included disarming Hezbollah. “We don’t talk to evil,” snapped Vice-President Dick Cheney, who suggested regime-change in Tehran instead. In 2009 Barack Obama imposed sanctions on Iran after 45 minutes of face-to-face talks about curbing its nuclear programme. A campaign of “spy drones, assassinations, explosions, computer viruses, economic warfare and oil embargoes” quickly followed. At last, in 2015 America and Iran agreed on a nuclear deal with other big powers. Donald Trump unravelled it.

Mr Ghazvinian has a witty style. “Bald, round and short, [he] seemed almost physically designed to serve as a political football,” he writes of one of the shah’s prime ministers. But his assertions can be too sweeping. “No serious person in Israel ever thought” a grave threat from Iran existed, he tenuously claims. Too often he down-plays the role of spoilers within the Iranian establishment, for instance in sending a shipment of arms to Gaza in 2002, just as Mr Khatami was talking of ending hostilities with Israel. He dismisses the protesters who demonstrated against Mahmoud Ahmadinejad’s rigged election in 2009 as “thugs” serving the West. Sadly, a book which promises to lift Iranian-American relations out of the mire of propaganda too often dives in. ■

Protest art

Walls have eyes

An artist documents clashes between French demonstrators and police

WHEN ITVAN KEBADIAN spray-painted the words “abolissons la police” above a mural in Paris last year, he was thinking of George Floyd, an African-American whose death under the knee of a white policeman ignited a global movement. But cases closer to home were on his mind, too—of Adama Traoré, a young black man who died in custody in France, and Théo Luhaka, who was disabled during a violent arrest, as well as the clashes Mr Kebadian had himself witnessed since he began documenting police brutality in 2016.

By then Mr Kebadian, who once liked to paint insects, had already turned to political themes. He was finishing a mural when thick black smoke began to rise from a nearby street. A police car had been set on fire; passers-by who had stopped to photograph the painter scurried away as officers



Postcards from Paris

moved to confront the culprits.

On impulse, Mr Kebadian painted the unfolding events in simple black lines, a sketch-like method that has become his signature style. His sharp representations of French society have appeared around the capital—and leapt from street walls to those of galleries. “His technique was far superior to that of other street artists,” says Dominique Fiat, who features Mr Kebadian’s work in her gallery.

“I try to paint reality in reality,” the artist says of his murals. They record clashes between protesters and police, depicting eyes dislodged by rubber bullets, crowds dispersed by clouds of tear gas and telescopic batons breaking jaws. The figures in these tableaux are mostly faceless, composed only of a few lines and shadows. But together they form bleak, eerie scenes of chaos. The results are akin to blurry photos taken hastily with a smartphone; screenshots in paint form, as the artist puts it.

Christophe Genin, a professor of art at Panthéon-Sorbonne University, links Mr Kebadian’s output to the tradition of protest art that evolved in the 20th century—from the Russian avant-garde of the 1920s to the artistic ferment in America in the 1960s and the political placards that appeared across Paris during the student uprising of May 1968. The murals, notes Mr Genin, also resemble Francisco Goya’s lamentations of war, evincing the same sense of despair as “The Third of May 1808”, in which Goya shows Napoleonic soldiers massacring Spaniards during the Peninsular war. He calls Mr Kebadian an “artivist”.

When he cannot attend protests himself, Mr Kebadian reproduces photos that have circulated online. There has been no shortage. In 2019, for instance, over 2,000 protests were recorded in Paris alone, com-

pared with about 280 in the whole of Britain. The past two years have been especially busy. Most notably, Mr Kebadian has documented the rise of the *gilets jaunes*, a movement born of anger over an increase in the carbon tax on fuel that grew into nationwide anti-government demonstrations. With the help of Black Lines, an artists’ collective that he co-founded, he produced “L’Hiver Jaune” (“The Yellow Winter”), a 300-metre-long mural that commemorated the *gilets jaunes*, some of whom were seriously injured during riots.

This huge undertaking attracted media attention and helped raise his profile. But not everyone is a fan. “L’Hiver Jaune” was promptly painted over. In fact, although he uses legal graffiti walls, almost all Mr Kebadian’s murals have been covered up by the Parisian authorities.

That disapproval has not hurt his reputation, which has flourished and spread online. “Eye for an Eye”, one of his latest projects, is a series of 50 Indian-ink paintings that are sold on Instagram. They are based on the events of 2020, when in France, as in America, long-standing debates about police misconduct came to a head. The reverberations of Floyd’s death were followed in the autumn by the violent dismantling of a migrant camp and the beating of a black music producer, both of which sparked protests.

