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Rebels from Ethiopia's northern Tigray region captured two strategic towns and were poised to march on Addis Ababa, the capital. An allied rebel force, claiming to represent the Oromos, Ethiopia's biggest ethnic group, said it had cut roads to Addis Ababa from the south. Abiy Ahmed, Ethiopia's prime minister, declared a state of emergency and said Ethiopia would defeat the rebels with "the bones and blood of her children". Tigrayans in the capital were rounded up and detained.

The African National Congress, which has ruled South Africa since the end of apartheid in 1994, suffered its biggest-ever electoral defeat, falling below 50% in a nationwide ballot for the first time. The elections were local ones, which typically produce a lower turnout of ANC supporters. But they suggest that the party may struggle to gain a majority at a general election in 2024.

America, Britain, Saudi Arabia and the United Arab Emirates called on the leaders of a military coup in Sudan to reinstate a civilian-led transitional government. The last two were a surprise: the coup leader, Abdel Fattah al-Burhan, was thought to have had the backing of Arab allies, including the UAE.

The Knesset in Israel narrowly approved the government's budget for 2021, a big victory for the new prime minister, Naftali Bennett. Had it failed, yet another general election would have been called.

Talks between Iran and six world powers, aimed at resurrecting the nuclear deal that

Iran signed in 2015, will resume later this month. The discussions were put on hold in June after the election of Iran's new hardline president, Ebrahim Raisi. America, which walked away from the deal under Donald Trump in 2018, will take part.

At least nine people were killed by a car bomb near the airport in Aden, Yemen's temporary capital, the deadliest attack in the city since December. No one claimed responsibility. A day later dozens of people were killed or wounded in the province of Marib when missiles launched by the rebel Houthi movement hit a religious school and mosque, said the government.

Talking hot air

The UN Conference on Climate Change, or COP26, began in Glasgow. Governments pledged to reduce methane emissions and end deforestation by 2030. Vladimir Putin and Xi Jinping did not attend, but the Chinese president wrote to urge more support for developing countries. Some leaders were mocked for their travel arrangements. Joe Biden's motorcade consisted of 20 vehicles. Boris Johnson flew back to London on a private plane. A spokesman said the aircraft was carbon-efficient.

Narendra Modi, India's prime minister, said his country aimed to reach net-zero emissions by 2070. Many rich countries have committed to reaching net zero by 2050. India, which still relies heavily on coal, would find that much harder.

As world leaders debated net zero, Britain and France called a temporary truce in a furious row over the economically insignificant question of fishing rights in the English Channel. France had seized a British vessel after French fisherfolk complained that post-Brexit Britain was being slow to issue them with licences. The mackerel mêlée is certain to resume.

Opposition leaders in Nicaragua (at least, those who have not fled abroad) called on voters to boycott a presidential election on November 7th. Daniel Ortega, the autocratic president, is set to win another term after locking up plausible opponents. The EU called the election "fake".

A judge in Florida dismissed most of the charges of money-laundering against Alex Saab, a Colombian who is an ally of Nicolás Maduro, Venezuela's dictator. Mr Saab, who was extradited to the United States, denies all the charges.

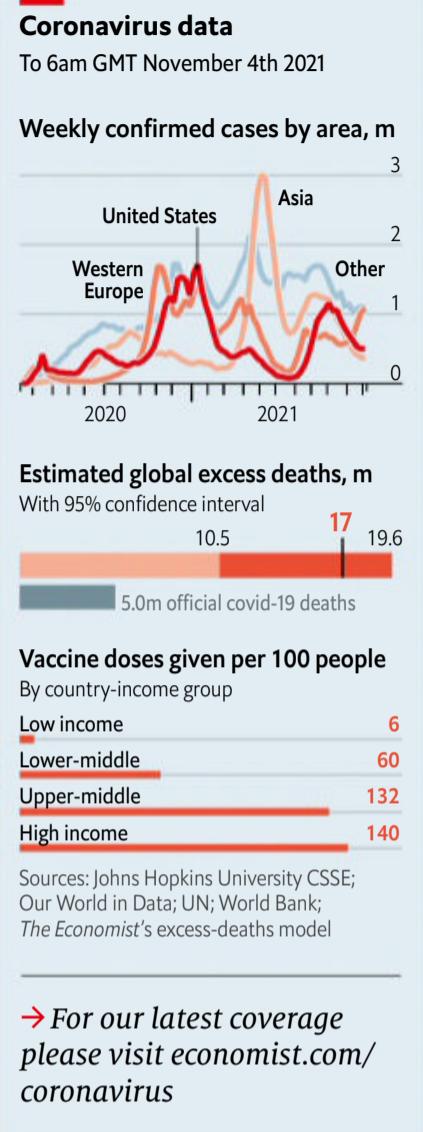
A Chinese tennis star, Peng Shuai, posted a message on social media accusing a former deputy prime minister, Zhang Gaoli, of assaulting her sexually. Censors quickly moved to suppress online discussion of the case.

Yahoo became the latest American technology firm to withdraw from China. It cited an "increasingly challenging business and legal environment" there. Microsoft's LinkedIn has ended its services in China for similar reasons.

How low can it go for Joe?

A Republican won the governor's race in Virginia, an office Democrats have held for the past eight years. Glenn Youngkin, a former private-equity executive, won over several exurbs that had enthusiastically plumped for Joe Biden last year. Some swing voters were irked that Mr Youngkin's opponent had suggested that parents should have no say in what their children are taught in school. Democrats narrowly held on to the governorship in New Jersey, a party stronghold.

In Minneapolis a ballot measure to replace the police force with a Department of Public Safety was easily defeated. The proposal, in a city still traumatised by the murder of George Floyd, would have required the city to treat crime as a public-health problem.



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Islamic State Khorasan Province killed at least 20 people at a military hospital in Kabul, Afghanistan's capital. The group has also attacked mosques, mostly targeting minority Shia Muslims, since the Taliban takeover in August.

The World Health Organisation approved for emergency use India's indigenous vaccine against covid-19, known as Covaxin. Approval of the drug is expected to boost inoculations across the poor world.

Thailand opened its borders to fully vaccinated visitors from more than 60 countries, as it tries to revive its battered, tourism-dependent economy. Strict curbs on serving booze in bars and restaurants remain, however.

Tonga recorded its first-ever case of covid-19, hurling the Pacific nation into a week-long lockdown. The virus was transmitted by a vaccinated traveller from New Zealand.

The **Federal Reserve** said it would start to taper its bond-buying programme this month at a pace that suggests it will end entirely next June. The central bank introduced the scheme at the start of the pandemic, but it is now more concerned about the prospect of enduring inflation.

Christine Lagarde once again tried to play down market expectations of an interest-rate rise in the euro zone next year. The president of the **European Central Bank** reiterated her view that, although consumer prices have risen fast, the outlook for inflation remains subdued.

The **euro zone's** economy grew by 3.7% in the third quarter, year on year (America's GDP expanded by 4.9% on the same basis). Annual inflation in the currency bloc soared to 4.1% in October, a 13-year high, driven by higher energy prices.

Hit by an energy crunch, **European gas prices** yo-yoed amid conflicting news from Russia, which supplies around two-fifths of the EU's imported gas. Gazprom appeared to be following an order from Vladimir Putin to start storing gas for Europe, after it had replenished its stocks for Russia. But the state-owned company again declined to book the necessary pipeline capacity to transport the gas.

Microsoft overtook **Apple** to become America's most valuable company, reaching a market capitalisation above \$2.5trn, after Apple's quarterly earnings disappointed investors. **Tesla's** share price wobbled when Elon Musk said the company had not yet signed an agreement to sell 100,000 electric cars to Hertz. The recent announcement of the deal had pushed Tesla's market value to over \$1trn.

Credit Suisse announced a big restructuring following the hefty losses it incurred through its exposure to Archegos Capital Management, which collapsed in spectacular

fashion earlier this year. The Swiss bank is to all but close its prime brokerage business, which provided financing to hedge funds, and will refocus on wealth management.

Jes Staley stepped down as chief executive of Barclays, as British regulators were reportedly ready to question whether he had fully disclosed his links to Jeffrey Epstein. Epstein took his own life in 2019 after he was charged with sex trafficking under-age girls. Mr Staley wants to contest the regulators' conclusion, which the board thinks would make his job impossible. Barclays noted that the investigation "makes no findings that Mr Staley saw, or was aware of, any of Mr Epstein's alleged crimes".

Steely plan

America and the European Union resolved a trade spat over **steel and aluminium**. Donald Trump introduced tariffs on European steel in 2018 under the guise of protecting America's national security; the Biden administration will now accept European imports under a quota system. In return the EU will not impose retaliatory tariffs on a wide range of American goods. Both sides are working on

arrangements to produce sustainable steel in order to curb what Joe Biden described as "dirty steel" from China.



Facebook changed its name to **Meta**, a rebranding that highlights the company's other social-media apps, Instagram and WhatsApp, and downplays the Facebook name. One of the new parent company's first decisions was to cease **facial recognition** on Facebook's photos and videos because of the regulatory uncertainty surrounding the technology, though it is to retain the algorithm behind it.

Dell completed its spin off of **VMware** into a separate software company, a business it acquired in its merger with EMC in 2016. When the spin-off was announced in April, Michael Dell, the eponymous founder of the computer company, said that although rev-

enues from VMware were robust, "the market does not appear to appreciate a hardware software combination."

Kakao Pay's IPO in Seoul was a roaring success. South Korea's biggest provider of mobile-payment services is backed by Ant Group, a Chinese fintech company founded by Jack Ma. It had to delay its stockmarket listing by two months when South Korean regulators, fearful of a bubble, started scrutinising the IPO valuations of tech firms.

A page-turner

America's Justice Department launched a lawsuit to stop **Penguin Random House's** proposed acquisition of **Simon & Schuster** on antitrust grounds. The suit claims that a merger would give Penguin control of nearly half the market for publishing rights for bestselling books.

On the same day that the **COP26** summit started in Glasgow, Saudi Aramco reported quarterly net income of \$30.4bn, its biggest three-month profit since its IPO in 2019. BP, Chevron and ExxonMobil also reported solid earnings, as the **oil majors** reaped the benefits of resurgent oil prices.



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One year on

Democrats face a calamity unless the party can distance itself from the new, new left

TWO OF THE better books on the job invented for George Washington share a title: “The Impossible Presidency”. Even the most capable presidents are doomed to fail, writes Jeremi Suri in the more recent of them: “Limiting the failure and achieving some good along the way—that is the best we can expect.”

Even by these gloomy standards, Joe Biden is foundering. Having received more votes than any candidate in history, he has seen his approval ratings collapse. At this point in a first term only Donald Trump was more unpopular. The Democrats have just lost the three top statewide offices in Virginia, which Mr Biden won by ten percentage points a year ago (see United States section). This augurs poorly for next year’s mid-terms: his party will probably lose its congressional majorities.

Democrats in Congress are riven by factional bickering. Earlier this year they passed a big stimulus, but the rest of Mr Biden’s agenda—a \$1trn bipartisan infrastructure package and a social-spending bill worth about \$1.7trn over ten years—has stalled. If passed, the legislation will almost certainly include more money for infrastructure, a poverty-cutting child tax credit, funding for pre-school, a reduction in the cost of prescription drugs and a clean-energy tax credit which will encourage private investment in new generating capacity. This spending is likely to be funded by harmful tax changes, but voters may not care.

Indeed, their spirits may lift next year. Covid-19 cases have fallen by half since September. If unemployment drops further, supply-chain blockages ease and inflation ebbs, life will get easier for those who feel that the odds are against them (see Briefing). Yet, for Mr Biden, that is where the good news ends.

Some of his problems are inbuilt. American politics is subject to patterns more like the laws of physics than the chances of horse-racing. One is that the president’s party loses seats in the mid-terms. Democrats have only a four-seat cushion in the House of Representatives, so their majority is probably doomed. Whatever Mr Biden does, the legislative phase of his presidency is therefore likely to give way to the regulatory phase. Yet, with a conservative majority on the Supreme Court, he will find his room to remake the country with his pen and phone curtailed.

Beyond next year, the Democrats’ prospects are even bleaker. Their unpopularity with non-college-educated whites costs them large tracts of the country outside cities and suburbs. To win the electoral college, the House of Representatives and the Senate they need a greater share of the raw vote than any party in history. Winning under these conditions, while simultaneously repairing national institutions and making progress on America’s problems, from public health to climate to social mobility, is a task for a politician of superhuman talents.

Mr Biden is not that guy. He has dealt admirably with personal misfortune and by most accounts is kind and decent. However, there is a reason why winning the presidency took him more than 30 years of trying. Democratic primary voters picked him not for inspiration, but largely as a defensive measure to block the progressives’ champion, Bernie Sanders.

Mr Biden campaigned on his competence, centrism, experience in foreign policy and a rejection of nerve-jangling Trumpism. But the withdrawal from Afghanistan was a debacle, he has governed to the left and the culture wars rage as fiercely as ever. The fact that no voters seem to have a clue what is in the infrastructure and social-spending bills is partly his fault. Child poverty has fallen by a quarter, thanks to legislation passed by Congress on his watch. This would be news even to most Democrats.

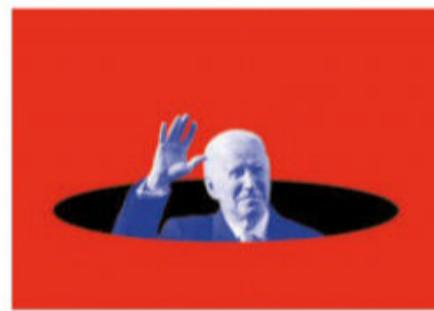
The problem is not just Mr Biden, though. His party’s left-wing, college-educated activist class consistently assumes that the electorate holds the same attitudes on race and on the role of the government as they do. Virginia is the latest example of this folly. America is a young, diverse country. The median age is under 40 and just 60% of the country identifies as white. The electorate is different. Taking an average of the 2018 and 2014 mid-terms as a guide, 75% of voters will be white and their median age next year will be 53. Democrats have a huge lead among the college-educated. But only 36% of Americans completed four-year degrees. That is far too small a base, especially as Republicans make inroads with non-white voters.

When Richard Nixon won in 1972 the new-left Democrats were painted as the party of “acid, amnesty and abortion”. The new, new left is just as easily caricatured as the party of white guilt and cancel culture, of people who say “birthing person” instead of “mother” and want to set the FBI on parents who have the gall to criticise teachers.

These noisy activists, and the small number of radicals they elect from safe Democratic seats, make it hard for the party to win in more moderate areas, even though they do not represent the majority of the party’s voters. Immigration activists are camped outside the vice-president’s residence complaining that Mr Biden has not changed Mr Trump’s border policies. By contrast, Democratic voters in Minneapolis, where George Floyd was murdered, have just voted against replacing the police department with a department of public safety.

Countering the Republican message that he carries out the wishes of the radical left will require Mr Biden to be much tougher on his party’s fringe. That may mean doing things they hate. He could campaign to hire more police officers in cities where the murder rate has spiked (“refund the police”, perhaps), or pick fights with the school board in San Francisco, which thinks that Abraham Lincoln is a symbol of white supremacy.

If Democrats believe that grubby attempts to win power are beneath them, then they should look at what is happening in the Republican Party. Glenn Youngkin’s election as governor of Virginia suggests that Republicans can win in swing states, even with Mr Trump as head of the party, by being cheerful, Reagan-esque culture warriors who know how to throw red meat to the base. In a two-candidate race for the presidency, both nearly always have a real chance of winning. Mr Biden and his party need to think hard about what they are prepared to do to limit the risk of another four years of Mr Trump. Because that is where a failed Biden presidency could well lead. ■



Markets and inflation

Bond traders stir

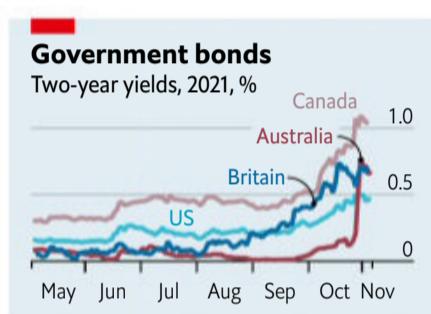
The message from the newly roused fixed-income markets

GLOBAL BOND markets are wakening from a long slumber. The Federal Reserve this week said it will wind down its vast bond-buying programme. At the same time, bond investors are reacting to higher inflation: across a group of 35 economies, five-year bond yields have risen by an average of 0.65 percentage points in the past three months. A shakeout is taking place not only in emerging markets but also in rich countries such as Australia and Britain (see Finance & economics section). Sudden moves inevitably spark fears of market turmoil, along the lines of the “taper tantrum” in 2013. However, the bond shift taking place today is actually very different.

Before the pandemic interest rates across the world were low, reflecting dormant inflation. When the coronavirus struck almost two years ago, most central banks promised to keep their policy rates lower for longer to help the recovery. Many also agreed to buy bonds, reducing their yields.

The main reason for the sudden shift today is rising inflation. Among the 38 economies that are members of the OECD, a club of rich countries, inflation rose to an uncomfortable 4.6% year on year in September. Soaring energy and food prices are only part of the story: even if you strip those out, the figure was 3.2%, the highest in almost two decades.

For months central banks have said that high inflation is a blip caused by temporary constraints in supply. But the action in bond markets shows that investors reckon central banks are acting too slowly. Some monetary authorities have already tightened policy. Brazil announced a 1.5-percentage-point rate rise last week. Central banks in Canada and Australia have abandoned forecasts that said rates would stay low. As we write, the Bank of England is due to decide whether to raise rates. Some policymakers are standing firm: Christine Lagarde, the boss of the European Central Bank, has insisted that it is “very unlikely” to raise interest rates next year.



The spectre of central banks diverging from markets, and of consequent swings in market interest rates, will unsettle those with memories of 2013, when the Fed clumsily revealed its unexpected intention to begin scaling back its programme of bond purchases. The resulting global mini-panic dented growth and clobbered some emerging economies, particularly those with big dollar debts.

Yet this is not 2013. One difference is that the shift in bond markets is more nuanced. The increase so far in nominal five-year government-bond yields in America, for example, is less than half what it was eight years ago. Real bond yields, after accounting for expected inflation, are minus 1%, still within spitting distance of record lows. That will support easy conditions in the real economy. And even as shorter-term government-bond yields rise, there has been much less of a move in longer-term bonds.