One illustration in the series portrays a man standing on top of a car and waving a black flag as other people riot. The scene is reminiscent of Eugène Delacroix’s “Liberty Leading the People”, a painting of 1830 that shows a bare-chested Marianne (a personification of France) brandishing a tricolour amid a crowd. Like Delacroix’s, Mr Kebadian’s art strives to capture the essence of his times—but also to change them. ■

Twisted genius

The lives of others

On the centenary of her birth, Patricia Highsmith's novels remain gripping

PATRICIA HIGHSMITH had a thing for snails. She admired their self-sufficiency and found it "relaxing" to watch them copulate, delighted by the impossibility of distinguishing male from female. She collected them for decades, keeping hundreds at home and scores in her handbag, which she let loose when bored at dinner parties. Her affection for snails was matched by her ambivalence towards people, whom she often found baffling and kept at a distance. When a literary agent suggested Americans didn't buy her books because they were "too subtle" and the characters too unlikeable, Highsmith responded: "Perhaps it is because I don't like anyone."

Like her beloved gastropods, Highsmith—who was born in Fort Worth, Texas on January 19th 1911—often hid behind a hard shell. She was secretive with others and sometimes an enigma to herself. "O who am I? Reflections only in the eyes of those who love me," she wrote in 1951. But when she died in 1995 she left a considerable trail—22 novels, nine short-story collections and 8,000 pages of diaries and notebooks—ample material for her biographers, including Richard Bradford in his new portrait, "Devils, Lusts and Strange Desires". Her estate plans to publish hundreds of pages from these journals as a single volume later this year.

Murder is central to Highsmith's stories, but they are not mysteries. More akin to Dostoyevsky and Kafka than Chandler and Christie, their drama is mostly psychological. For readers, the thrill of her books, particularly the early, best-known novels such as "Strangers on a Train" and "The Talented Mr Ripley", comes not from piecing together a crime but involuntarily siding with the criminal. Her sympathies were with misfits, but she liked to demonstrate how even seemingly ordinary people could go mad. The "nitty gritty of life", Highsmith once said, "is anger, and a sense of injustice". In spare, insidiously direct prose, she shows just how natural it might feel to kill.

She seemed to use her fiction to act out what she couldn't do in real life. Her novels "are a lifelong autobiography", Mr Bradford writes (in a book that is more opinionated than scholarly). Prickly and frequently offensive, Highsmith nevertheless reserved her most transgressive impulses for the page. Wishing, as a teenager, to steal a book from a library, she instead made her young heroine do it in "Crime Begins", one of her

first published stories. She regularly killed her characters in places where she had once had affairs. This, comments Joan Schenkar in "The Talented Miss Highsmith" (2009), is because she "thought about love the way she thought about murder: as an emotional urgency between two people, one of whom dies in the act."

In Highsmith's books, love is often a fragile illusion, and marriage borders on farce. Here, too, she was writing from experience. Her mother, Mary, divorced her father nine days before she was born. According to Highsmith, Mary often said it was "funny" her daughter liked the smell of turpentine, because that was what she drank when trying to abort her. Mary's second marriage was also fractious, and Highsmith hated her stepfather. In 1978, explaining her penchant for solitude, the author noted that "Most murders take place within the family, you mustn't forget that." Published when she was 29, "Strangers on a Train" turns on a man's desire to kill his father; Tom Ripley is an orphan.

Through a martini glass, darkly

After graduating from Barnard College in Manhattan in 1942, Highsmith found freelance work scripting comic books—one of few women in the industry at the time. This funded her life in New York for years and seems to have influenced her fiction, which is full of secret identities, alter egos,



Stranger on a train

hot pursuits and daring escapes. But this work embarrassed her, and she scrubbed all traces of it from her archives.

She preferred men in every way but in bed, describing a romp with Arthur Koestler as a "miserable, joyless episode". Her heroes were mostly male, she explained in 1984, because men were physically stronger and freer to roam: "I don't see women leaving the house." But she empathised with them, too, not least in their desire for women—"I am a man and I love women," she once confessed in her diary—though many of her stories have an undercurrent of homoeroticism. Feminists, meanwhile, were "always complaining about something". Despite her shame at being a lesbian, she oozed sexual charisma and had a ravenous carnal appetite. She wrote what may be the first novel about lesbian love to have a happy ending, "The Price of Salt" (1952), but she published it under a pseudonym and abjured monogamy herself, believing it undermined her creativity.