The other difference today is the absence of financial panic. A rising cost of debt can cause defaults and capital flight. But many emerging economies have healthy foreign-exchange reserves, making them resilient. Equity markets show no sign of distress—share prices hit a record high this week. Shares in banks are up by 28% this year, because gradually rising interest rates can boost their profits. And bond markets remain open for business. In October emerging markets outside China issued near-record levels of corporate and sovereign debt.

No cause for alarm, then. Markets are betting that central banks need to bring interest-rate rises forward, not that they will lose control of inflation. Still, it is worth bearing in mind the extraordinarily difficult task that central banks face. During the unpredictable tail end of a pandemic, they must try to normalise ultra-loose monetary policy amid sky-high asset prices, heavy debt levels and above-target inflation. Taper tantrum 2.0 is not yet under way. But don’t rule out a bigger bond brawl. ■

Government in Britain

Are rules for losers?

Boris Johnson treats checks and balances with contempt

THE FACTS are damning. Owen Paterson, a former Tory Cabinet minister now on the backbenches, was paid £9,000 (\$12,700) a month for consulting work by two companies, one and a half times his parliamentary salary. And, sure enough, he earned his keep by lobbying ministers and officials on their behalf. The commissioner for standards, an independent officer, concluded that he had brought Parliament into disrepute.

Its cross-party standards committee recommended a 30-day suspension. But on November 3rd, in a scheme cooked up barely 24 hours earlier, Tory MPs voted, under instruction from the government, to sidestep the whole sleazy mess by creating a new

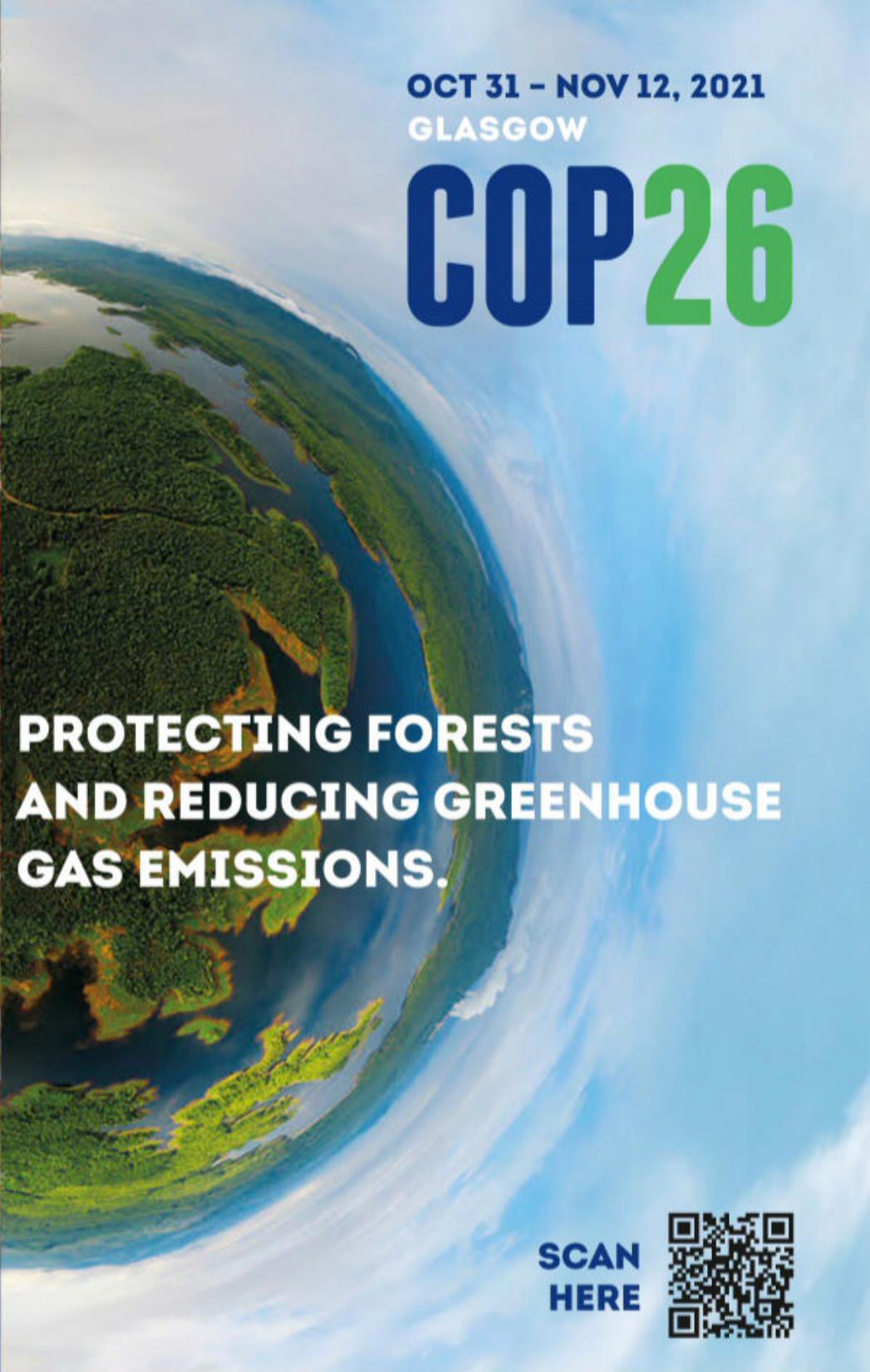
committee to examine the way MPs are overseen. Mr Paterson’s case will thus be reconsidered. It was as if an appellate court had found a guilty verdict legally correct but unpalatable, and decided to change the law rather than pass sentence.

Mr Paterson’s defenders argued not on substance but on procedures, which they said were unfair, even though Parliament wrote them and could have changed them at any time in the past. Some said he had been treated more harshly because he was a Conservative and a Brexiteer—the standards committee is chaired by a (respected) Labour MP. Yet Mr Paterson blatantly broke the rules. This week’s vote compounded his offences by al-



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so, shamelessly, bringing Parliament into disrepute.

This tawdry episode adds to a pattern set by the government of Boris Johnson. Having strode victorious into Downing Street as one of the architects of Brexit, the prime minister behaves as if laws are for other people. Lord Frost, the government's Brexit negotiator, is demanding that the EU rewrite aspects of the withdrawal treaty relating to Northern Ireland that Britain signed up to in a push to get Brexit done (see Charlemagne). In September 2020 Sir Jonathan Jones, the head of the government legal service, advised that the government's plan to override parts of the Brexit withdrawal deal would break international law. Mr Johnson ignored his advice, so Sir Jonathan felt obliged to resign.

The prime minister is also seeking to undermine Britain's precarious system of checks and balances. When officials responsible for holding ministers to account have tried to do their job, they are made to suffer. Two months after Sir Jonathan quit, an independent adviser on the ministerial code reported that Priti Patel, the home secretary, had bullied underlings. When Mr Johnson said he would ignore that report, too, the official followed Sir Jonathan out of the door.

The government is neutering independent bodies supposed to hold it to account. It wants to put the Electoral Commission, a watchdog, under the thumb of a Conservative-dominated committee of MPs, and to strip it of the power to initiate criminal prosecutions. It is trying to parachute in Paul Dacre, a former editor of the *Daily Mail*, a tub-thumping Brexiteer and all-round

scourge of liberals, as the boss of Ofcom, the media regulator, even though the appointment panel concluded that his lack of impartiality made him "unappointable". The MP who leads the parliamentary committee concerned with culture and the media has said publicly that, in choosing its next political editor, the BBC should pick a Brexiteer.

The government is also trying to tame the courts. It wants to tighten rules governing judicial review of public bodies' decisions. An egregious proposal by the justice secretary, Dominic Raab, would make it easier and quicker to change court rulings that it deems to be wrong (see Britain section). Rather than defending judicial independence, the attorney-general, Suella Braverman, has joined the attack, implying that in some cases related to Brexit pro-European sentiment meant judges had entered the political arena.

As we write this, the government was starting to have second thoughts about Mr Paterson. After a furious backlash and opposition threats to boycott the new committee, it pledged to seek cross-party support for changes to the system. It is not too late for Mr Johnson to learn the moral from this sleazy affair. Britain's constitution grants the executive great latitude. Having brought Britain out of the EU against the wishes of the "liberal elite"—by which they mean everyone from judges to journalists—Brexiteers see themselves as beholden to no one. If the government continues to act as if rules are for losers, it will bring democracy itself into disrepute. ■

Climate change and investing

The uses and abuses of green finance

Why the net-zero pledges of financial firms won't save the world

ALAS, THE COP26 summit in Glasgow is shaping up to be a disappointment. The hope that emerging markets, which belch out much of the world's greenhouse gases, would announce ambitious proposals is being dashed. The plans of China, India and Brazil all underwhelm. There is no sign this will be the cop that kills coal, as Britain, the host, wanted. World leaders have still not agreed to stop subsidising fossil fuels.

But one area where enthusiasm is growing is climate finance. Financial institutions representing nearly \$9trn in assets pledged to uproot deforestation from their investment portfolios (see International section). The most striking announcement has come from the Glasgow Financial Alliance for Net Zero (GFANZ), a coalition co-chaired by Mark Carney, a former governor of the Bank of England. Its members, which include asset owners, asset managers, banks and insurers, hold about \$130trn of assets. They will try to cut the emissions from their lending and investing to net zero by 2050. Can the financial industry really save the world?

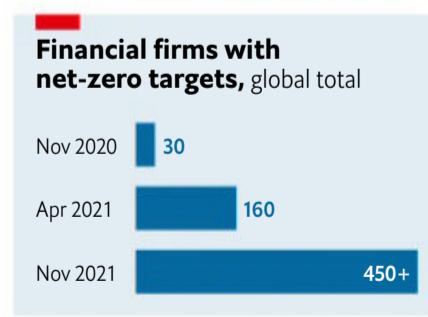
In principle, it has a huge role to play. Shifting the economy from fossil fuels to clean sources of energy requires a vast reallocation of capital. By 2030, around \$4trn of investment in clean energy will be needed each year, a tripling of current levels. Spending on fossil fuels must decline. In an ideal world the profit incentive of institutional investors would be aligned with reducing emissions, and these owners and financiers would con-

trol the global assets that create emissions. Asset owners would have both the motive and the means to reinvent the economy.

The reality of green investing falls short of this ideal. The first problem is coverage. *The Economist* estimates that listed firms which are not state-controlled account for only 14-32% of the world's emissions. State-controlled companies, such as Coal India or Saudi Aramco, the world's biggest oil producer, are a big part of the problem and they do not operate under the sway of institutional fund managers and private-sector bankers.

A second issue is measurement. There is as yet no way to accurately assess the carbon footprint of a portfolio without double counting. Emissions from a barrel of oil could appear in the carbon accounts of the firms that are drilling, refining and burning the stuff. Methodologies behind attributing emissions to financial flows are even sketchier. How should shareholders, lenders and insurers divvy up the emissions from a coal-fired power plant, for instance?

The third problem is incentives. Private financial firms aim to maximise risk-adjusted profits for their clients and owners. This is not well-aligned with cutting carbon. The easiest way to cut the carbon footprint of a diversified portfolio is to sell the part of it invested in dirty assets and put the proceeds in firms that never emitted much, such as, say, Facebook. Together, the five biggest American tech firms have a carbon intensity (emissions per unit of sales) of about 3% of the S&P500 average. ►



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► Heavily polluting firms or assets will often find new owners. If you can brush off the stigma, it can be profitable to hold assets that can legally generate untaxed externalities—in this case pollution. As shareholders urge oil majors to clean up, the oilfields they sell are being bought by private-equity firms and hedge funds, away from the public eye. Pledges alone do not alter the fact that firms have little reason to invest trillions in green technologies that still have mediocre risk-adjusted returns.

What should be done? Fine-tuning can help. Measurement should be improved. The EU is rolling out mandatory carbon reporting for businesses; America is considering it. Some accounting bodies want to standardise how climate measures are disclosed. Asset owners, such as pension funds, should hold on to their investments in polluting firms and use them to help

bring about change. Institutional investors also need to build up their venture-capital arms to finance new technologies, such as green cement (see Science & technology section).

Pledges like GFANZ are good as far as they go, but the world needs a widespread price on carbon if finance is to work wonders. That would target all firms, not just those controlled by some institutional investors. The urge to avoid the tax would supercharge efforts to count emissions. Firms and governments would have an incentive to grapple with questions of who is polluting and who should pay. Crucially, a carbon price would align the profit incentive with the goal of reducing greenhouse gases. The job of the financial system would then be to amplify the signal sent by the price of carbon. That combination would be a powerful engine for changing how economies work. ■

Abiy's abyss

Act now to avert carnage in Ethiopia

As rebels march on the capital, ethnic persecution accelerates

THE NAME of Ethiopia's capital, Addis Ababa (New Flower), belies its frequent violent changes of government in recent decades. The Emperor Haile Selassie was overthrown and later strangled. Mengistu Haile Mariam, a Marxist despot, shot his way to power, imposed a "red terror" and was later ousted by a rebel coalition led by Tigrayans. Now history is rhyming.

Once more the federal government is fighting rebels from Tigray. Once more it has deliberately blocked food and medicine from entering this northern region, where 400,000 people are now starving and millions are at risk. Once more the Tigrayan People's Liberation Front (TPLF) is marching on Addis Ababa. In a rapid offensive it has captured towns straddling the roads north of the capital. An allied band, which claims to represent the Oromos, Ethiopia's largest ethnic group, threatens to cut roads leading to the city from the south. It says it, too, is marching on Addis Ababa (see Middle East & Africa section).

The last time Addis Ababa fell, in 1991, a bloodbath was somehow averted. Peace talks were held in London. The dictator fled abroad. What fighting there was in the capital lasted only a few hours. This time, however, it is far from clear that the civil war will end so quietly.

The authorities in Addis Ababa have called on its 5m residents to organise themselves in blocks and defend the city. Abiy Ahmed, Ethiopia's prime minister, shows no sign of agreeing to talks. On November 3rd, at a ceremony marking the start of the war a year ago, Abiy told army officers that "Ethiopia will defeat all her enemies with the blood and bones of her children and live for ever in glory." He has declared a state of emergency, giving his forces sweeping powers to detain anyone suspected of "terrorist" ties. The police and army are interpreting this as an order to round up all ethnic Tigrayans in the capital. Within hours of the proclamation, Tigrayans were grabbed and shoved in warehouses or old factories. Even doctors and nurses were dragged out of hospitals if they were Tigrayan.

Worse is possible. For months Abiy has used dehumanising language for his foes, calling the TPLF a "cancer" and a "weed" that must be trampled. His office insists that he means only the armed group, not all Tigrayans. But some of his followers may

make no such distinction. In other parts of Ethiopia both sides have committed war crimes, some of them ethnically targeted. Now Abiy is urging all citizens to "expose" the agent who "stays in our midst and works for our enemy". In a post on Facebook that the social-media company has since removed for violating its policies against inciting violence, he urged people to take up "whatever weapon" to "bury the terrorist TPLF". Ethiopia is a fragile federation of more than 80 ethnic groups. If widespread ethnic killings were to start, it could break up.

Western governments are trying to prevent Africa's second-most populous country from going the way of Yugoslavia. Jeffrey Feltman, America's senior diplomat for the Horn of Africa, is understood to be heading to Addis Ababa to meet Abiy. He may find the conversation difficult. Foreigners who have spoken with Abiy in recent months describe him exuding a messianic

zeal. "He can't understand why the West is not supporting him in fighting the forces of darkness," says one diplomat, adding that Abiy constantly changed the subject from ending the conflict to "his mission to deliver Ethiopians from the darkness and into the light".

Abiy has not so far been swayed by sanctions, such as the EU cutting aid or America suspending Ethiopia's preferential access to its market. The TPLF, which believes its forces are on the brink of victory, has also made little effort to talk. Diplomats believe it may be holding back from an immediate attack on the capital so as to give Abiy a chance to give up and escape.

No one knows whether catastrophe can be averted. But outside powers should try, with a determined mix of pressure and persuasion. The African Union should suspend Ethiopia's membership until it lifts its embargo on aid entering Tigray, while also making clear that it would not recognise a TPLF government that seized power by force. The UN Security Council should impose an arms embargo, and try to coax both sides to negotiate. Russia and China, which have resisted applying much pressure, should know that they have more to lose than gain from a chaotic break-up of Ethiopia. The fate of a country of 115m people hangs in the balance. The world should not abandon it. ■



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A comedy of manners

It was unsurprising to watch Dave Chappelle prod the boundaries of American propriety in his latest special on Netflix (Lexington, October 16th). Flirting with inflammatory rhetoric is the hallmark of his work. Thus his special, "The Closer", is peppered with the usual jokes lobbed at African-Americans, Chinese and Jews and, mostly these days, trans people. What was surprising was his support for "team TERF", a pejorative term applying to those who argue that trans women are fundamentally not women. Some would call this gender realism. But to many trans people, to be "trans-exclusionary" is to deny their right to be themselves, the very right to exist.

Declaring oneself to be a trans-exclusive feminist is surely just a different type of the "group politics" that Lexington describes as "zero-sum and exclusionary". And it was clear who was being excluded from Mr Chappelle's compassion. There was no punchline. If he was being sarcastic, the point was lost. Standing ovations don't make it good, or right, or funny.

Once upon a time, yet not that long ago, a popular position on homosexuality was that same-sex attraction was biologically deviant, domestically pernicious and deserved to be derided. Discrimination against gays isn't extinct, but thankfully the culture has changed.

JEDD HORVATH
Victoria, Canada

As the parent of a trans young adult, and seeing first-hand the challenge and joy of watching someone I love becoming more and more truly themselves, I watched "The Closer" with a mixture of understanding and dismay. I applauded Mr Chappelle's emotional story of Daphne Dorman, a trans woman, and his friendship with her. But Sir Terry Pratchett, a more thoughtful and empathetic social observer, got it right when he said, "Satire is meant to ridicule

power. If you are laughing at people who are hurting, it's not satire, it's bullying."

SARAH MURPHY
Hillsborough, California

I appreciated Lexington's take on Mr Chappelle. As a liberal, socially progressive gay person, I have been impressed by *The Economist*'s clear-headed analysis of topics that are too hot to touch in most other media, such as transgender rights versus women's rights and the rise of the "illiberal left". Mr Chappelle's new show did not receive good reviews, which is surprising because, as the column pointed out, the woke left's take on transgender issues is a fringe opinion. It makes one wonder why these reviewers felt obliged to pander to this vocal fringe.

JAMES JIANG
New York

Spain's right wing

Not once in your entire article on Isabel Díaz Ayuso ("Liberty lady", October 23rd) did you mention that she could not have become president of the Madrid region without the support of Vox, a far-right party that is anti-feminist and nostalgic for Franco. Ms Ayuso can't pass a budget or any of her initiatives without convincing Vox to lend her its votes. She has expressed her comfort with Vox many times and adopted its rhetoric.

COLTON WALWORTH
Naperville, Illinois

Kings of the road

I invite anyone on the staff of *The Economist* to come to my company and learn to drive a heavy-goods vehicle ("Only the best", October 9th). We may not ask for people with lots of letters after their name or fancy degrees, but the job of being an HGV driver is a life-long professional learning experience, requiring practical skills, strength of character, emotional intelligence and years of dedicated service. The task of piloting a fully laden 44-tonne HGV on Britain's roads comes with a huge

responsibility for personal and public safety. A momentary slip in concentration can have fatal consequences. Drivers are accountable for every minute of their working day under an overbearing system of regulation and compliance.

I wonder how many of the unquestionably skilled writers at your paper could pass the test as easily as implied by your article?

CHARLES DOWNIE
Managing director
Bacton Transport Services
Woolpit, Suffolk

Voters v greens

Ordinary consumers were mostly left out of Schumpeter's analysis of introducing a carbon tax to pay for emissions (October 9th). Looking at the negative reaction among consumers to higher fuel prices in Europe and North America I wonder how much support there will be for carbon taxes as they move from a policy concept to pocketbook reality. Consumers are also voters. How will they react when carbon taxes make it harder to afford to travel and enjoy many other things that we take for granted today?

Schumpeter believes consumers will adapt their behaviour. But governments are doing nothing to educate and prepare them for these future changes. I would expect to see a lot of questioning and challenges to carbon taxes, whatever the merits of such a policy in reducing emissions.

ROD DOBSON
Oakville, Canada

Tree surgery

"Treedemic" (October 9th) reported on how the global trade in trees is spreading tree diseases in Britain. The attention in Britain has rightly focused on the threat that infected nursery stock poses to forest biosecurity. In fact, the treedemic is a global public-good dilemma. Without collective action, it will imperil society's best efforts to sequester carbon through forest conservation and initia-

tives to plant trillions of trees.

In America alone the annual biomass loss from treedemics easily matches what is lost to fire. Meanwhile, treedemics are poorly studied in the developing world, where more people depend directly on forest resources for their livelihoods and survival. Rules from the World Trade Organisation guard against economic protectionism but do not help shield forest ecosystems from treedemics. As new agreements emerge, scientists must ensure that they give teeth to climate action by empowering partners to protect forest biosecurity.

GEOFFREY WILLIAMS
International sentinel network co-ordinator
US Forest Service
Washington, DC

Your article leaves one feeling a special kind of grief for lost trees: "treef"

JULIAN HABER
Montreal

Split cover

I noticed that your auction of a non-fungible token for a recent cover raised \$420,000 for charity ("How our NFT auction went", October 30th). At considerably less expense, I have acquired my own NFT of *The Economist*'s rabbit-hole cover: a Non-Framed Tear-off. DON SANCTON
Beaconsfield, Canada

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

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Stuck in place

WASHINGTON, DC

The social-spending package that Democrats are agonising over is not grand enough to repair the American Dream

IN THE 1940S Joseph Biden senior fell from early wealth to near-destitution. He moved his young family in with his in-laws as he scrabbled for work in Scranton, Pennsylvania, before re-establishing middle-class ease as a used-car salesman in Delaware. For all the weight that his son, President Joe Biden, places on the well-being of the middle class he also cares deeply about the opportunity to join it, or rejoin it, and to rise through its ranks.

The president's personal story chimes with something his country sorely needs: increased social mobility. Addressing the essence of his "Build Back Better" series of bills, originally pitched as a \$4trn package over ten years but now being haggled over in Congress at half that level of spending, Mr Biden has said it lies in providing people "a fair chance to build a decent, middle-class life to succeed and thrive, instead of just hanging on by their fingernails."

If his administration has a signal achievement to date, it is the expanded child-tax credits in the American Rescue

Plan (ARP), the stimulus package which was passed in March. They appear to have reduced child poverty by more than 25% since they went into effect in July.

The president's camp sees helping the disadvantaged as a way to boost the economy as a whole. Janet Yellen, the treasury secretary, argued that the plans would "support families and enable greater inclusion in the workforce and social mobility—helping the disadvantaged and boosting economic growth". Cecilia Rouse, the chair of the president's Council of Economic Advisors, put it plainly in an interview with *The Economist*: "Most would agree that our current rates of social mobility are too low. There is not equality of opportunity. Kids are not starting at the same place."

Data show that to be inarguable. America, the avowed land of opportunity, now appears a harder place in which to make it than Canada or western Europe, and this is a fundamental flaw in its economy and society. Ameliorating this through public spending is possible, if exceedingly diffi-

cult. And, for Mr Biden, the opportunity to do so is coming to an end.

The idea that social and economic status should be conferred according to effort rather than hereditary privilege was long seen as quintessentially American. In the 1830s Alexis de Tocqueville commended the "continual movement which agitates a democratic community", arguing that it stabilised democracy.

Karl Marx remarked that America's potential for class consciousness was sadly limited because "though classes, indeed, already exist, they have not yet become fixed, but continually change and interchange their elements." The country's social and economic mobility was only really accessible to white men—African-Americans and women of all colours would have to endure much longer before the American Dream could be theirs, too. But the dream was still there.

A runaway American Dream

Today, however, it is receding. What economists call absolute mobility—the probability that a child will grow up to earn more than their parents—has dropped precipitously. In a paper published in 2016, entitled "The fading American Dream", a team of social scientists found that Americans born in the 1940s had a 90% chance of earning more than their parents had earned at the age of 30; for those born in the 1980s, the chance of that had dropped ►

► to 50% (see chart on the next page).

That remarkable drop is down to a few long-running trends, especially the emergence of education as the differentiator between economic precarity and success. National statistics show that workers with college degrees now have real wages 86% higher than those of workers without. What is more, those without a degree have seen little increase in real wages since 1979.

Many less-educated men have dropped out of the labour force. In 2016 "only one-in-two less-skilled men in rural America worked, which was 15 percentage points lower than in metro areas," writes James Ziliak, an economist at the University of Kentucky. Real wages that have not budged and lower work-force participation have gone hand in hand with ill health, which worsens outcomes further. Anne Case and Angus Deaton of Princeton University recently published research showing that the life expectancy of Americans without a bachelor's degree is falling.

On top of this precipitous decline in absolute mobility there have also been losses in relative mobility, a measure comparing children's position in the income distribution with that of their parents. Consider the chance for a child born to parents in the bottom fifth of the income distribution to make it to the top fifth. In a society where origins did not matter one would expect the likelihood of such a rags to riches ascent to be close to random chance, or 20%. In America the chance is just 7.5%.

Comparisons with other countries make this look particularly pernicious. The land of opportunity is badly outpaced by European welfare states such as Britain, France and Sweden (where the chance is above 11%) and also by Canada.

Intergenerational disadvantage is especially stark for black Americans—they have only half as good a chance of escaping from the bottom fifth as poor whites do. One in five black Americans is from a family which has been mired in the bottom fifth of income distribution for three generations; for whites it is just one in a hundred.

Those born rich in America, by contrast, are much likelier to stay rich than their counterparts in other advanced countries. Their children see higher incomes, too. Hereditary persistence in incomes is a measure of how much you can predict about two people's incomes based on a comparison of what their fathers earned. Bhash Mazumder, an economist at the Federal Reserve Bank of Chicago, calculates that if an American's father made twice as much as his neighbour's father, then he would be expected to make 60% more than his neighbour. That is much higher than if they were French (41%), German (32%) or Danish (15%), though less than if they were Brazilians (70%).

We gotta get out while we're young

Because children must grow up and enter the labour market before their relative performance can be assessed, findings like these are inevitably backwards looking; the most recent data provided by studies of intergenerational mobility come from adults born in the 1980s and entering the labour market in the 2000s. Few experts, though, imagine that the trend to lower social mobility will turn out to have reversed for later cohorts. At best it may have plateaued; it could well have worsened.

The returns to higher education—and, conversely, the penalties for low education—show little sign of declining. And

highly educated people are likely to be married to each other, to raise children in stable marriages, to live near excellent schools and to invest a lot in supplementing their children's education. Miles Corak, an expert on social mobility, argues that rising inequality along these dimensions "will most likely lower the degree of intergenerational earnings mobility for the next generation of Americans coming of age in a more polarised labour market".

One way of trying to see whether things are merely bad or getting worse is to look for a leading indicator of social mobility. Some economists think that this can be provided by inequality levels, though the matter is far from settled. A chart known as the Great Gatsby curve shows an empirical link, with countries where income inequality is high going on to have low rates of social mobility. The same pattern has been observed within America, too. States with high levels of inequality also have worse mobility outcomes.

The most innovative recent research on this comes from Raj Chetty, Nathaniel Hendren, Patrick Kline and Emmanuel Saez. They used data from millions of tax returns to produce a high-resolution image of mobility outcomes (see map). This uncovered wide variation within cities; the amount of social mobility can depend on the neighbourhood, or even the block, where people live. But it remained inversely related to inequality. Other factors—such as more stable family structure, better schools, lower segregation—were correlated with higher upward mobility.

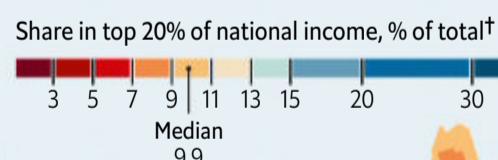
Inequality is, unsurprisingly, particularly persistent among black Americans. In September the Census Bureau reported that the typical income for white households in 2020 was 61% higher than for black households—a gap which has barely changed since 1967, when the data series began. The black-white wealth gap is unchanged as well, at a ratio of one to ten.

If the relationship between inequality and social mobility is causal, rather than just correlational, it augurs ill for today's young Americans. Since 1989 the Federal Reserve has put out quarterly data on the distribution of national wealth. Its most recent release, for the second quarter of 2021, showed for the first time that the top 1% of earners held more wealth than the middle 60%. Data from the Congressional Budget Office show that the share of national income taken home by the middle 60% of earners in America has fallen, and that taken by the top 20% of earners has risen. In 1979 the middle 60% took home 50.8%, after taxes and transfers. In 2018 that share had fallen to 45.1%—and the top 20% had gone up to 49% of the take.

No country can realistically aspire to the absolute equality of opportunity that would lift social mobility to its theoretical

Go mid-west, young man

Adult outcomes for children born to low-income parents*
By commuting zone



Source: opportunityatlas.org

*Bottom quartile

†Based on household income at age 35, for all children born, 2014-15

► maximum. But America could at least aspire to a less imperfect distribution of opportunity. Several tranches of policy that are especially influential on rates of social mobility are in areas in which America happens to lag behind its rich peers.

The most obvious missed opportunity is the lack of investment in early-childhood education programmes, and as well a welfare state that does little to reduce income poverty among children. Those already about to enter the labour force would benefit from better tailored education and training. A system of progressive taxation can pay for it all. It can also lower potentially unhelpful wealth inequality, particularly through levies on inheritances.

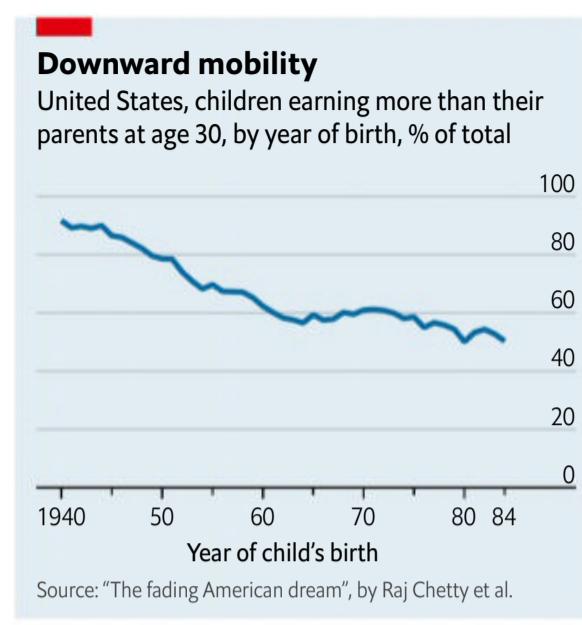
Even a president with huge sway in Congress would have to take his time pursuing such reforms as far as they might go: Denmark was not built in a day. Mr Biden is no such president. Six months ago, when the ARP provided for \$1.9trn in new spending, he seemed to labour under the illusion that a Democrat-controlled Congress would give him all he wished. The subsequent strength of internal dissent has shattered that illusion. That does not mean a social-mobility agenda is off the table. It does mean making a series of choices.

Together we could break this trap

Start with the youngsters. "We have pretty unambiguous evidence that more financial resources [for families with small children] have lasting impacts on health and well-being and intergenerational mobility," says Maya Rossin-Slater, a Stanford economist. But before covid-19 America had one of the highest rates of child poverty in the OECD—almost triple Poland's.

The reason for this is not a mystery. The typical OECD country spends 2.1% of GDP on child and family benefits; America spends only 0.6%. As originally pitched, Mr Biden's "Build Back Better" agenda featured a suite of policies intended to make America much less of an outlier, including a generous child-tax credit that mimicked the child allowances many Western countries use to reduce poverty, universal pre-kindergarten and child-care subsidies.

This pillar of spending is not looking as grand as advertised in the framework put out by the White House on October 28th. The expanded child-tax credits which have already reduced child poverty were part of a stimulus package passed in March; as things stand they will be extended for only one more year. Universal pre-kindergarten would be funded for six years, according to the latest negotiations, as would a child-care subsidy programme. Universalist programmes, including the child-tax credit received by most families, were appealing when the Biden administration was working with an effective blank cheque. Choosing a universal but short-lived programme



over a targeted and permanent one is harder to justify. As it is, more will probably be spent subsidising care homes for the elderly than on children.

Measures which might have improved social mobility for those already in the workplace are being pared back to something much less consequential. The president had originally envisaged two years of tuition-free community college to every American; spending \$80bn on worker re-training; and the creation of a scheme for paid family and medical leave (which America is almost alone in the developed world in lacking). All three proposals have been jettisoned because of the objections of some Democratic senators. There is now roughly as much spending proposed for higher-education and workplace-training (\$40bn) as there is on expanding Medicare so as to better cope with deafness (\$35bn).

The supports that remain in place are helpful, but comparatively modest and time-limited. The expanded earned-income tax credit, which tops up the wages of working-class Americans, would persist for just another year. Subsidies that allow workers to buy health insurance through the exchanges set up by Obamacare would persist for another four years.



This is not the stuff of the GI bill, the vaunted legislation which offered generous education benefits to soldiers returning from the second world war (though in ways that worked to the disadvantage of black veterans) and helped create the high social mobility of Joe Biden's youth. Nor is it the stuff of the New Deal, an example the administration reached for when it suggested that massive public-works projects on climate-change mitigation and infrastructure building could provide a new kind of stable job to the working classes. Mr Biden promised that 90% of these jobs would not require a four-year degree. As the spending available for these proposals has shrunk, so too has their chance of instigating a Rooseveltian mobilisation.

Convoluted as they are, the Democratic spending plans look crystal clear compared with their plans to raise revenue. European-style welfare states require European levels of taxation. But Mr Biden has promised that no family with an income of less than \$400,000 will pay more taxes. And the 50-50 split in the Senate means that Kyrsten Sinema, a Democratic senator from Arizona, has been able to veto conventional alternative ways of raising revenue, like increasing rates of tax on capital gains and corporate profits.

No place left to hide

Gone too is a sensible proposal to eliminate a loophole allowing inherited assets to escape capital-gains tax (which might have raised \$204bn). And some Democrats are also threatening to kill the whole proposal unless a tax break allowing the deduction of state and local taxes is reinstated. That \$90bn annual break overwhelmingly benefits the rich; (54% of benefits go to the top 1% of earners).

As a result the president's stalwarts have grasped at more exotic revenue-raising schemes of a sort which should not be designed on the fly, as they have been, and which risk distorting incentives for investment. Among these are a new minimum of 15% of tax on accounting profits for corporations, a penalty for stock buy-backs, and newly created levies of 5-8% on households earning more than \$10m.

Bringing together all the president's ambitions in a single package would have been hard enough even if the original \$4trn had been forthcoming. At half that, it is impossible. And besides, very few Americans understand what the unwieldy whole is really meant to achieve. The White House might profitably pare its ambitions down to the investments most suited to equalising opportunity for America's children. If it did so, it could at the same time clarify its message. The president could claim that the thing he had at least started to build back better was the American Dream itself. ■



American competitiveness

The maths wars

WASHINGTON, DC

How teaching times tables became another victim of America's political divide

AMERICA HAS a maths problem. Its pupils have ranked poorly in international maths exams for decades. In 2018, American 15-year-olds ranked 25th in the OECD, a club of mostly rich countries. American adults ranked fourth-from-last in numeracy when compared with other rich countries. As many as 30% of American adults are comfortable only with simple maths: basic arithmetic, counting, sorting and similar tasks. American employers are desperate for science, technology, engineering and mathematics skills: nuclear engineers, software developers and machinists are in short supply. And while pupils' maths scores are bad enough now, they could be getting worse. On the National Assessment of Educational Progress (NAEP), a national exam, 13-year-old pupils' scores dropped five points in 2020 compared with their peers' in 2012. The status quo does not add up. But teachers and academics cannot agree on where to go next.