Her star rose rapidly, then steadily declined. None of the four Ripley sequels matches the darkly brilliant and haunting quality of the original, published in 1955. Highsmith clearly identified with her lonely, amoral and painfully self-conscious anti-hero, who is most at ease when pretending to be someone else. "If you wanted to be cheerful, or melancholic, or wistful, or thoughtful, or courteous," Ripley reflects, "you simply had to act those things with every gesture."

Like him, she sought exile in Europe, settling finally in a fortress-like home in Ticino, Switzerland, where she stewed in her racism and outspoken anti-Semitism and mostly kept to herself. Often hostile, generally drunk, she pecked at her Olympia typewriter at all hours. "If she hadn't had her work, she would have been sent to an insane asylum or an alcoholics' home," a lover told Andrew Wilson, another biographer. The last person to see her before she died was her accountant.

Yet on her centenary her piercing view of human relations, brought to the screen by directors including Alfred Hitchcock and Anthony Minghella, is as captivating as ever. Shortly before he bludgeons his friend with an oar, Ripley has an epiphany:

It struck Tom like a horrible truth, true for all time, true for the people he had known in the past and for those he would know in the future: each had stood and would stand before him, and he would know time and time again that he would never know them, and the worst was that there would always be the illusion, for a time, that he did know them, and that he and they were completely in harmony and alike.

Highsmith's genius was to gaze frankly at the gulf of mystery that separates people—and at the same time, through the brilliance of her characters, to bridge it. ■