The American maths problem is over a century old, says Alan Schoenfeld of the University of California, Berkeley. In 1890 high school was an elite endeavour: less

than 7% of 14-year-olds were enrolled and they were educated in rigorous maths. By the beginning of the second world war, by which time army recruits had to be trained in the maths needed for basic bookkeeping and gunnery, nearly three-quarters of children aged 14-17 attended high school. The cold war sparked a second strategic maths panic in the 1950s. A new maths curriculum, focused on conceptual understanding rather than rote memorising, was developed after the launch of the Sputnik satellite by the Soviet Union. Then that new curriculum was rejected in a move back to basics in the 1970s.

Maths teaching became a worry again

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when America started to fear being overtaken by Japan. In 1981 the secretary of education appointed a commission to evaluate the curriculum. It produced a report called "A Nation at Risk". "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today," the report reported, "we might well have viewed it as an act of war."

Since the 1990s, though, maths has become more political. Conservatives typically campaign for classical maths: a focus on algorithms (a set of rules to be followed), memorising (of times tables and algorithmic processes) and teacher-led instruction. Pupils in these classrooms focus on the basics, exploring concepts after obtaining traditional skills, explains Bill Evans of the Independent Institute, a think-tank in Oakland. These methods are familiar to many. For two-digit addition, pupils would be taught a paper-and-pencil method. Add $27 + 45$ by stacking 27 over 45. Add up the right column ($7 + 5 = 12$). Write down the 2, and carry the 1 to the left column. Add up the left column ($1 + 2 + 4 = 7$). Write down the 7. The answer is 72.

Progressives typically favour a conceptual approach to maths based on problem-solving and gaining number-sense, with less emphasis on algorithms and memorising. In contrast to the conservative strategy, pupils would learn several ways to solve a problem, by using objects and by other means, before learning algorithms. To solve $27 + 45$, pupils could add up the digits in the ones place ($7+5=12$), and then

► the tens place ($20+40=60$), and then add them together to get 72. Or they could realise that 27 is 3 digits away from 30. They would add 3 to get to 30. Then add 45 and subtract 3 to get 72. Conceptual maths strategies encourage pupils to find many potential solutions for the same problem to gain number-sense, rather than relying on an algorithm.

Although most teachers agree that maths education in America is sub-par, they have not been able to agree on how to improve it. Copying methods used in highly ranked mathematical nations such as Singapore would be one way. But that would require agreement on what is actually being taught in other countries. According to Mr Evers, successful Asian curriculums reflect the classical position. "What country do you think has totally adopted progressive education and has been a big success? China is very teacher-led. Singapore math is the best in the world. It's not progressive," explains Mr Evers. But Mr Schoenfeld reckons countries such as Japan and Singapore implement conceptual curriculums.

Part of the confusion stems from the messy implementation of the most recent maths curriculum, the Common Core. Implemented in 2010 under President Barack Obama's administration, 41 states and the District of Columbia adopted the principles. Texas, Florida and several others opted out. Despite initially being a bipartisan effort (Jeb Bush and other conservatives supported the Obama administration's effort), it was eventually criticised by both sides. Some view it as an example of progressive education, while others think it was not progressive enough. Now that test results are rolling in, many conservatives claim that the falling scores show the failure of the Common Core and progressive teachers. But supporters of the current curriculum are not prepared to give up. Whereas NAEP scores declined among 13-year-olds, they stayed steady among nine-year-olds, who would have studied Common Core for their whole school lives.

Further muddling the mess, far-left activists have paired conceptual maths methods with more radical concepts. Many opponents of conceptual maths believe that Common Core, and conceptual maths in general, bans teaching of rote-learning, as in multiplication tables. A prominent maths-education scholar at Stanford University, Jo Boaler, claims that memorising times tables is unnecessary. Conservatives have seized on this idea as an example of liberal activism gone wild. But Mr Schoenfeld claims this does not align with progressive maths values.

Some activists have also paired conceptual maths with "social-justice maths", the concept that maths should be used to help pupils solve real-world issues and appraise

the world around them. Dubbed "woke math[s]" and tagged with headlines such as "In California $2+2=4$ May Be Thought Racist" (as a letter to the *Wall Street Journal* harrumphed), it has done conceptual maths few favours by association.

The maths debate in America is polarised and confused. While other countries implement maths curriculums with a balance of rote and conceptual learning, America continues to swing from one pole to another, decade after decade. Just like the country's politics, in other words. ■

Off-year elections

Physics for politics

WASHINGTON, DC

Democrats suffer a rout at the polls

ONE YEAR ago, America's Democrats were celebrating: Joe Biden had just made Donald Trump a one-term president. This year's (much smaller) election day left them in a considerably grimmer mood. In Virginia, Glenn Youngkin became the first Republican to win a gubernatorial race since 2009. Democrats are on course to lose the lower chamber of the statehouse, as well as races for lieutenant-governor and attorney-general. In New Jersey, Phil Murphy, the incumbent governor, came within just a percentage point of losing despite winning by 14 points in 2017. The party's progressive wing fared even worse: voters in Minneapolis rejected a measure to replace the city's police department with



Youngkin's interest carried

a "Department of Public Safety," and a socialist mayoral candidate in Buffalo, New York lost to her defeated primary opponent who was running as a write-in candidate. Partly these results simply hew to form: the party in power tends to fare poorly in off-year elections. But the size and shape of the defeat augurs ill for Democrats' chances of holding their congressional majorities in next year's midterm races.

A few factors may have exacerbated the Democrats' poor performance. Mr Biden had hoped to have Democratic candidates boasting about all the party has accomplished so far. But his congressional agenda has stalled amid factional party infighting, which may have depressed the base. Terry McAuliffe, whom Mr Youngkin defeated, ran a flat-footed campaign focused almost entirely on Mr Trump, who was not on the ballot. Moderate Republican voters who supported Mr Biden last year to get Mr Trump out of office may have found their way back home.

Mr Youngkin, by contrast, appeared moderate enough for moderates and Trumpy enough for farther-right voters, running up Belarusian margins in white rural counties. His campaign focused on parents' rights and education; he vowed to ban critical-race theory from being taught in schools (which it is not). Mr McAuliffe called that tactic a racist dog-whistle, but failed to muster a more persuasive response or present a broader positive vision for the state. New Jersey's race followed a similar pattern. Jack Ciattarelli, the Republican candidate for governor, ran a moderate campaign focused on cutting taxes, and he avoided mentioning Mr Trump. That may have helped him win independents, while Mr Murphy's low-key style (perhaps along with some complacency) may have kept Democratic turnout low.

The bigger force at play, however, is the typical backlash against the party that controls the White House. The off-year Virginia governor's race has swung against a newly elected president in every contest since 1981. The average swing in vote margins against the incumbent party is about ten percentage points, though the penalty can be as high as 17 in rare cases. In comparison, the two Democrats' margins in New Jersey and Virginia were 14 percentage points lower on average than Mr Biden's margin against Mr Trump there in 2020. In other words, the merits or detriments of individual candidates notwithstanding, Democrats faced predictable patterns of revolt against the ruling party.

Democracy in America is "thermostatic", observed Christopher Wlezien, a political scientist, in a 1995 journal article establishing a theory of politics bearing the same name. He used data on preferences and levels of government spending to show they move in a slightly inverse rela-



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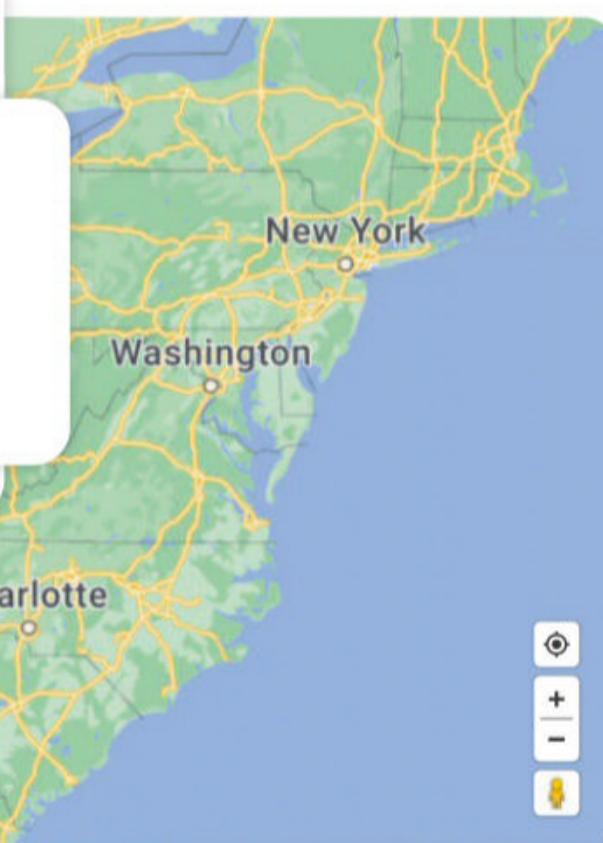
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relationship. As the government spends more money, people want it to spend less—and vice versa. And elections are also somewhat thermostatic. Once a party takes power, its members tend to become the target of peoples' dissatisfactions about whatever grievances they have against their government, and they get voted out. The nationwide swings against Democrats on Tuesday are further evidence of this trend. Covid-19 and supply-chain woes, for instance, may not be Mr Biden's fault, but the president takes the blame.

Yet this implies Democrats are powerless to combat electoral losses, which they are not. Though results from elsewhere in the country seem to offer hints on the surface, they do not offer a clear answer to the party's dilemmas. Much has been made of the results of a referendum to replace the police department in Minneapolis, Minnesota with a "Department of Public Safety" that would have been focused less on punishment and traditional law-enforcement tactics and more on addressing social inequities and causes of crime. The failure of such a "woke" pipe-dream in a liberal city could be seen as a rebuke of the Democratic Party's most left-leaning members and their toxicity to the brand, were it not for the results of a vote in Austin, Texas, where voters rejected a proposition that would have increased the funding and staffing for their own cops. More than anything the mood among America's voters seemed to be a reflection of the general unpopularity of the Democratic Party and its leader.

The thermostat will probably continue to get colder. Not only have voters tended to side against presidents in off-year governors' races, they also tend to punish them in mid-term elections to Congress. Since 1934, the party controlling the White House has lost an average of 28 seats in the House and four seats in the Senate. A thermostatic backlash threatens the party's control of Congress for at least five years, and perhaps the next four after that.

Were Mr Biden or Kamala Harris, his vice-president, to win the presidential election in 2024 but lose in 2028 (presidents usually win two terms), thermostatic dynamics would not favour the Democrats until the first mid-term of a Republican presidency in 2030. But even in the scenario Mr Biden or some other Democrat were to lose in 2024 and Democrats regain control of Congress in 2026, that would still leave them without legislative power for two cycles after next year's mid-terms. If the results on November 3rd stem largely from the typical patterns of American politics, they portend a dark decade ahead for the Democrats, notwithstanding Mr Biden's plummeting approval ratings. And this week's shellacking suggests that the party has no sound strategy for how to combat such trends. ■



The Supreme Court

Lawyers, guns and babies

NEW YORK

The justices hear tricky cases involving rights on opposite trajectories

WHILE REPUBLICANS were triumphing in Virginia, on the other side of the Potomac Republican-appointed judges considered cases involving two priorities of the conservative legal movement: guns and abortion. On November 1st, the justices heard nearly three hours of argument involving Texas's notoriously harsh law banning abortion at six weeks' gestation with no exception for rape or incest. Two days later another searing controversy came to their courtroom: the scope of the constitutional right to keep and bear arms. With its transformation by Donald Trump's three appointees, the court is primed to bolster gun rights and undermine the right to abortion.

Two of Mr Trump's appointees, Brett Kavanaugh and Amy Coney Barrett, expressed dismay with Senate Bill 8, Texas's law that incentivises ordinary citizens to bring lawsuits by promising \$10,000 bounties payable by anyone who facilitates an abortion after six weeks. Their alarm, along with that of Chief Justice John Roberts and even arch-conservative Justice Clarence Thomas, stemmed from the Texas legislature's ploy insulating the law from review in federal courts by taking enforcement out of state officials' hands. Lawyers for Texas insisted that neither abortion clinics nor the federal government have anyone to sue, despite the dramatic chill-

ing effect the bounty system has had on abortion providers—effectively erasing *Roe v Wade*—in the Lone Star state.

Early in the first hearing, Justice Barrett noted that defendants to potential lawsuits under SB 8 (anyone who "aids or abets" an illicit abortion) lack the opportunity to offer the "full constitutional defence" they are entitled to under Supreme Court rulings favourable to reproductive rights from 1992, 2016 and 2020. Even if such a case were to move all the way through to the federal Supreme Court, she added, the law is designed to circumvent vindication of a long-established right.

Here Justice Kavanaugh joined the critique. Citing a brief from the Firearms Policy Coalition warning that Texas's approach could threaten other constitutional rights, he asked about states seeking to subvert speech, freedom of religion or the Second Amendment. What about a state that makes "everyone who sells an AR-15" subject to a \$1m fine through private enforcement? Are these gun shop owners out of luck, too? When Texas's lawyer said "yes", the fate of Texas's law seemed sealed. Justice Elena Kagan then piled on with a cutting response to his repeated comment that federal lawmakers could make it easier to bring cases in federal courts. "Isn't the point of a right", she said, "that you don't have to ask Congress?"

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▶ Gun rights were top-of-mind for Justice Kavanaugh during the abortion hearings, no doubt, because November 3rd brought a major Second Amendment case to the Supreme Court. In 2008 the court struck down a handgun regulation in the District of Columbia, recognising for the first time an individual's right to keep a gun at home for self-defence. But despite repeated entreaties in the ensuing decade from gun-rights organisations, the justices refused to weigh in on the constitutionality of other regulations. That drought ended in *New York State Rifle & Pistol Association v Bruen*, a challenge to a 108-year-old gun-licensing regime in New York.

Since 1913 New York has permitted only those who show "proper cause" to carry concealed weapons. Although "restricted" permits are available to hunt or to tote a handgun to target practice (and one of the plaintiffs in *Bruen* had permission to carry his weapon between his home and his workplace), mere fear of crime does not suffice for a blanket licence. The rifle association argues that the state may not "reserve for a happy few a right that the constitution protects for all 'the people'". New York defends its law as consistent with a 700-year-long line of weapons restrictions dating back to medieval England.

The political debate over how to handle America's epidemic of mass shootings found little air in court. Instead, finicky history guided the debate. One dispute involved the true meaning of the 1328 Statute of Northampton. New York pointed to the law's prohibition on going "armed by night nor by day" in places like "fairs" and "markets" as a precedent, while the rifle organisation insisted that laws of that period only prohibited carrying arms "to the terror of the people". Peaceful gun toters were welcome in the 14th century, the plaintiffs say, and should be today.

Several justices fretted over the prospect of more guns on the streets of New York City should the law be struck down. The challenger had a tough time explaining which "sensitive places"—from Yankee stadium and the New York University campus to the subway—could be declared gun-free. But he concluded on a note that seems very likely to attract six votes. Having to establish that you are an "atypical" member of the community in order to get a general-carry licence "describes a privilege", the lawyer said, not "a constitutional right."

Neither dispute will be the last word on these perennially hot topics. The days of Texas's SB 8 may be numbered, but on December 1st a showdown focused on the nature of the abortion right comes up for argument. And if the justices treat *Bruen* as a stepping-stone rather than a sweeping opportunity to strike down gun regulations, they will have more cases to consider whenever they're ready. ■

Guns and religion

No sympathy for the devil

NEW YORK
Belief in supernatural evil is a strong predictor of pro-gun beliefs

AMERICA'S CLAIM to exceptionalism is undeniable when it comes to gun culture. Its residents own 46% of the world's 860m civilian-held guns, according to Small Arms Survey, a Geneva-based research outfit. There are 120.5 firearms per 100 American residents—more than twice the number of second-place Yemen, a country at war. In a Gallup poll 40% of gunslingers said they owned weapons for hunting. But what explains support for less mainstream pro-gun views such as arming teachers and carrying weapons in public? A recent study by Christopher Ellison, Benjamin Dowd-Arrow, Amy Burdette and three other sociologists delves into an important but overlooked motivating factor that highlights the role of religion.

A survey of 1,572 American adults found that, apart from religious denomination or religious conservatism, belief in the devil, demons and hell is a strong predictor of eight pro-gun beliefs, including arming teachers, carrying concealed firearms and bearing high-capacity defensive weapons. A Catholic who believes in supernatural evil is more likely to hold pro-gun views than a Protestant who does not believe that Satan is corrupting souls, and vice versa.

The analysis, which controls for political ideology and other demographic factors, found that each step up on a four-point scale measuring the strength of belief in supernatural evil correlated with 32% more support for arming teachers, and a 38% rise in backing for carrying concealed weapons. The effect of belief in supernatural evil on support for the right to carry concealed guns was roughly the same as having conservative politics or not possessing a college degree, but smaller than the effect of gender.

"The conviction that there is a cosmic battle between ultimate good and ultimate evil being waged on earth as well as in the spiritual realm may make the world seem uncertain, risky and threatening," the authors suggest, since "individuals may display their propensity for evil at any moment." Gun restrictions are seen as threatening God-given rights to protect society against agents of evil, a belief the National Rifle Association plays up through its use of religious and civic-duty language in its adverts. Another study has shown that alt-right groups that support militias and profess strident pro-gun views draw on the language of



Just call me Lucifer

biblical literalists, asserting that they are fighting a devilish government.

Uncertainty stemming from the covid-19 pandemic has added to the moral uncertainty associated with pro-gun beliefs. Background checks run by the FBI, the best national proxy for gun purchases, jumped 40% in 2020 compared with 2019. That is the biggest increase in the last 20 years, and purchases have continued to rise. A preliminary study of a poll of 2,700 American residents done by NORC, a research institute at the University of Chicago, found that Americans who bought a gun during the pandemic were (as has long been the case) mostly white, male, conservative and less educated. But the authors also found that those new gun owners had recently become more religious or become unemployed, and were more likely to be in their late teens, twenties, or thirties—rather than middle-aged.

The Supreme Court heard arguments on November 3rd regarding restrictions on New Yorkers' ability to carry concealed weapons. It is one of the most important gun-rights cases since Justice Antonin Scalia's landmark ruling in 2008 supporting the right to keep weapons at home for self-defence. Scalia, too, believed the Devil is a "real person".

.....

"Peace through superior firepower: Belief in supernatural evil and attitudes toward gun policy in the United States," by Christopher G. Ellison, Benjamin Dowd-Arrow, Amy M. Burdette, Pablo Gonzalez, Margaret S. Kelley and Paul Froese, *Social Science Research*.

Medicine and identity

Portrait of a detransitioner

WASHINGTON, DC

Carol was born a woman, thought she was a man, then realised she wasn't. Her story has lessons for the way doctors treat transgender people

CAROL HAD long suspected her everyday life in rural California would be easier if she were a man. Yet she was stunned by how true this turned out to be. As a "butch" woman (and "not a big smiler") she was routinely treated with slight contempt, she says. After a double mastectomy and a few months on testosterone—which gave her facial hair and a gravelly voice—"people, cashiers, everyone, suddenly became so goddam friendly".

Yet Carol soon felt wretched as a trans man. At first, the testosterone she started injecting at 34 lifted her mood and energy levels. But after two years she began to suffer awful side effects. Vaginal and uterine atrophy (which can cause tissue to crack and bleed) was "extremely painful". Her cholesterol levels rose and she had palpitations. She also became so anxious she started having panic attacks.

So she went on antidepressants, and they worked. "It was a light-bulb moment," she says. "I was like, I needed the antidepressants; I didn't need to transition." She realised her gender dysphoria, the painful feeling she was in the wrong body, did not, in fact, make her a man.

Nearly three years ago, after four years as a trans man, Carol became a "detransitioner": someone who has taken cross-sex hormones or had surgery, or both, before realising this was a mistake. Her experience illustrates the dangers of a "gender-affirmative" model of care that accepts patients' self-diagnosis that they are trans, now standard practice in America's transgender medicine field.

No one knows how many detransitioners there are, but anecdotal evidence, and swelling memberships of online groups, suggests the number is growing fast. A recent survey of 100 detransitioners (69 of whom were female) by Lisa Littman, a doctor and researcher, found a majority felt that they had not received an adequate evaluation before treatment. Nearly a quarter said homophobia or difficulty accepting that they were gay had led them to transition; 38% reckoned their gender dysphoria was caused by trauma, abuse or a mental-health condition.

Carol believes the roots of her gender dysphoria lay in her childhood. An upbringing that was both fanatically religious and abusive rammed home two harmful messages. One was the importance of "rigid gender roles...women were

there to serve; they were less than men". Her mother's endless fury that Carol would not bow to this notion of womanhood, which included wearing only dresses ("I didn't even 'walk like a girl', whatever that meant") meant she grew up believing her way of being female was somehow "all wrong". The other message was that homosexuality was "an abomination".

Carol's "oh God moment" came, as she amusingly describes, when she developed a "heavy crush" on her mother's female estate agent at 16. The realisation prompted a breakdown (though she didn't call it that at the time). First she "fasted and prayed to God to take this away". Then she began drinking heavily and having one-night stands with men "in the hope something would click". When she came out at the age of 20, many of her relatives excluded her from family gatherings.

It was in her early 20s, when many lesbians in her social circle ("almost always the butch ones") started identifying as trans men that she began to think, "This must be it! This is what is wrong with me!" But she was told she had to live as a man for six months before being approved for treatment and the thought of using the men's toilet was intolerable. By this point, she had met the woman who would become her wife and found some stability.

But she was still deeply unhappy. "I just felt...wrong," she says. "I was disgusted with myself, and if a nice answer comes

along and says, this is going to fix it, guess what you're going to do?" By her mid-30s, she no longer needed to see a therapist to be prescribed testosterone. (Planned Parenthood uses an "informed consent" model in 35 states, meaning trans patients do not need a therapist's note.) Yet Carol did see a therapist, because she wanted to "do it right". The therapist did not explore her childhood trauma, but encouraged her to try testosterone. Months later Carol had her breasts removed.

Detransitioning was the hardest thing she has done, she says. She was so terrified and ashamed that it took a year to come off testosterone. To her relief her cholesterol levels returned to normal in months. She still has some facial hair and a deep voice. Her mastectomy "is like any loss: it dissipates but it never completely goes away".

She now spends a lot of time campaigning for other detransitioners' stories to be heard. This is not easy work. Outspoken detransitioners are often maligned. One gender-medicine doctor has criticised the use of the term "detransitioner", saying, with extraordinary cruelty, "it doesn't really mean anything". Dr Littman's study found that only 24% of detransitioners told their doctors transitioning had not worked out. This may help explain why some dismiss the phenomenon.

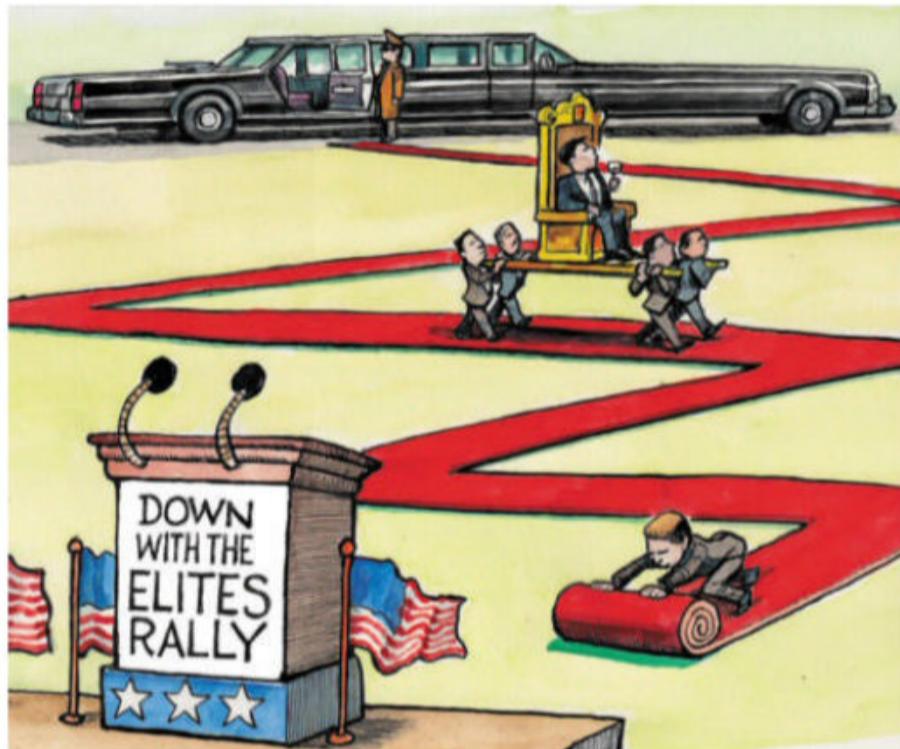
Carol worries about girls who are taking puberty blockers to avoid becoming women, something she says she would have leapt at given the chance. And she worries about butch lesbians who are being encouraged to consider that they are in fact straight men. She now considers this homophobic. "My wife told me recently that when I was transitioning she was on board for two months before realising, this is crazy. And she was right. She was being told, your wife is really a man so you are bisexual or straight. It was bullshit." ■



Carol, contented

Lexington | Glenn Youngkin and Ivy League populism

Virginia's governor-elect is the latest Republican culture warrior with an expensive education



VIRGINIA'S SCHOOLS don't teach critical race theory, but Glenn Youngkin's old school does. The hypothesis that America is structurally racist, which the victorious Republican candidate for governor falsely claimed was being fed to Virginia's children, emerged at Harvard in the 1980s and has been taught there ever since. Toni Morrison, a novelist of black America whose book "Beloved" Mr Youngkin's campaign attacked, also had ties to his alma mater. Yet it is a safe bet that the private-equity baron won't discourage his four children from following him there.

A visitor from Mars might find Mr Youngkin's populist scare-tactics at odds with his record of elite institutions (Rice, Harvard, McKinsey, the Carlyle Group) and immense wealth. The Martian should then be challenged to find an up-and-coming Republican with a much humbler résumé. Populist leaders, from Peron to Orban, are more often elite figures than working-class heroes; and so it is in the Republican Party. The anti-elitism fervour that has captured the right is largely a creation of rich Ivy Leaguers.

Donald Trump, a billionaire alumnus of the University of Pennsylvania, won in 2016 with help from Steve Bannon and Jared Kushner (both of Harvard). His media cheerleaders included Ann Coulter (Cornell), Kayleigh McEnany (Oxford and Harvard), Tucker Carlson (Trinity College), Steve Hilton (Oxford) and Laura Ingraham (Dartmouth College). His chief imitators include Ron DeSantis (Yale and Harvard), Ted Cruz (Princeton and Harvard), Josh Hawley (Stanford and Yale) and Tom Cotton, Mike Pompeo and Elise Stefanik (all Harvard). A working-class movement this is not.

To some extent it reflects Ivy Leaguers' dominance of politics and the media generally. Joe Biden and Kamala Harris are the first presidential duo not to have attended an elite institution for 36 years. And the closure of local newsrooms has seen the Ivies emerge as the main source of journalistic talent. A recent study of 150 interns at leading newspapers found that 65% studied at the country's most selective universities. Yet, in a way, that makes the hollowness of the MAGA crowd's populist credentials even more striking. American politics is not witnessing a revolt against the elite so much as a power struggle within it.

To distinguish themselves from their opponents the populists often turn on the institutions that launched them both. As a pre-

cocious teenage columnist, Mr Hawley slammed the Ivies for being "elitist" while he was still attending (an expensive private) high school. Such attacks recall a long conservative tradition.

William F. Buckley, father of the conservative movement, made his name by lambasting his former teachers in "God and Man at Yale". Combining erudition with a willingness to shock, he was kicking the post-New Deal liberal consensus of the early 1950s. The young fogey-ish columns Mr Cotton wrote for the *Harvard Crimson* in the 1990s, decrying feminism and the "cult of 'diversity'", share some of that spirit. "My first end was not to persuade but rather to offend your sensibilities," read his valedictory piece.

Some Ivy League populists also recall the slightly awkward insideness of Buckley, a nouveau-riche Catholic. Mr Trump still seems to consider himself an interloper from Queens. Mr Cotton is a son of Arkansas farmers; Mr Hilton a scholarship boy who attached himself to the British Tories' most entitled faction. When such figures rail against their former teachers and classmates, some wounded part of them really means it. "It's much easier to hate people you've been around than people you don't know," observes Yascha Mounk, a Harvard-educated scholar of populism.

Yet Buckley's irreverent conservatism was not rooted in resentment but ideas, and firmly within the democratic tradition. He mocked his teachers to assert the superiority of classical liberalism over their progressivism. He did not rubbish the very idea of expertise, as Trump populists do. Their anti-elitism is intellectually unmoored, unrestrained and, as in Mr Youngkin's populist turn, largely manufactured. It lumps together real gripes—including Buckley's still-valid critique of the academy—with an ever expanding list of imagined ones: against the FBI, the Senate parliamentarian, voting machines and other shadowy forces deemed to be denying conservatives power. It aims to stir resentment, not solve problems; to weaken institutions, not improve them.

At the heart of this development was a realisation in the 1990s that outrage sells. High-achieving conservatives had previously found refuge in think-tanks, Wall Street and the law. Henceforth they began gravitating to the conservative news-entertainment industry, where owning the libs became a blood sport. The fact that Ms Coulter, Mr Bannon, Ms Ingraham and Ms McEnany left law and finance for the media illustrates the trend. Mr Trump's success lay in turning that entertainment business—hitherto a slightly discreditable sideshow—into the Republican main act. Inevitably, the handful of conservatives who have resisted him, such as Bill Kristol and David Frum in the media and Liz Cheney and Ben Sasse on the Hill, also tend to be products of elite institutions. But his Ivy League enablers are far more numerous and influential. He could not have remade the right as thoroughly as he has done without them.

Under new management

Conservatives long argued that campus liberalism produces ambitious narcissists, not public servants. It is ironic that the best evidence for that (see the competitively unprincipled Mr Hawley and Ms Stefanik) is on the right. There are still many civic-minded swots on the centre-left: such as Cory Booker and Pete Buttigieg, of Yale, Harvard and Oxford. The conservative critique rests on a misplaced assumption that the Ivies still shape the political culture in both parties. In fact Trump populism is less an elite project than a business venture with elite management. Mr Youngkin, an experienced manager with flexible views and a modest flair for culture warring, looks like a solid recruit. ■



Brazil

From hero to villain

SÃO PAULO

The government's green rhetoric in Glasgow clashes with inaction at home

BRASIL USED to be one of the main protagonists in global climate talks, its politicians and wonks proposing all sorts of new-fangled ways to boost greenery. No longer. This week Jair Bolsonaro, the beleaguered president, decided to eat gnocchi with distant relatives in northern Italy rather than attend COP26, the UN climate conference in Glasgow. “Everyone would throw stones at him,” explained Hamilton Mourão, the vice-president.

The country's record on climate change is indeed dire. Since Mr Bolsonaro took office in 2019, the rate of deforestation is up by 45%. Brazil's total greenhouse-gas emissions rose 9.5% last year, according to a study sponsored by the Climate Observatory, a network of 70 NGOs and think-tanks, even as emissions fell in the rest of the world. But whereas Mr Bolsonaro once seemed to relish his reputation as a pariah—backing out of hosting COP25 in 2019 and picking a fight with Emmanuel Macron, the French president—he now seems keen to try to improve his reputation. “I'm

not as bad as people say,” he told Angela Merkel, the chancellor of Germany, when she approached him at a G20 dinner in Rome on October 30th, at which he was sitting alone. Brazil's COP26 delegation hopes to convey the same message.

Last month, in an attempt to look greener, the government announced two climate-focused initiatives: a revamp of an existing plan to encourage low-carbon agriculture and a new green growth programme, which is meant to generate jobs in sustainable fields. In addition, on November 1st Joaquim Leite, the environment minister, said that Brazil would increase its target to cut emissions, to 50% by 2030 from their level in 2005, and bring forward the year by which it plans to reach net-zero emissions from 2060 to 2050, as many

countries have done. According to Leonardo Cleaver, the top negotiator, Brazil will be “more flexible” on Article 6, a contentious clause of the 2015 Paris agreement that lays out rules for global carbon trading.

Environmentalists are not convinced. Brazil wants all of the benefits and none of the costs from COP26, says Caroline Prolo, a lawyer. Most of the government's plans for meeting its targets are “vague promises that contain the word ‘green’”, says Stela Herschmann of the Climate Observatory. Last year Brazil's formal UN pledge to cut emissions (known as a nationally determined contribution, or NDC) put the country among a tiny minority that not only failed to increase their ambition since the Paris agreement in 2015, but did the opposite. The CO₂ baseline was revised upwards, but the pledge remained the same.

Part of the problem is that the government has a tendency to see itself as a victim. “Brazil is owed more than it is getting,” says Mr Cleaver. This stance was established well before Mr Bolsonaro took office. Like other developing countries it chides the rich world for falling short of its pledge, in 2009, of mobilising \$100bn per year by 2020 to help poor countries cut emissions and adapt to climate change.

In its NDC last year, Brazil's government also made previously promised emissions cuts conditional on receiving such payments (other countries have also done this). It wrote that it would need “at least”

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► \$10bn per year" to reduce deforestation and that its "long-term strategy...will take into account financial transfers to be received". The Climate Observatory called this "blackmail".

Now, however, negotiators claim that Brazil's commitments are "unconditional". This softer stance may have to do with the absence of the strongest proponent of the "pay-up" strategy, the former environment minister Ricardo Salles, who resigned in June. Mr Cleaver has also signalled that Brazil might be willing to compromise on two thorny debates surrounding Article 6.

The first has to do with carbon credits generated according to the rules of the Kyoto summit in 1997. Brazil has billions of dollars-worth of these credits and believes they should be incorporated into a new international carbon market which Article 6 provides for. Rich countries are wary, as there is debate about whether the verification the Kyoto credits underwent reaches the standards of the Paris accord. Some did, but others are problematic (including forest credits; see International section).

And under the Kyoto protocol only rich countries were required to cut their emissions, whereas poorer countries did not have to keep track. If credits Brazil sold abroad in the past are accepted in the new system, it will have to remove these cuts from its mitigation results in order to avoid double-counting. It has resisted this.

The second debate is about what happens when new carbon credits are sold by businesses in one country to businesses or governments in another. Brazil (or any country from which credits are sold) needs to make "corresponding adjustments" to its own mitigation tally in order to exclude these offsets. For the first time, Brazil has said that it would accept such adjustments—perhaps, some experts are speculating, in exchange for the acceptance of some Kyoto credits, maybe with certain criteria or during a transition period.

The Paris agreement contains the elegant if Utopian principle of "common but differentiated responsibilities", the idea

being that countries that historically emitted the most must do more to cut emissions. But Brazil's chance to benefit from this principle is hindered by its failure to accept much responsibility at all. The government claims that because renewable sources (including hydroelectric dams) account for 45% of total energy use, four times the OECD average, Brazil "already qualifies as a low-carbon economy". This is misleading. In contrast to other countries, industry and energy are responsible for only around half of Brazil's emissions; the other half comes from deforestation.

If deforestation and farming are taken into account, its emissions look worse (see chart). It is the sixth-biggest emitter globally. In some ways, it should be easier for Brazil to cut emissions than it is for rich countries that have already started to use clean, cost-saving technology, says Carolina Genin of the World Resources Institute, a think-tank. For example, while wind power is now capable of providing nearly 20% of Brazil's electricity, the country has yet to exploit its huge solar potential. But whereas most countries primarily need to change how they generate and use energy, Brazil needs to change how it uses land.

Mr Leite pledged that Brazil will end illegal deforestation by 2028. It is a worthy goal that seems, at present, utterly unsustainable. The new programmes intended to help are rehashes of things that already existed; the Inter-ministerial Committee on Climate Change now has "and Green Growth" at the end. More promisingly, Brazil plans to hire 700 environmental field agents to replace the scores who quit during Mr Salles's tenure. But like the 3,000 soldiers sent to put out fires in 2020 and 2021, they will struggle to stop slash-and-burn farming when the government all but grants slashers and burners impunity.