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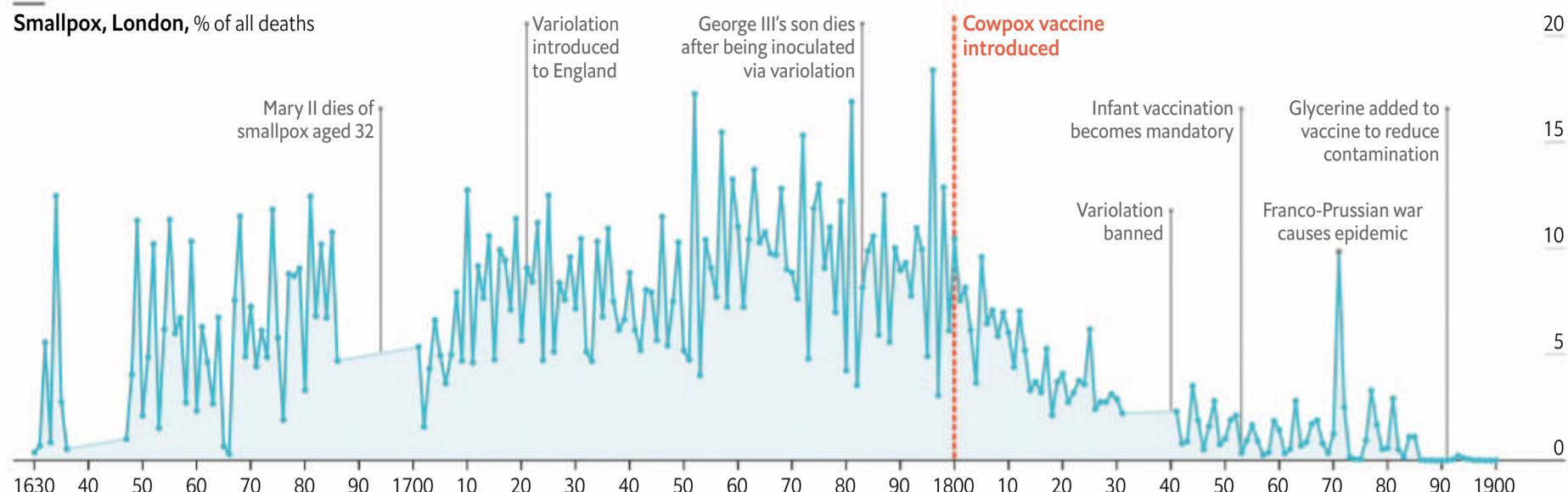
	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago latest	quarter*	2020†	% change on year ago latest	2020†	%		% of GDP, 2020†		% of GDP, 2020†		10-yr gov't bonds latest,%	change on year ago, bp	per \$ Jan 20th	% 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	-74.0	-	
China	6.5	Q4	10.8	1.9	0.2	Dec	2.5	4.2	Q4§	1.5	-5.2	3.0 §§	14.0	6.47	6.0
Japan	-5.7	Q3	22.9	-5.3	-1.0	Nov	nil	2.9	Nov	2.7	-12.2	nil	-8.0	104	6.4
Britain	-8.6	Q3	81.1	-11.4	0.6	Dec	0.9	4.9	Sep††	-1.3	-19.7	0.4	-29.0	0.73	5.5
Canada	-5.2	Q3	40.5	-5.5	0.7	Dec	0.8	8.6	Dec	-1.8	-13.5	0.8	-74.0	1.26	4.0
Euro area	-4.3	Q3	59.9	-7.6	-0.3	Dec	0.3	8.3	Nov	2.6	-9.2	-0.5	-31.0	0.83	8.4
Austria	-4.0	Q3	54.6	-6.9	1.2	Dec	1.1	5.2	Nov	2.4	-8.5	-0.4	-37.0	0.83	8.4
Belgium	-4.5	Q3	54.2	-7.9	0.4	Dec	0.4	6.1	Nov	-1.3	-9.1	-0.3	-37.0	0.83	8.4
France	-3.9	Q3	98.3	-9.2	nil	Dec	0.5	8.8	Nov	-2.3	-11.3	-0.3	-34.0	0.83	8.4
Germany	-4.0	Q3	38.5	-5.4	-0.3	Dec	0.4	4.5	Nov	6.8	-7.0	-0.5	-31.0	0.83	8.4
Greece	-9.6	Q3	9.5	-9.9	-2.3	Dec	-1.4	16.7	Oct	-6.6	-9.2	0.7	-77.0	0.83	8.4
Italy	-5.0	Q3	80.4	-9.1	-0.2	Dec	-0.1	8.9	Nov	2.6	-11.0	0.6	-79.0	0.83	8.4
Netherlands	-2.5	Q3	34.8	-4.4	1.0	Dec	1.1	3.8	Mar	7.2	-6.9	-0.5	-40.0	0.83	8.4
Spain	-9.0	Q3	83.6	-11.4	-0.5	Dec	-0.2	16.4	Nov	0.6	-11.0	0.1	-42.0	0.83	8.4
Czech Republic	-5.3	Q3	30.8	-6.6	2.3	Dec	3.2	2.9	Nov‡	1.2	-7.8	1.3	-50.0	21.6	5.1
Denmark	-3.8	Q3	22.6	-4.0	0.5	Dec	0.4	4.5	Nov	8.5	-3.6	-0.4	-21.0	6.14	9.8
Norway	-0.2	Q3	19.7	-1.7	1.4	Dec	1.4	5.2	Oct††	3.2	-1.3	1.0	-39.0	8.50	5.1
Poland	-1.8	Q3	35.5	-3.4	2.4	Dec	3.4	6.1	Nov§	2.6	-7.9	1.2	-116	3.75	2.1
Russia	-3.4	Q3	na	-3.8	4.9	Dec	3.4	6.1	Nov§	2.1	-4.3	6.5	21.0	73.4	-16.1
Sweden	-2.7	Q3	21.2	-3.2	0.5	Dec	0.4	7.7	Nov§	4.2	-3.6	0.1	-6.0	8.35	14.0
Switzerland	-1.6	Q3	31.9	-3.0	-0.8	Dec	-0.9	3.4	Dec	9.2	-3.7	-0.5	8.0	0.89	9.0
Turkey	6.7	Q3	na	-0.1	14.6	Dec	12.3	12.7	Oct§	-4.4	-5.1	13.1	229	7.41	-20.1
Australia	-3.8	Q3	14.0	-2.9	0.7	Q3	0.8	6.6	Dec	0.9	-7.3	1.1	-12.0	1.29	13.2
Hong Kong	-3.5	Q3	11.8	-5.7	-0.2	Nov	0.4	6.6	Dec††	5.5	-6.7	0.8	-83.0	7.75	0.3
India	-7.5	Q3	125	-7.9	4.6	Dec	6.7	9.1	Dec	1.3	-7.2	5.9	-70.0	73.0	-2.6
Indonesia	-3.5	Q3	na	-2.2	1.7	Dec	2.0	7.1	Q3§	-1.4	-7.2	6.2	-55.0	14,030	-2.8
Malaysia	-2.7	Q3	na	-5.3	-1.7	Nov	-0.9	4.8	Nov§	4.8	-7.4	2.7	-61.0	4.05	0.3
Pakistan	0.5	2020**	na	-2.8	8.0	Dec	9.6	5.8	2018	-0.2	-8.0	10.0 †††	-103	160	-3.3
Philippines	-11.5	Q3	36.0	-9.3	3.5	Dec	2.6	8.7	Q4§	0.5	-7.7	2.9	-190	48.1	6.0
Singapore	-3.8	Q4	8.7	-6.0	-0.1	Nov	-0.3	3.6	Q3	18.0	-13.9	1.0	-68.0	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	-7.0	1,100	5.3
Taiwan	3.9	Q3	16.6	2.4	0.1	Dec	-0.3	3.8	Nov	13.7	-1.5	0.3	-30.0	28.0	6.9
Thailand	-6.4	Q3	28.8	-6.1	-0.3	Dec	-0.8	2.0	Nov§	3.6	-6.3	1.3	-25.0	30.0	1.2
Argentina	-10.2	Q3	61.7	-10.7	36.1	Dec‡	42.2	11.7	Q3§	2.0	-8.0	na	-464	86.3	-30.5
Brazil	-3.9	Q3	34.6	-4.5	4.5	Dec	3.2	14.3	Oct§††	-0.8	-15.8	7.6	76.0	5.30	-21.1
Chile	-9.1	Q3	22.6	-6.2	3.0	Dec	3.0	10.8	Nov§††	2.1	-8.0	2.7	-58.0	725	5.9
Colombia	-9.5	Q3	39.6	-7.7	1.6	Dec	2.5	13.3	Nov§	-3.7	-8.8	4.8	-107	3,470	-4.0
Mexico	-8.6	Q3	58.0	-8.9	3.2	Dec	3.4	4.6	Nov	2.3	-4.5	5.3	-157	19.6	-4.7
Peru	-9.4	Q3	187	-12.0	2.0	Dec	1.8	11.8	Dec§	1.0	-8.0	3.7	-43.0	3.61	-8.0
Egypt	0.7	Q3	na	3.6	5.4	Dec	5.1	7.3	Q3§	-3.4	-7.9	na	nil	15.8	0.3
Israel	-1.5	Q3	39.7	-3.7	-0.7	Dec	-0.6	4.8	Nov	4.0	-11.3	0.8	-12.0	3.27	5.8
Saudi Arabia	0.3	2019	na	-4.2	5.4	Dec	3.5	9.0	Q2	-3.7	-10.7	na	nil	3.75	nil
South Africa	-6.0	Q3	66.1	-7.2	3.1	Dec	3.2	30.8	Q3§	-2.1	-16.0	8.7	59.0	14.9	-2.5