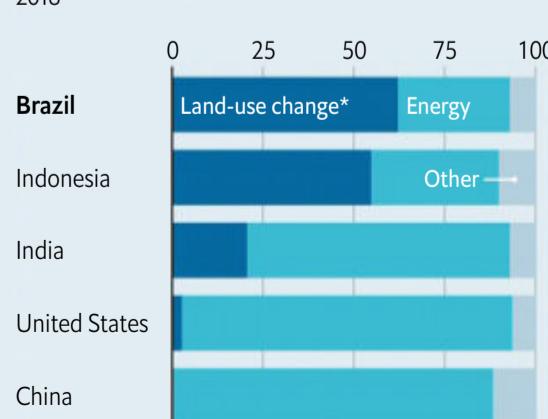
Meanwhile, Brazil's argument about needing cash from the rich world is disingenuous, says Izabella Teixeira, a former environment minister. Germany and Norway paid \$1.3bn into Brazil's Amazon Fund and were poised to donate more before concerns about Mr Bolsonaro's environmental apathy led them to freeze it.

In the absence of federal leadership, some states are creating their own climate policies, including subsidised loans for low-carbon farmers and concessions of public land for sustainable use. (Eleven governors are going to go to COP26.) Brazil's Congress is debating a bill that would create a regulated carbon market, which is supported by much of the private sector.

But while Mr Bolsonaro remains in power, it seems unlikely that much will change. Neither he nor members of his inner circle seem to take the climate seriously. Progress may have to wait until after the election in 2022, which Mr Bolsonaro is likely to lose. ■

Wood from the trees

Greenhouse-gas emissions by sector as % of total
2018



Source: CAIT, World Resources Institute *Forestry and agriculture



Latin American TV

1001 episodes

SANTIAGO

Why Turkish telenovelas are thriving

SHEREZADE, A YOUNG widow, needs cash to pay for her son's leukaemia treatment. She accepts \$150,000 in return for sleeping with her boss Onur, a balding misogynist who advises his friends not to trust women because "perfidy fills them like the weave of their beautiful garments". Unexpectedly, the pair fall in love. But—plot spoiler—it takes two failed engagements, one divorce, the appearance of illegitimate children, a miscarriage caused by poisonous tea, a few assassinations and one suicide for the couple finally to commit to one another in episode 179 (the son survives, too).

When the Turkish soap opera "1001 Nights", loosely based on the classic collection of Middle Eastern folk tales, first aired on Chilean TV in 2014, it broke viewing records. Mega, the ailing broadcaster that bought the rights, was the only channel to make a profit that year. It has bought the rights to 26 other Turkish shows since then, and remains one of the country's most popular channels.

The largest market for Turkish shows used to be the Middle East. But recently Egypt, the United Arab Emirates and Saudi Arabia have boycotted or banned Turkish shows because of the country's embrace of the Muslim Brotherhood and its support for Qatar (the relative freedom of Turkish female characters does not help, either). Latin America has filled the gap. Turkish production companies say that a third of revenue from foreign sales comes from ▶



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Bello Spooked by Venezuela

A more extreme kind of right-wing politics is emerging in Latin America

ONE EVENING last month Francisco Sagasti, who was Peru's interim president for eight months until July, launched his new book in Barranco, a bohemian district of Lima. Mr Sagasti, an academic, is a centrist who steered the country through a divisive election. The event was disrupted by demonstrators who surrounded the bookshop chanting "corrupt" and "murderer" at the author while punching a journalist. They belonged to "The Resistance", a group formed in 2018 under the banner of "God, Fatherland and Family" to oppose communism and liberalism. They are one of many facets of a new, more aggressive right wing in Latin America.

Its breakthrough came with the election in 2018 of Jair Bolsonaro as president of Brazil. A former army officer scornful of democracy and nostalgic for his country's military dictatorship of 1964-85, Mr Bolsonaro marked a break with previous political norms in the region. Since democratisation in the 1980s, with one or two exceptions, conservative political forces were generally moderate, often influenced by Christian Democracy.

Mr Bolsonaro has spawned would-be imitators, of different kinds. They include Guido Manini, a retired army commander who promised to crack down on crime and who as a political outsider won 11% of the vote in Uruguay's presidential election in 2019. In Peru Rafael López Aliaga, a businessman who is a member of Opus Dei, a Catholic movement, won 12% in an election in April on a platform of social conservatism and extreme economic liberalism. In Argentina Javier Milei, a libertarian economist, is poised to win a seat in Congress in an election this month, running against the main centre-right coalition as well as the ruling Peronists.

Closest to power is José Antonio Kast, a former legislator who in his first presidential campaign in 2017 said that, if he were alive, General Pinochet, Chile's dictator in 1973-90, would vote for him. For the presidential election later this month he has promised to "restore Chile" with *mano dura* ("a firm hand") against crime and violent disorder, a border ditch to stop immigrants, withdrawing from international human-rights bodies and tax cuts to promote economic growth. He also claims to defend Chile's European heritage and national unity against the left's espousal of indigenous groups and multiculturalism. Mr Kast looks set to contest a run-off election for the presidency against Gabriel Boric of the hard left.

Mr Kast is not Mr Bolsonaro. Rather, he represents a radical populist right, more in the mould of Álvaro Uribe, Colombia's president from 2002 to 2010. He insists he is not "extremist" and now doesn't deny that there were abuses under Pinochet. Not all of the new rightists represent a clear threat to democracy itself. But some do. All of them are less conciliatory than

the old conservative parties. Minority groups have reasons to worry.

What explains the rise of the new right? One factor is the formation in recent years of grassroots groups with Catholic and evangelical ties which have campaigned against abortion, gay rights and feminism. Another is a popular demand for protection against crime. As with the radical left, the radical right is benefiting from public disillusionment with economic stagnation and mainstream democratic politicians, who are seen as self-serving if not corrupt. But what unites all these new right-wing forces, says Ariel Goldstein, a political scientist at the University of Buenos Aires, is "the spectre of Venezuela" which has sought to export its poverty-spreading leftist dictatorship. In that sense, the radicalisation of the right is a mirror of the same process on the left. If Mr Kast has a chance of winning, as he does, it is partly because Mr Boric, though himself a democrat, espouses a statist economic programme and has communist allies.

Latin America's new right is also part of a broader international trend. Donald Trump's victory in the United States in 2016 paved the way for Mr Bolsonaro. Mr Bolsonaro's son Eduardo has close links to the nativist fringe of the Republican Party. Now Vox, a Spanish anti-immigrant party, is acting as an agent uniting the new right in Latin America. In September it published a "Letter from Madrid", denouncing communism in the "Iberosphere" and signed so far by almost 9,000 politicians or activists including Messrs Kast, López Aliaga and Milei, as well as Eduardo Bolsonaro. Liberal democrats in Latin America now have to deal not just with an authoritarian left but with a right that is far more intolerant than in the recent past.



►there, more than any other region. Some-what conservative themes resonate with many Latin Americans. "We like big fam-ilies, big dinners, and we value things like respect for elders," says Ozlem Ozsumbul of Madd Entertainment, a distributor.

From Ecuador to Mexico, prime-time slots are now filled by Turkish shows. "Kara Para Ask" (Black Money Love) counts Lionel Messi, an Argentinian footballer, as a fan. In 2018 Venezuela's dictator, Nicolás Maduro, visited the set of "Dirilis: Ertugrul" (Resurrection: Ertugrul), where he tried his hand at blacksmithing, wore a tra-

ditional hat, and is said to have compared himself to the show's hero, the father of the founder of the Ottoman Empire.

But the biggest fans of Turkish tele-novelas are *señoras* of a certain age. They like them because they are less raunchy and gory than local shows, with their gun-toting drug lords. It takes 28 episodes before Sherezade and Onur share their first kiss, which even Argentina's leading conser-vative newspaper complained lacked "fervour". Norma, an 82-year-old in Buenos Aires, likes Turkish shows because "they are so decent, so romantic." Her carer, Kar-

ina, adds: "Argentine telenovelas are too extreme, on the first date they already have sex!" They watch Turkish shows every day from 4pm until Norma goes to sleep.

It also helps that, in contrast to Turkey, where dramas are shown once a week and can run for over two hours, in Latin Amer-ica these shows are chopped up into shorter chunks. This makes them far easier to watch; it also helps boost the ratings of the tv channels, which can spin out the tales over hundreds (if not thousands) of epi-sodes. The formula may feature few *bosos*, but it brings in plenty of *pesos*. ■





Pollution

Baby, it's toxic outside

DELHI

Even as India pledges climate action, its people are dying from breathing

ADRESSING WORLD leaders at the COP26 jamboree in Glasgow this week, Narendra Modi, India's prime minister, listed five commitments to tackle climate change, including a promise to achieve carbon neutrality by 2070 and several shorter-term goals. Mr Modi also took the opportunity to point out that while poor countries bear a mere fraction of the blame for creating the world's climate mess, some, such as India, have done better at keeping environmental commitments than many rich countries.

He is right. With 18% of the world's people, India is reckoned to have caused just 3% of accumulated CO₂ emissions. Yet even as Indian leaders repeatedly—and sometimes justifiably—take the moral high ground on climate change's long-term challenges, their people continue to suffer and die from its immediate, home-grown causes.

Dr Arvind Kumar should know. When he started working as a chest surgeon in Delhi 30 years ago, nine-tenths of lung cancer patients were smokers and nearly all

À bout de souffle

Average population-weighted PM_{2.5}* exposure
µg/m³, 2019



Sources: State of Global Air; *Particulate matter 2.5 microns or less in diameter
The Lancet

were men over 50. Now half of them do not smoke, 40% are women and their mean age is a decade younger. He regularly sees children with blackened lungs. "The urgent issue we need to face is not CO₂," says Dr Kumar. "It is about our own health and the health of the next generation."

The trouble is not just in Delhi. In winter the Himalayas trap the combined exhaust of the 600m people who populate

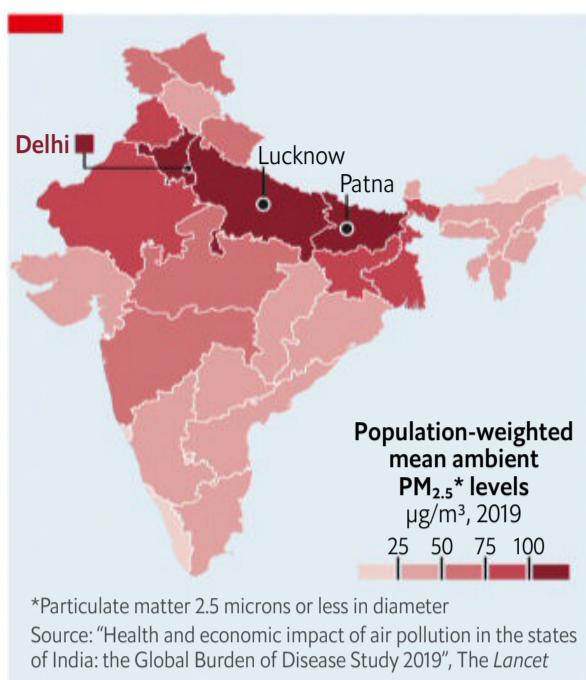
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the sprawling Indo-Gangetic Plain. From diesel pumps for irrigation to cremation pyres and from coal-fired power plants to gas-guzzling SUVs, the smoke combines in a toxic stew that can hang for weeks in the season's typically windless conditions. Big provincial cities such as Lucknow and Patna are just as sooty as Delhi. So are many rural areas.

Across this whole region, reckon researchers from the University of Chicago in a recent study, air pollution is likely to reduce life expectancy by an average of more than nine years. Research published late last year in the *Lancet*, a medical journal, estimates that in 2019 alone some 1.67m Indians died from the effects of pollution, accounting for one in six of the country's deaths. The authors put the cost to India of lost productivity at some \$36.8bn, in addition to \$11.9bn spent on treating illnesses caused by pollution, equal to a total of 1.8% of GDP. They emphasise that these are conservative estimates.

Evidence continues to accumulate of wider-ranging effects. Clinical tests of 928 teenagers in Delhi found that 29.4% had asthma, three times typical levels worldwide. Unexpectedly, 40% were found to be overweight, a number so striking that the researchers think it may be caused by metabolic responses to pollution rather than overeating. Another study found a link between the height of Indian toddlers and pollution levels. Airborne toxins have also been linked to congenital defects. ➤



► The government has not ignored air pollution. Strongly backed by Mr Modi, a push to replace solid fuels with gas for cooking has saved hundreds of thousands, mostly women, from deadly indoor air pollution. India has ramped up solar- and wind-power capacity. The government has tightened vehicle-emissions rules. In 2019 it launched a National Clean Air Programme, aiming to cut pollution in 122 cities by up to 30% within five years.

Yet the same government has also stinted on many other measures. It has proved particularly soft on coal, a domestically abundant hydrocarbon that still accounts for some 70% of power generation—and 10% of airborne particulate pollution. Under Mr Modi the state-owned Coal India, already the world's biggest producer of the stuff, has been tasked with boosting output by 40%. In Glasgow Mr Modi pledged that by 2030 India will install a whopping 500GW of renewable capacity to meet half its power needs. But if the other half comes from thermal sources, that would still mean doubling their current output.

India's government has also failed to do some simple things to check daily pollution. A study by a think-tank in Delhi found that India could simply shut down 20-30 of its most polluting coal-fired power plants without seriously disrupting supply, since they also happen to be abysmally inefficient. Mr Modi could also oblige other plants to install the scrubbing equipment required by a law of 2015, instead of repeatedly letting them off the hook. Perhaps most usefully, he could reshape India's bureaucracy to place pollution at the forefront of concerns rather than seeing it as an irritant.

As more Indians suffer, pollution is gaining traction as a political issue. Dr Kumar, the surgeon, has enlisted doctors across India to press local authorities. Bhavreen Kandhari, a mother worried by her own daughters' health, helped form a pollution action group called Warrior

Instagram and youth culture

Hot shots

SEOUL

Why young South Koreans are posing in their underwear

LEE JI-HOON's younger clients have lately been making unusual requests. "People in their 20s and early 30s showed up and asked me to draw up these excessive training plans and dieting rules," says Mr Lee, who works as a personal trainer at a fancy gym in Gangnam, a posh part of Seoul, South Korea's capital. The clients, most of whom are women, all have the same aim: they want to look hot for their "body profiles".

An Instagram search in Korean for the hashtag "body profile" turns up more than 2.5m results. Most of them are glossy full-body portraits of men and women in their underwear, posted on personal accounts (though a few belong to celebrities). Some subjects are draped over chairs, recline on beds or emerge from pools and rivers. Others pose with champagne and canapés, or with foliage.

The point, like so much on Instagram, is to impress. Joo Sohyun, a 27-year-old in Seoul, says she booked a body-profile photo session because she was bored with doing nothing except work. "I wanted that identity of someone who keeps fit," she says. Taking the profile shots was a way of proving to the world that she had worked hard to achieve a valuable goal. The whole thing, including the training programme and photo session, set her back more than 1.5m won (\$1,300). Others splurge even more. Mr Lee's packages start at 2.5m won; bespoke ones can be 7m won.

Yoo Hyun-jae, who studies youth culture at Sogang University in Seoul, thinks the trend reflects an obsession with looks and social status. The attention young people pay to their online image mirrors everyday life, where looking your best in public is considered polite and commenting on others' appearance and offering suggestions for improvements remain common.

As in other countries, advertising exploits the associated anxiety. A company hawking diet products plasters cinemas all over the country with posters urging patrons to "reconsider your popcorn". Serious-looking plastic surgeons admonish commuters in ads on Seoul's subway: "Think you're pretty? Think again." Celebrity culture also plays a role, says Mr Yoo. The first people to publish body profiles were the pop stars from whom many youngsters take their cues.

Some commentators worry that the trend harms young people's mental health and fosters poor eating habits. Even Mr Lee is concerned. "I was so proud when they showed me the pictures, but some of them came back a few weeks later looking worse than they did before they started working out," he says. Mr Yoo is less fretful: "Those body-image problems are not caused by the fact that people are now taking pictures of themselves while exercising." Hand-wringing will in any case do little to dissuade the likes of Ms Joo. "Houses are too expensive and jobs are hard to come by. This is one of the easiest and healthiest ways for young people to feel a sense of achievement," she says.

Moms. Among the first successes of such citizens' lobbies, at least eight states have slapped partial or total bans on firecrackers, a noisy but deadly way of ringing in Diwali, the Hindu festival of lights that marks the start of north India's pollution season, and which fell this year on November 4th.

The weight of public opinion is one thing. The rustle of cash may prove more persuasive. Gautam Adani and Mukesh Ambani, India's richest tycoons, both built

colossal fortunes from hydrocarbons. Far nimbler than India's government, they are pivoting to green energy. Mr Adani, king of Indian coal until last year, has gone on such a binge that his green-energy arm is now India's biggest renewable-power supplier. International investors are getting into the act, too. So far in 2021 \$9.67bn has been poured into Indian green bonds. That is nearly as much as in the previous five years combined. ■

Bangladesh and India

Spilling over

The mistreatment of minorities in one country is causing unrest in the other

ONE DAY in October Dilip Das had a bath, donned a new shirt presented to him by his son and prepared a garland of flowers before setting off for his local temple in Cumilla, a city of 300,000 in eastern Bangladesh. It was Durga Puja, the most important festival in the Bengali Hindu calendar. By the end of the day the 62-year-old Mr Das was dead, bludgeoned by a Muslim mob. "What was his sin?" asks Rupa Das, his wife. "He was just a simple man, a washerman," who had lived happily alongside his Muslim neighbours.

Mr Das was a victim of widespread unrest that day in Bangladesh, which is 90% Muslim. A copy of the Koran had been found in one of the temporary temples erected for the festival in Cumilla. A video showing a police officer carrying the Islamic holy book, with a voice-over claiming it had been rescued from under the feet of a Hindu idol, quickly went viral on Facebook and WhatsApp, unleashing a wave of attacks on Hindus and other religious minorities, too. Outside the main mosque in Dhaka, the capital, a crowd of 10,000 chanted, "Hang the culprits". Across much of the country Muslim rioters beat Hindus and pillaged their property. Hundreds were wounded and at least three died, along with four Muslim protesters who were gunned down by police.

Islam is the state religion in Bangladesh. Confusingly, the constitution also says the state is secular. (Past struggles over this topic ended in a self-contradictory muddle.) The ruling Awami League party is secular, but rising Islamic conservatism has made religious minorities feel insecure, says Mubashar Hasan of Western Sydney University. The Awami League, too, has courted puritanical voters and flirted with Islamist groups in its 12 years in power. And it has often failed to prosecute those responsible for attacks, says Rana Dasgupta of the Bangladesh Hindu-Buddhist-Christian Unity Parishad, an advocacy group. Members of the party's student wing were implicated in the recent riots.

Yet in responding to the violence Sheikh Hasina Wajed, the prime minister, suggested it was India's treatment of Muslims that was causing anger towards Hindus in Bangladesh. On October 14th she issued a warning to Narendra Modi, her Indian counterpart, and his supporters: "They have to be aware that such incidents should not take place there which would

have an impact on Bangladesh."

Sheikh Hasina is not being entirely disingenuous. Bangladesh is indeed affected by regional currents, says Dr Hasan, especially those in India. In 2019 Mr Modi's Hindu-nationalist government rolled out new rules granting an easier path to citizenship for refugees from neighbouring countries—unless they are Muslim. It has also targeted Muslims in states bordering Bangladesh, whom politicians from the ruling Bharatiya Janata Party have labelled "infiltrators" and "migrant termites". In recent weeks hundreds have been displaced in eviction drives. Huge protests greeted Mr Modi when he visited Dhaka in March. Anti-India feelings often slide into anti-Hindu hostility, says Dr Hasan.

Events in India have triggered violence in Bangladesh before. The country's Hindus were targeted in 1992 after religious fanatics demolished a mosque in India. This time, however, the bloodshed in Bangladesh triggered fresh violence in India. A few days after the unrest abated in Cumilla, mobs ransacked mosques and Muslims' homes in Tripura, an Indian state just a few miles from the city. India's National Human Rights Commission has asked local police to respond to allegations that "the state machinery acted like a bystander".

In Bangladesh, in contrast, the government has arrested 583 people since Mr Das was slain, and Sheikh Hasina has vowed to defend religious freedom. Mr Modi, notes Meenakshi Ganguly of Human Rights Watch, an NGO, is mute on the mistreatment of Muslims in India. Majoritarianism elsewhere in the region sets a low bar, though. In the end, she says, states must protect their own religious minorities. ■

Japanese politics

Wishy-washy

TOKYO

The new prime minister still has to explain what he stands for

WHEN KISHIDA FUMIO became the head of Japan's ruling Liberal Democratic Party (LDP) at the end of September, one of the first things he did was to lower expectations for the party's future. Public frustration with the government's handling of covid-19 had helped force the resignation of his predecessor, Suga Yoshihide. Some polls suggested that the party's dominance in the lower house was under threat in coming elections. Voters seemed lukewarm on Mr Kishida, giving his new cabinet lower approval ratings than incoming prime ministers typically enjoy. Mr Kishida defined "victory" for his party



Beloved of bureaucrats

as maintaining a simple majority of 233 seats along with its coalition partner, Komeito, down from 305 before the election.

He was perhaps overcautious. When results were tallied from the election on October 31st, the LDP had lost only 15 seats, leaving it with 261, single-handedly clearing the threshold for both a simple majority and also an "absolute stable majority", which means that the party can chair and control all parliamentary standing committees. That is a relief for Mr Kishida. And it is a devastating defeat for Japan's opposition, which had hoped to capitalise on public discontent. Instead, the biggest opposition party, the Constitutional Democratic Party of Japan (CDP), lost 13 seats. On November 2nd Edano Yukio, its leader, announced his resignation.

The opposition's humiliation is in part the result of potent memories of its messy rule from 2009 to 2012. And it is in part because of bad strategy. The CDP co-ordinated with the Japan Communist Party to put forward unified opposition candidates in many districts, which alienated its own supporters. It also repelled independents, who are around 40% of the electorate and who turned out in relatively low numbers this year. Overall turnout was low, too, at just 56%. That is only a hair higher than the 54% in the previous lower-house election in 2017, which was itself barely more than the post-war record low of 53% in 2014.

Nonetheless, the results are no ringing endorsement of the status quo. Anti-establishment sentiment flowed instead to an upstart libertarian populist outfit based in Osaka, the Japan Innovation Party, which more than tripled its seats, from 11 to 41. It has limited appeal beyond its home region, and it is rare for regional parties to go national in Japan.

But the upstarts' strong showing suggests that voters may abandon the LDP when presented with an alternative seen as competent. In a recent global study the

Pew Research Centre, an American pollster, identified Japan as one of six countries where more than half the population wants "major changes or complete reform to the political, economic and health-care systems". (The others on the list were America, France, Greece, Italy and Spain.)

Mr Kishida does promise big-sounding changes. He ran his campaign calling for a "new model of capitalism", contrasting himself with Abe Shinzo, a former prime minister whose "Abenomics" agenda had mixed results. But no one, from Japanese business leaders to those on Mr Kishida's

"new capitalism" council, seems to have much idea what he means by it. Whatever the changes turn out to be, they are unlikely to be radical.

Vagueness pervades Mr Kishida's other big agenda items, too. He celebrated his victory by making his debut on the world stage, joining other world leaders at the COP26 summit in Glasgow. Though he promised an additional \$10bn in funding to support measures for decarbonisation elsewhere in Asia, he offered little detail on how Japan plans to reach its own pledge to become carbon-neutral by 2050.

On defence, the LDP promised in its campaign manifesto to raise spending, possibly even doubling it to 2% of GDP, but Mr Kishida has yet to say what he would spend that money on. Nor has he convinced the public and the powerful finance ministry of the need to do so. Little surprise, then, that those in Tokyo happiest about Mr Kishida's victory are bureaucrats, who see a pliable figure unlikely to upset the status quo. Until the opposition gets its act together, the LDP will not have trouble staying in power. But Mr Kishida still has to prove himself as a leader. ■

Banyan Mine for the taking

Mongolia and Kyrgyzstan struggle with the blessed curse of mineral wealth

TWO POOR, fragile, post-Soviet democracies, two spectacular holes in the ground. Mongolia's Oyu Tolgoi, or "Turquoise Hill", is a vast mine in the southern Gobi desert, just 80km from the Chinese border. Kumtor in the Tian Shan mountains of Kyrgyzstan, operating since 1997, is if anything even more remote. Located beside a series of glaciers at 13,000 feet above sea level, it is the world's second-highest gold mine.

It is hard to exaggerate the importance of these two mines to their respective economies. Open-pit extraction began at Oyu Tolgoi in 2013. The second phase, a \$6.75bn expansion in which 200km of tunnels will reach 1.3km deep, is expected to treble the output of concentrate, to over 500,000 tonnes a year. Once completed, Oyu Tolgoi will be the world's fourth-biggest copper mine.

When the contract with Rio Tinto, an Anglo-Australian mining giant, was first signed in 2009, Oyu Tolgoi was predicted to add five percentage points to Mongolia's annual economic growth, which, for a while, it did. The mine has created 15,000 jobs directly and another 45,000 indirectly, for a Mongolian population of 3.3m. As for Kumtor, its owner, Centerra, a Canadian exploration company, is the country's largest private investor. In a good year the mine generates a tenth of Kyrgyzstan's GDP and is the biggest contributor to the state budget.

Both mines loom large in national life. Both foreign operators won sweet, initial deals when naive young states opened their doors to foreign investment. Controversy surrounding the mines was thus inevitable.

Oyu Tolgoi has long been controversial. Politicians often accuse Rio Tinto of fleecing the country. The language grew sharper six years ago, after a bal-

ance-of-payments bust. A renegotiation of the terms in 2015 is now being challenged by the ruling party. It claims the deal is unfavourable to Mongolia, which has a 34% stake in Oyu Tolgoi, and was even negotiated illegally. Meanwhile, costs for underground development at Oyu Tolgoi have overrun by more than \$1.5bn, and the estimated date for shipping the first underground concentrate has receded by over two years. All the while, the government must service debt incurred when it borrowed from Rio Tinto to fund expansion. The prospect is dawning of no dividend for years, if ever (though taxes and royalties pour in). The government has threatened to halt development if Rio does not renegotiate.

The stand-off over Kumtor is starker. In May the president, Sadyr Japarov, who came to power a year ago in an obscure struggle that involved his being sprung from jail, seized control of Kumtor. His new prime minister, Akylbek Japarov (no relation), accuses Centerra of corruption, enriching politicians instead of the national budget. (Centerra has dismissed the

allegations as false.)

Accusations of being cheated are common in poor, resource-rich countries. With Oyu Tolgoi, the stand-off is more easily resolved. First, Rio Tinto is not widely suspected of corruption (even though in Mongolia it is endemic). Power in Mongolia is too fragmented to make bribery at scale an attractive option to foreign investors, says Julian Dierkes of the University of British Columbia—though what happens to revenues once they reach government coffers is another matter. Moreover, a recent independent review makes it hard for Rio to deny it bears some blame for delays and cost overruns. It says it is ready to "explore" cutting its fees and loan interest rates.

In Kyrgyzstan the situation is bleaker. There, bribery and corruption are not incidental to business but central to it. For all that Centerra boasts of its investments, politicians and gangsters have long looked to take a cut. Once the new government has access to the mine's cashflow, ask many in Bishkek, the capital, what is to stop officials pocketing it for private gain?

Foreign investors too often blame "resource nationalism" for their woes in host countries. That is self-serving. After all, the resources usually belong to the state. It is reasonable for citizens to ask how best to benefit from them. Neither Centerra nor Rio Tinto sufficiently engaged with the host countries on this question. Complicating matters in Mongolia, Mr Dierkes asserts, is the common belief that there is a "perfect Oyu Tolgoi agreement out there in the Platonic heaven". In Kyrgyzstan, the stakes are higher yet: not just foreign investors' trust in a turbulent country, but Kyrgyz people's dwindling trust in the ruling classes.





The Communist Party

Control the present, control the past

Xi Jinping is rewriting history to justify his rule for years to come

IN PREPARATION FOR a third five-year term as the Communist Party's leader, Xi Jinping has been changing the rules of politics, business and society. He has also been pursuing another project that he sees as essential to his continued grip on power: rewriting the history of the party itself. Mr Xi wants to show his country that he is indispensable, a political giant on a par with Mao Zedong and Deng Xiaoping who is turning China into a global power by building on their legacy.

On November 8th about 370 members of the political and military elite will gather in Beijing for an annual four-day meet-

ing of the party's Central Committee. The only advertised topic on their agenda is a resolution on the party's history. It will be the third in the party's 100-year existence. The first, in 1945, and the second, in 1981, were triumphs for Mao and Deng respectively, consolidating their grip on power at crucial junctures. Mr Xi's ability to secure one of his own suggests that he has quelled

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any meaningful opposition to extending his rule at a party congress that is due to be held late in 2022. The resolution will be "an extraordinary demonstration of power", says Jude Blanchette of the Centre for Strategic and International Studies, a think-tank in Washington.

The plenum is the second-to-last conclave of the Central Committee before the five-yearly congress, and a crucial one for setting its tone. Next year's event will mark a decade of Mr Xi's leadership. By loosely established convention, it would be his political farewell. But he is all but certain to secure another term. In the past year, once again, he has been working hard to silence critics and crush potential rivals, purging the security apparatus, promoting political allies and showing the party's muscle by unleashing regulators on big private firms. Before the congress he will probably make his choice (in secret) of replacements for senior officials who are expected to retire at a meeting of the national legislature in March 2023. They include a new prime minister and domestic-security chief.

The resolution on history has been circulated among senior officials, but its contents will not be made public until after the plenum ends on November 11th. Speeches by Mr Xi and the writings of official commentators offer clues. It is expected to celebrate the party's achievements, minimise the horrors unleashed by Mao and suggest that Mao, Deng and Mr Xi have shared the same vision. The reigns of Mao and Deng will be presented as essential preliminary phases before the start of Mr Xi's "new era". Mao helped the Chinese people "stand up" after a century of humiliation by foreign powers. Deng set China on a path to "get rich" after centuries of poverty. Now Mr Xi is helping China to "get strong". The resolution will hail Mr Xi's judicious leadership in managing social, economic and national-security challenges, and suggest a continuing need for his wisdom.

Mr Xi's predecessors used history differently in their resolutions. In 1945 Mao justified a purge of his enemies, blaming them for past mistakes so he could position himself as the unquestioned leader. In 1981 Deng's resolution said that Mao had made serious mistakes and that the Cultural Revolution of 1966-76 had been a "grave blunder", causing chaos. By criticising Mao, albeit cautiously, Deng rebuilt public support for the party and freed his hand to pursue free-market reforms.

But history presents a different challenge to Mr Xi. On the party's left wing are neo-Maoists who have long agitated for a restoration of their hero, and have criticised Deng, whom they blame for such problems as corruption and inequality. On the right are those who worry (very privately) that China is sliding back towards a Mao- ►

► style dictatorship and losing its commitment to Deng's reforms.

Mr Xi has declared that neither Mao nor Deng should be used to "negate" the other. He does not want a history filled with mistakes and contradictions, nor one that raises questions about one-man rule. He believes the collapse of the Soviet Union was hastened by a failure to protect the legacies of Lenin and Stalin. He has campaigned vigorously against "historical nihilism"—essentially anything that casts the party's past in an unfavourable light. Tomes that excavate Mao's worst mistakes, once tolerated, are now strongly discouraged.

A new official history of the party, published in February, gives a glimpse of Mr Xi's preferred approach. It touches only briefly on the Cultural Revolution. It does not mention the famine caused by the Great Leap Forward that killed tens of millions, nor any casualties in the crushing of the pro-democracy protests at Tiananmen Square in 1989. The section on Mr Xi's tenure takes up more than a quarter of the book. Mr Xi's predecessors, Hu Jintao and Jiang Zemin, are given much less space.

The new resolution will suggest that China needs Mr Xi in order to fulfil long-term goals such as turning the country into a "great modern socialist nation" by 2035 and a "prosperous" and "strong" one by 2049, the 100th anniversary of the People's Republic. It will probably mention his "common prosperity" campaign to reduce inequality and his "dual circulation" strategy to make the economy more resilient to external shocks like the pandemic and trade disputes with America. It is expected to describe a grim international environment, though America and its allies may not be named. And it will probably repeat the party's ritual language about Taiwan, saying it must be reunited with the mainland. China's failure to retake Taiwan has been a sore point for every leader since Mao. The resolution is sure to mention Mr Xi's call for the "great revival of the Chinese nation" by 2049, which suggests that he aims to secure reunification before then. A specific promise is unlikely.

In anticipation of the plenum, the propaganda apparatus has begun cranking out fawning articles about Mr Xi's wisdom, hoping, it would seem, to foster enthusiasm for the idea that he will carry on ruling. On November 1st *People's Daily*, the party's mouthpiece, began publishing a series of editorials under the title "Crucial decisions in the new era". They hail the party's achievements since it was founded in 1921, and praise Mr Xi's contributions to them. From Mr Xi's perspective, the resolution "not only has to look back over the past, but it has to look to the future", says Joseph Fewsmith of Boston University. And according to Mr Fewsmith, Mr Xi thinks, "The future, c'est moi." ■

Military strategy

An unpacific contest

WASHINGTON, DC

The Pentagon warns that China is fast building up its nuclear arsenal

WHEN AMERICA and the Soviet Union raced each other to build ever-larger nuclear arsenals during the cold war, China ambled disdainfully. It did not detonate its first nuclear weapon until 1964 and kept only a few hundred warheads compared with the tens of thousands piled up by the superpowers. To this day it maintains it will never be the first to use nukes in a war. Even so, China is sprinting to catch up.

In its latest annual assessment, the Pentagon says China's stockpile of nuclear warheads, which last year it reckoned to be in the "low-200s", could triple to about 700 by 2027 and will probably quintuple to 1,000 or more by 2030. That is sharply higher than America's previous forecast that the arsenal would double in size by then. That would still leave it smaller than America's or Russia's: those countries each have about 4,000 warheads.

The report's conclusions explain America's alarm about China's military modernisation. Hitherto the greatest worry has been about its conventional arms, notably its growing ability to overwhelm and invade Taiwan, and stop America from coming to the rescue. Now the anxiety is spreading to the nuclear domain.

Speculation about the nuclear build-up mounted in June and July, when researchers spotted that China was building hundreds of missile silos in Gansu, a western province, and in Xinjiang, its neighbour. Then the generals were stunned by China's testing of a new weapon—a hypersonic glide vehicle mounted on a large rocket—



Hypersonic and hypervigilant

that could deliver a nuclear warhead at high speed while evading anti-missile defences. The chairman of the joint chiefs of staff, General Mark Milley, said it was close to being a "Sputnik moment"—the shock America felt when the Soviet Union sent the first satellite into orbit in 1957.

The Pentagon believes China is building fast-breeder reactors to make more weapons-grade plutonium; may already have created a full "triad", ie, the ability to launch nuclear weapons from the land, sea and air; and is expanding its early-warning systems, with help from Russia.

All told, China is shifting to a "launch on warning" doctrine. Rather than rely on a minimal deterrent to retaliate after an initial nuclear attack, China would henceforth fire at the first sign of an incoming strike, even before the enemy warheads have landed. This posture is akin to that of America and Russia, notes James Acton of the Carnegie Endowment, a think-tank in Washington, "but increases the risk of inadvertent launch, such as a response to a false warning".

Some Chinese strategists have debated moving to "mutual assured destruction"—the doctrine that animated both superpowers in the cold war—and even have discussed when it would make sense to be first to use nuclear weapons. They have also considered low-yield weapons that could be used in a limited manner, without initiating all-out nuclear war.

Why should China be building up its nukes? After all, America and Russia this year extended the New START treaty, which limits their arsenals. America is thinking of reducing the role of nuclear weapons by declaring that their "sole purpose" is to deter or retaliate against nuclear attack.

One reason is China's worry that its arsenal is too small to survive an American first strike. Many of its warheads could be destroyed by nuclear weapons or accurate conventional missiles; any remaining ones that are launched might then be taken out by America's anti-missile systems.

China is modernising its land-based missiles by building mobile launchers with solid-fuel rockets, which are easier to hide and quicker to fire than older models. It is also working on its triad. As well as deploying more nuclear submarines with ballistic missiles, China has brought into service the H6-N bomber, which can also launch such a weapon. And it has deployed an earlier version of a hypersonic missile, the DF-17 (pictured).