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

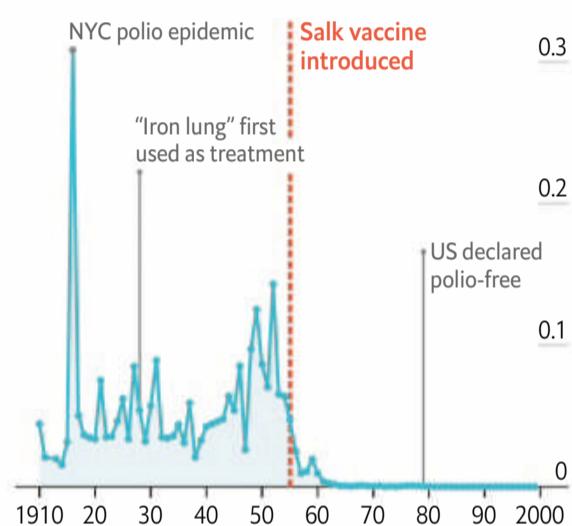
Markets

In local currency	% change on:			index	% change on:		
	Jan 20th	one week	Dec 31st 2019		Jan 20th	one week	Dec 31st 2019
United States S&P 500	3,851.9	1.1	19.2	45,676.9	-0.9	12.1	
United States NAScomp	13,457.3	2.5	50.0	2,998.8	0.7	-7.0	
China Shanghai Comp	3,583.1	-0.4	17.5	3,114.6	-1.1	41.7	
China Shenzhen Comp	2,412.6	0.8	40.0	15,806.2	0.2	31.7	
Japan Nikkei 225	28,523.3	0.2	20.6	1,515.7	-2.0	-4.1	
Japan Topix	1,849.6	-0.8	7.4	50,224.5	-1.4	20.5	
Britain FTSE 100	6,740.4	-0.1	-10.6	119,646.4	-1.9	3.5	
Canada S&P TSX	18,014.9	0.4	5.6	45,125.7	-1.3	3.6	
Euro area EURO STOXX 50	3,624.0	0.2	-3.2	11,598.9	1.8	-16.9	
France CAC 40	5,628.4	-0.6	-5.8	1,682.8	2.5	4.1	
Germany DAX*	13,921.4	-0.1	5.1	8,878.3	-0.4	5.8	
Italy FTSE/MIB	22,650.8	-0.4	-3.6	64,108.5	1.0	12.3	
Netherlands AEX	659.3	2.3	9.1	2,761.5	0.8	17.1	
Spain IBEX 35	8,204.1	-1.9	-14.1	1,401.0	2.7	25.7	
Poland WIG	58,114.6	-0.7	0.5				
Russia RTS, \$ terms	1,486.9	nil	-4.0				
Switzerland SMI	10,945.5	0.9	3.1				

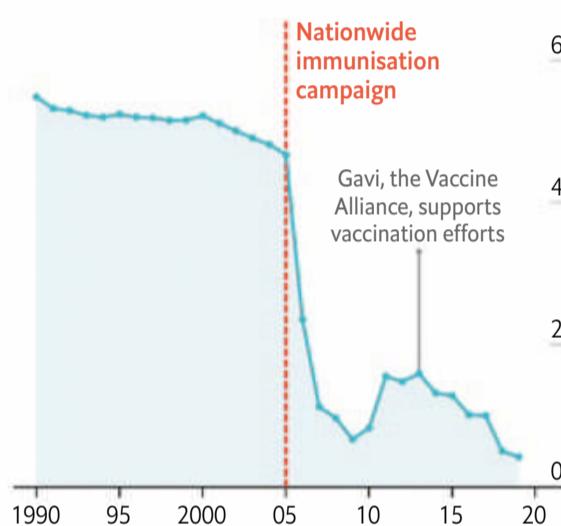
→ It took a century for vaccines to vanquish smallpox. Modern campaigns can take just a few years to bear fruit



Polio, United States, % of all deaths

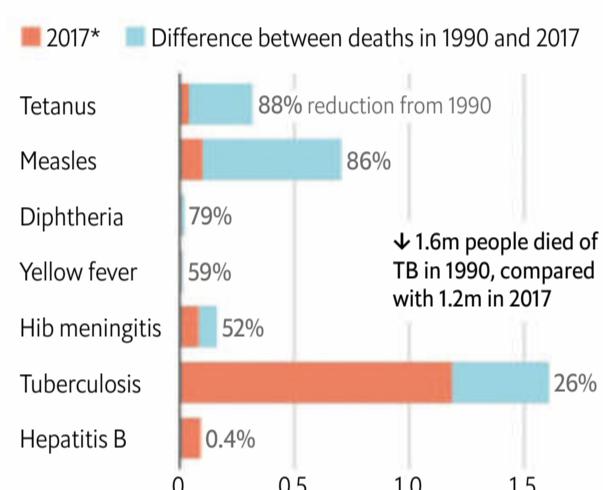


Measles, Nigeria, % of all deaths



Annual global deaths, m

From selected vaccine-preventable diseases



Sources: Our World in Data; Global Health Data Exchange; IHME; Google; government statistics *Latest available year

Gift of the jab

Vaccination campaigns are hard

AS NEW VARIANTS of SARS-COV-2 take off, it seems increasingly likely that vaccination is the only way the pandemic will be brought under control. In theory, the high efficacy shown in clinical trials should be sufficient to stop the virus cold. Yet only a few vaccines have ever brought epidemics to an abrupt halt. Even in modern times, many campaigns have fallen short of the impact covid-19 jabs will need to have for pre-pandemic lifestyles to resume.

The first efforts to make humans in the West immune to common diseases were ineffective. By the 15th century, Chinese doctors were grinding up dried smallpox scabs and blowing them into the nostrils of healthy children. In the early 1700s Lady Mary Wortley Montagu, an English aristocrat, saw women in Ottoman Istanbul conducting variolation—a process designed to

induce a mild infection and then immunity, in which pus taken from smallpox blisters is applied to scratches on the skin.

Montagu variolated both of her children, who survived. She later argued successfully for the procedure to become widespread. Yet during the next 80 years, the share of deaths in London caused by smallpox actually rose to nearly 9%, from just over 6% in 1640-1720. Variolation could cause deadly infections; among the victims were two sons of King George III.

Real progress only began when Edward Jenner, a physician who was apprenticed to a country doctor as a boy, began to wonder why dairymaids who had contracted cowpox rarely caught smallpox. In 1796 he used cowpox lesions from an infected maid to produce the first true vaccine—one that creates immunity without infection.

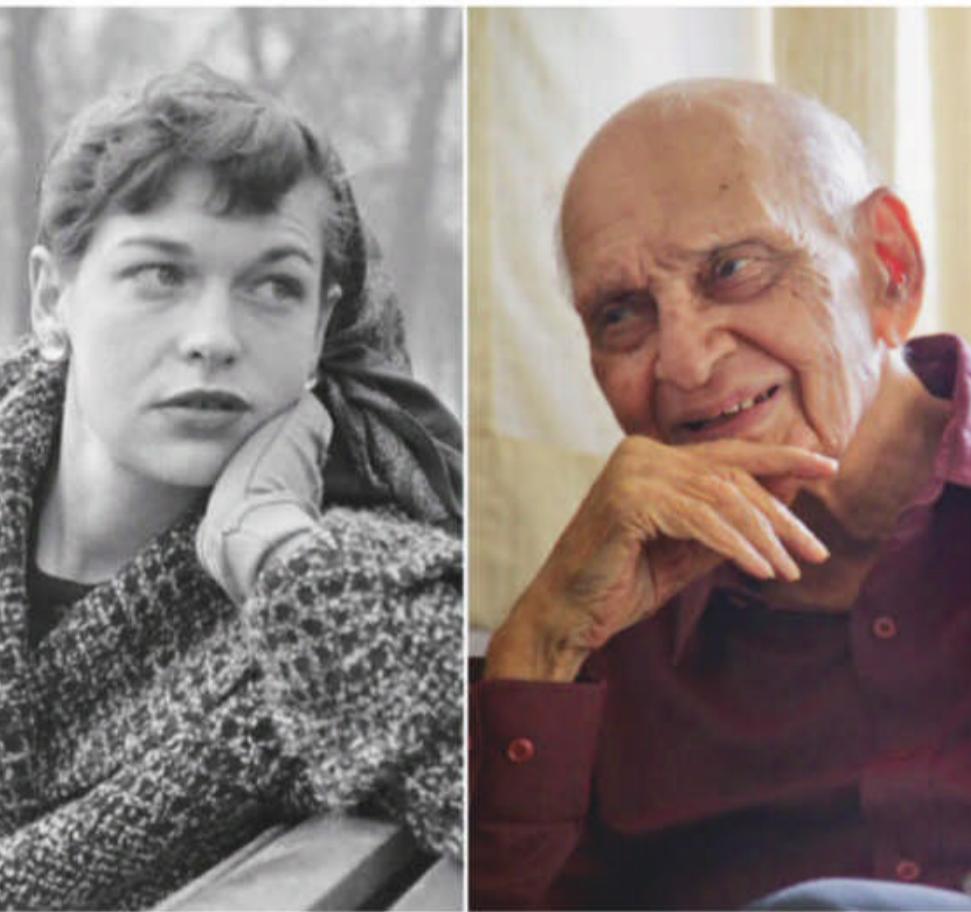
Although Jenner's method worked, it still took decades for England to vanquish the disease. At the start, public scepticism and inconsistent quality control and distribution hampered vaccination efforts. By 1830, however, smallpox was responsible for only 2-3% of deaths in London. The disease was mostly defeated by 1890.

In the mid-20th century, advances in

immunology and public-sector logistics enabled vaccines to bring about faster results. In just a few years, Jonas Salk's vaccine all but eliminated deaths in America caused by polio. There are now around 25 diseases for which vaccines are used in humans. In many cases, their impact has been recent: since 1990 annual deaths from measles and tetanus have fallen by nearly 90%.

Some common diseases, however, have proven stubbornly resistant. Tuberculosis still claims 1.4m lives a year, mostly in poor countries; researchers have yet to improve upon the BCG vaccine, which is only moderately effective against TB. In other cases, gains have proven fragile. Nigeria slashed its measles rate by vaccinating nearly 60m children in 2005-06, but saw deaths from the disease creep up five years later, because inoculation did not become routine.

With governments around the world making vaccination against SARS-COV-2 their top priority, it is likely that the decline in deaths caused by it in 2020-21 will be even more precipitous than that of polio in 1955-56. Yet it will take years to learn if covid-19 vaccines confer lifelong immunity, or whether constant vigilance will be required to keep the world protected. ■



Counsels of imperfection

Katharine Whitehorn and Mahinder Watsa died on January 8th and December 28th respectively, aged 92 and 96

WHEN AS A young woman looking for solid work, Katharine Whitehorn was moving round from one grungy digs to another, she realised that the cookery books of the time were no use. To begin with, they assumed a knowledge of food and its preparation she simply didn't have. Besides, it was hard to produce a decent meal, let alone anything impressive, when all you had was a gas ring in one corner of your room and water down the hall; and when the problem wasn't just to assemble passable ingredients, but to find somewhere to put down the fork while you took the lid off the saucepan. So was born "Cooking in a Bedsitter" (1961), a bible for the cookery-challenged for decades afterwards, with its cheery insistence that yes, you could cook cabbage, if you chuckled in a crust of bread to stop the smell getting into the curtains; and yes, you could knock up a delicious little dinner *à deux* out of packets and tins, *as long as you got rid of the evidence*.

Such down-to-earth advice, practical, witty and, if necessary, sharp (essential to have a sharp knife, as Ms Whitehorn said) came equally from Mahinder Watsa in Mumbai, who realised that an increasing amount of his time as an obstetrician-gynaecologist was taken up with counselling people who knew little or nothing about the birds and the bees. In the 1960s he started a "Dear Doctor" column in a women's magazine; in 2005, at 80, when counselling had long overtaken his medical practice, he became the daily "Sexpert" on the tabloid *Mumbai Mirror*. Could a woman get pregnant, ran one enquiry, if a man and a woman sleeping alone thought of making love at the same time? (Answer: "There are no angels to carry your sperm to the person you dream of.") If acidic substances prevented pregnancy, ran another, could orange or lemon juice be poured into the vagina after sex? ("Are you a *bhel puri* vendor? Where did you get this weird idea?") Young men—especially young men, though about three in ten who wrote were women—knew that if they wanted sprightly clarity on sexual matters they could

find it on page 34 of the *Mirror*; just as, in Britain, women—especially women, though men were also firm fans—searched out Ms Whitehorn's trenchant views on life in the *Sunday Observer* for more than 30 years, and after that in *Saga* magazine.

Both she, and he, cut through the confusion with a strong sense of mission. Ms Whitehorn was the first columnist in Britain to give a voice to ordinary, non-decorative, muddling-through women, and became the model for the dozens of confessional columns that followed. She had started in journalism, a patriarchal club as it was in the 1950s, typecast and moody-looking in the fashion section, but quickly encouraged women (in books and broadcasts, as well as columns) to overcome any obstacles of biology, maternity or delicacy, and to write about anything and everything. As for Dr Watsa, his campaign, almost single-handed at the start, was to talk plainly and naturally to Indians about sex. From 1974, when he joined the national Family Planning Association, he promoted sex education in schools, trained teachers, wrote manuals and ran workshops, daring to raise against considerable hostility a subject that people too often wouldn't face.

Sometimes real fear was the problem. Dr Watsa was quite flummoxed by the number of missives he got about masturbation, which made up half his postbag. Would it drain your strength away, or make you lose your hair? Would it shorten the penis? ("You talk every day, has your tongue become smaller?") Would it make you fail exams? What if you did it on a day that the astrologer didn't recommend? With infinite patience, Dr Watsa explained that it was harmless, perfectly normal, and by the way, astrologers were frauds. (Like a giant sigh, "It's Normal!" was the title of his collected columns.) In Britain Ms Whitehorn defused the ever-present social terrors, remembering her own cringe-making attempts to navigate smart London. What if you dropped a brick in a conversation—making some crass joke about money, say, when talking to a bankrupt? Don't try to pick it up again, she wrote; *keep your eyes steady*, and pour your attention on the other person. What if your knickers fell down in a public place? Kick them off, scoop them into your pocket and walk on, as if nothing has happened.

Inadequacy could be almost as bad as fear. Nothing, Dr Watsa knew, could stop young men worrying about their penis size, but he tried. To one, who sent anxious measurements of his organ at rest and play, he wrote: "Stop sounding like a tailor. Your genitals will look after themselves." Would it help, another asked, if he pulled his penis for 15 minutes a day while reciting a prayer? "If that was right, most men's penises would be hitting their knees."

Ms Whitehorn, meanwhile, dealt with the eternal worries of women that they were not elegant or organised enough. Her most famous column, in 1963, defended all slatterns who had ever safety-pinned a hem, changed their stockings in a taxi, or seized some item back from the dirty-clothes basket "because it had become, relatively, the cleaner thing". She implied she was a slattern too, though Roedean, Cambridge, her dress sense and her darkly posh voice rather gave the lie to that. But at devil-may-care-ness she did well. In "How to Survive Children" (she had two, chaotically balanced with work), she advised that bath-time went better after a glass of gin. As for housewifery, "no book of household management can ever tell you...how to begin. Or maybe I mean why."

Both columnists continued to a great age, thriving on long and generally happy marriages. Wisdom seemed to gather around them until both were national treasures. Their essential optimism was tempered: Dr Watsa's by the beatings, abuse and unhappily arranged marriages he was told of, and could do nothing about; Ms Whitehorn's by the feeling that sex had come to tyrannise relationships. But the numbers of people they had braced with confidence were legion, and occasionally their advice was similar. To a woman worried about not being a virgin on her wedding night, Dr Watsa wrote: "Don't worry, your husband won't notice." While to a young bedsitter hostess, cooking for a man, Ms Whitehorn breezed: "Don't apologise, and NEVER ask 'Is it all right?'" ■

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