Xi Jinping, China's leader, says he wants to build a "world-class" military force by 2049, the centenary of the Communist Party's takeover, as part of the "great revival of the Chinese nation". A powerful country, it seems, must have powerful nuclear forces to match—especially if it is going to stand up to America. ■



Ethiopia's civil war

A battle for the capital looms

ADDIS ABABA

As diplomacy fails and panic spreads, Tigrayan rebels are making a dramatic push towards Addis Ababa

FEW COULD have imagined it would come to this. When the civil war began almost a year ago to the day, Abiy Ahmed, Ethiopia's prime minister, promised a swift military operation to bring to heel the Tigrayan People's Liberation Front (TPLF), the ruling party of the rebellious Tigray region. The goal, he said, was to bring its leaders to justice for attacking a base that housed federal troops. In less than a month federal Ethiopian forces, backed by paramilitaries from the Amhara region as well as troops from Eritrea, to the north, had captured almost all of Tigray, including Mekelle, its capital. TPLF leaders disappeared into the mountains. Abiy declared victory.

Since then the TPLF has staged such a dramatic comeback that it may now be poised to launch an assault on Addis Ababa, the Ethiopian capital and seat of the African Union. The TPLF's leaders, who controlled the central government for almost 30 years until they were ousted after massive protests ushered Abiy into power in 2018, claim they are advancing south at a speed reminiscent of the last time they captured the city, as a battle-hardened

band of guerrillas three decades ago.

As panic mounted on November 2nd, Abiy declared a nationwide state of emergency and urged ordinary citizens to prepare to fight to defend the city, stirring fears that the capital of Africa's second-most populous country could turn into a battleground. America advised its citizens in Ethiopia to pack their bags.

Whether the rebels are indeed capable of advancing that far is unclear. In recent days they have claimed control of Dessie and Kombolcha in Amhara, both strategically important towns, but they are still more than 250km (156 miles) from the capital. The TPLF also says its forces are marching east into the Afar region in what looks like a bid to control the road-and-rail link to Djibouti.

Meanwhile another rebel group, the Oromo Liberation Army (OLA), says it has joined forces with the Tigrayans and is preparing to cut the roads into the capital. The federal government has not acknowledged any of this. Communication blackouts in much of the north make it hard to assess competing claims.

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What is not in doubt is that the federal army is on the back foot. On November 1st, in a tacit admission that its control of the town was shaky, the government accused Tigrayan forces of massacring a hundred young men in Kombolcha. A day earlier the regional government in Amhara imposed a curfew and shut government offices, saying that all state resources, including government vehicles, should be redirected to the war effort. In Addis Ababa authorities ordered residents to register their guns and organise by neighbourhoods.

Recriminations are already flying. Abiy has alleged that foreign mercenaries were fighting alongside the TPLF in Dessie. Others accuse domestic "traitors" of sharing battlefield intelligence with the enemy. Dawit Mehari, an Amhara activist, says disillusioned Amhara are beginning to point the finger at the federal government itself. "Some think that an interest group inside the government actually wants the national defence force to fail," he says.

Fearing that ethnic violence could spin out of control, America has urged the rebels to halt their advance. "We oppose any TPLF move to Addis or any TPLF move to besiege Addis," said Jeffrey Feltman, America's special envoy for the Horn of Africa. Tigrayans in Addis Ababa are being rounded up. "People are being kidnapped on the street," frets a part-Tigrayan resident. Some have asked foreign embassies for shelter. Yet many observers also worry about conflict between Oromos and Amharas, the two most populous groups, ►



► which could easily erupt if the OLA attacks Addis Ababa. Both groups have competing claims of ownership over the city. "There is a real, palpable sense of fear," says a Western diplomat in the capital.

Abiy's emergency decree provides for sweeping powers of arrest as well as draconian restrictions on free assembly, movement and on any media which the government deems to back the TPLF. It also appears to lay the ground for military conscription. For weeks the Amhara regional government has been sending busloads of young men, some armed with machetes and knives, into battle. An adviser to the prime minister told the state broadcaster on October 31st that mass mobilisation would be needed to defeat the rebels.

Foreign governments are scrambling for a peace plan. On November 2nd America announced that it would freeze duty-free access for Ethiopian goods under the African Growth and Opportunity Act. It is also expected to slap sanctions on officials if the warring parties do not negotiate.

Yet such diplomacy may already be too late. Abiy's government is denouncing calls for talks as an affront to its sovereignty. And as Tigrayan forces have advanced, their appetite for negotiations has waned, too. "What kind of negotiations can there be with such a criminal government?" Tsadkan Gebretensae, one of the TPLF's top commanders, asked in a recent interview with a Tigrayan broadcaster.

Then there is the problem of the Eritrean forces, which joined Abiy's troops shortly after the war broke out a year ago. Eritrea's president, Issaias Afwerki, is a bitter foe of the TPLF. Between 1998 and 2000 the newly independent Eritrea fought a bloody border war against Ethiopia, then dominated by the TPLF, that cost perhaps 100,000 lives. Since the TPLF recaptured most of Tigray in June, the Eritreans have been quiet, seeming to bide their time for a final showdown. "A peaceful settlement is unacceptable for Issaias, because it would legitimise the TPLF," says a seasoned Ethiopian analyst. So the battle for Addis Ababa inches nearer by the day. ■

South Africa

Hegemon no more

JOHANNESBURG

Local elections suggest the ruling party will need coalitions to stay in charge

JACOB ZUMA, South Africa's former president, was fond of saying that the African National Congress (ANC) would rule until Jesus came back. Given his party's performance in local elections on November 1st, "Christ alive!" would be an understandable reaction. The ANC won about 46% of the vote—the first time it has dipped under 50% in a nationwide ballot since apartheid ended in 1994. The results suggest that if there is to be a second coming, it is unlikely to be by the party of Nelson Mandela.

The ANC's slide has two causes. First, black South Africans, who are 80% of the population and constitute the ANC's base, were more likely to stay at home than minorities, who tend to support other parties. Turnout in townships, which are nearly all black, was 40-45%, estimates Dawie Scholtz, a psephologist. By contrast 55-65% of voters in suburbs, which are more mixed, went to the polls. The second is that more of the black South Africans who voted chose parties other than the ANC.

Most South Africans feel that the ANC is no longer a party that will improve their lot. Polls show that jobs are the most pressing issue. More than a third of the overall labour force—and two-fifths of the black one—is unemployed. Real GDP per person is lower than it was 15 years ago. Food prices are around 10% higher than a year ago. Corruption, endemic under Mr Zuma, endures despite the better intentions of his successor, Cyril Ramaphosa. Public services such as electricity, water, schools and hospitals are crumbling.

A fragmented politics is replacing ANC hegemony. The official opposition, the Democratic Alliance (DA), won a little more than 21% of the vote, a higher share than some in the party feared, but down from its high of 27% in the previous local elections in 2016. It again struggled to woo blacks, many of whom distrust what they see as a "white party". At the same time it shed

some long-standing voters, especially Afrikaners (whites of mainly Dutch descent) and "coloured" (mixed-race) South Africans. Some in these groups voted for identity-based parties such as the Freedom Front Plus, a right-wing Afrikaner outfit. If Mr Ramaphosa's faction in the ANC and the DA constitute the centre of South African politics, it is not holding.

Other identity-based parties and populists also made gains. In parts of KwaZulu-Natal, home to many members of South Africa's largest ethnic group, the Zulus, the ANC lost ground to the Inkatha Freedom Party, a Zulu nationalist group. Some of this shift partly reflected events in July, when mass unrest broke out after the imprisonment of Mr Zuma, a Zulu, for defying a court order—riots that Mr Ramaphosa denounced as "acts of violence based on ethnic mobilisation". Mr Zuma was soon released on medical parole, though he certainly seemed sprightly when he turned up to vote with one of his wives.

Elsewhere, including in the city of Durban, the hard-left Economic Freedom Fighters (EFF) under the fiery Julius Malema picked up support. In Johannesburg the ActionSA party, a right-wing populist outfit founded only last year by Herman Mashaba, the former DA mayor of the city, won around 16% of the vote.

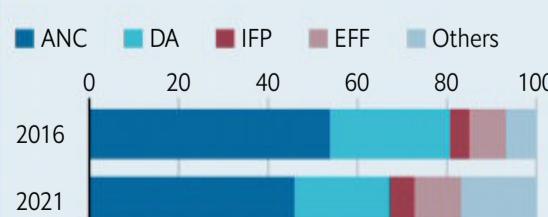
All of which means that, under South Africa's system of proportional representation, coalitions will be required to govern more towns and cities. As in 2016, there was no outright winner in Johannesburg, Port Elizabeth or Pretoria. The same is now true of Durban, once an ANC stronghold. The ANC is increasingly a rural party. Although it usually does better in general elections, these results suggest that there could be a coalition at the national level after the next one, in 2024.

That could mean a pragmatic, moderate alliance between Mr Ramaphosa's ANC and the DA. But not necessarily. There is a chance Mr Ramaphosa may not make the ballot. His many opponents within the ANC may try to blame him for this week's poor results, although polls show he is more popular than his party. And his party may prefer to work with smaller rivals like the EFF rather than the DA. If it does, South Africa will be dragged to the investor-scaring populist left.

Southern Africa's ruling parties can seem immovable. Angola, Botswana, Mozambique, Namibia and Zimbabwe are all governed by the same parties that took over after white rule ended. But not all are popular; some rig elections to stay in office. In Malawi and Zambia voters have recently voted opposition parties into power. The ANC sees itself as exceptional because it negotiated an end to apartheid. But these results show that if it fails to improve people's lives, its hegemony will end. ■

When's the party over?

South Africa, municipal elections, % of vote



Source: Electoral Commission of South Africa

SIZING THE ENERGY TRANSITION

Less pollution, more jobs

As world leaders gather in Glasgow to commit to urgent global climate action and build back better, the size of the economic opportunity from the clean energy transition is becoming clearer than ever.

All 197 countries have pledged to pursue efforts towards limiting global temperature rise to 1.5°C above pre-industrial levels, the hallmark of the 2015 Paris Agreement. This includes the first ever 'net-zero G7', a historic set of commitments secured under the UK's Presidency. Many of these commitments are in legislation - adding to the 2368 climate laws already on the statute books.¹

Bolstering these government commitments there are now over 4470 companies and 250 financial institutions in the United Nations' Race to Zero. Together, business, investor and governmental net-zero commitments cover around 80% of global GDP², affirming there has never been a stronger and clearer signal of public and private support to phase out fossil fuel use.

Energy accounts for around three quarters of global emissions, which means that international actions to keep 1.5 degrees alive have the potential to drive a clean energy transition which is unprecedented in scale and opportunity. Economist Impact calculates that 1.5°C compatible investments into sectors including clean power generation, electricity grids, electrified road transport, green steelmaking, and clean hydrogen, could support more than 20 million jobs and add around 4% to GDP globally by 2030. The markets expected to grow most quickly and attract most investment are those

with clear, ambitious and supportive policies, such as the EU, US and Chile. Net-zero power in the US represents a \$1.5 trillion-dollar investment to 2030 with the prospect of creating over a million jobs. A clean UK power sector stands to gain hundreds of thousands of jobs, while adding 2.4% to GDP by 2030. Research from the Economics of Energy Innovation and System Transition project estimates that government programmes have driven cost reductions of 85% in PV globally and for LEDs in India.³

As hosts of COP26, the UK has been driving international collaboration to multiply the growth of clean energy markets, jobs and GDP. Government backed collaborations such as the Energy Transition Council, Powering Past Coal Alliance, Green Grids Initiative-One Sun One World One Grid and the Zero Emissions Vehicle Transition Council are co-creating transformative solutions, agreeing shared targets and facilitating the global transfer of technology and knowledge. An Oxford University study estimates the costs of clean energy technologies could be up to 45% cheaper in 2030 if we work together to deploy them quickly.⁴ The International Energy Agency found that without international collaboration, the transition to net-zero could be delayed by decades.⁵

By aligning our efforts, we can quickly cross tipping points where clean solutions become the most affordable, accessible and attractive options in each greenhouse-gas emitting sector of the global economy - helping to meet the Sustainable Development Goals, as well as avoiding dangerous climate change.

Learn more:

<https://impact.economist.com/sustainability/sizing-the-energy-transition>

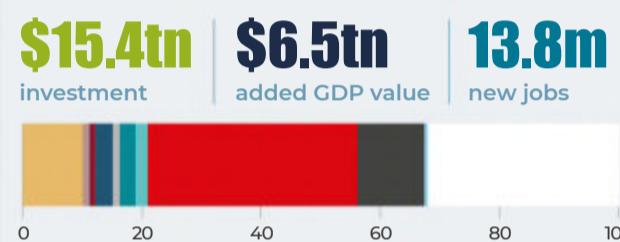
1 <https://climate-laws.org>
 2 <https://www.zerotracker.net>
 3 <https://eeist.co.uk>
 4 <https://www.inet.ox.ac.uk/publications/no-2021-01-empirically-grounded-technology-forecasts-and-the-energy-transition>
 5 <https://www.iea.org/reports/net-zero-by-2050>

ECONOMIC IMPACTS OF SELECT SECTORS BY 2030 IN A NET-ZERO PATHWAY

Investment distribution by 2030, %



Clean power sector



Green steel



Electrified road transportation



Clean hydrogen



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The Energy Transition Council,
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Protecting the Congo basin

Money for old trees

RAPONDA WALKER ARBORETUM, LIBREVILLE

Rainforests in the Congo basin provide a service the world should pay for

GABON, A SMALL, family-run petrostate in west Africa, may seem a rather odd campaigner against global warming. Once Africa's fifth-largest oil exporter, it profited from the world pumping more carbon dioxide into the atmosphere. Now, however, it hopes to benefit by helping the world to avoid overheating—and by encouraging rich countries to pay African ones to keep their forests standing. Its advocacy got a boost on November 2nd when the leaders of more than 100 countries pledged at the COP26 summit to end deforestation by 2030. To help that happen, rich countries promised to stump up billions of dollars.

At least 85% of Gabon, which lies on the equator at the edge of the Gulf of Guinea, is covered in steaming jungle. It is one of six countries that form the massive forest of the Congo basin—the world's second-biggest tropical rainforest, after the Amazon—which sucks in carbon dioxide through photosynthesis and turns it into leaves and branches. (Cameroon, the Central African Republic, the two Congos and Equatorial Guinea are the other five.) Gabon is not the largest of this group of carbon sinks, but its president, Ali Bongo, is the most eager to offer to protect his country's forests in exchange for cash from rich countries.

Gabon's argument is simple. Large rainforests such as those in the Congo basin provide a service to the world by sucking millions of tonnes of carbon from the air. Since performing this service provides no income, there has been little incentive for poor countries to protect their forests when they could instead profit by chopping them down for timber or clearing them for farming.

The potential benefits are large. "The stock of carbon in the Congo basin adds up to six years of total global emissions," says Lee White, Gabon's environment minister, adding that Gabon alone absorbs the equivalent of one-third of France's carbon emissions each year. Although Gabon emits only around 25m tonnes of carbon a year, it sequesters about 140m tonnes, he reckons. Yet the six countries in the Congo basin used to suck far more carbon from the air than they do now. The Democratic Republic of Congo, which has the largest expanse of jungle of the six, is losing 500,000 hectares of it a year through deforestation. It will need some incentive to stop the chop. And countries such as Gabon, which have been protecting their for-

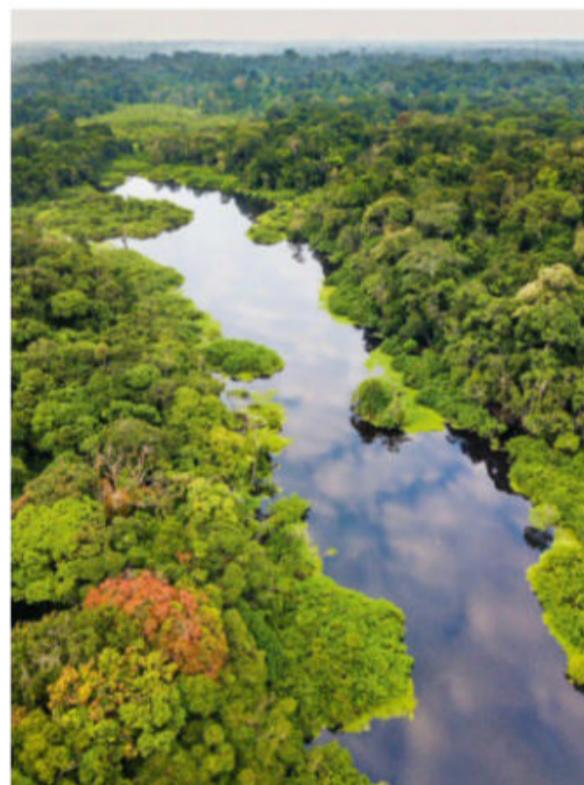
ests, should be rewarded for having done so, argues Mr White.

The consequences of not doing so go beyond emissions. Mr White says the forests cause rain to fall across the Ethiopian highlands, the Nile valley and the southern rim of the Sahel. If these places dry up, waves of hungry people may spread across Africa, making the continent more prone to turmoil. Many will also head to Europe.

The deal struck at COP included a pledge by 12 countries to provide \$12bn in public funding to protect and restore forests. The countries, which include America, Germany, Japan and Britain, hope that will also open the taps to private funding. Quite how this money will be spent is not yet clear. But several ideas are gaining ground.

Eats, shoots and LEAFs

One is to pay countries that can show they have reduced emissions by preserving forests. The LEAF Coalition, a partnership of governments and big firms, has raised \$1bn for this purpose. Another is that countries or companies may sell "green bonds" to finance climate-related projects. Investors keen to look green may pay a premium for these, allowing issuers to borrow at concessionary rates. "If you stop deforestation, you should be compensated for foregoing other forms of economic development," says Andrew Mitchell, a climate scientist who founded the Natural Capital



Root and branch reform

Finance Alliance. "Forests should be worth more alive than dead."

It is not just governments that could raise money using green bonds, but also private firms such as the African Conservation Development Group, a Mauritius-registered company led by a South African, Alan Bernstein, that wants to mix virtue with profit, and help finance its efforts by selling \$300m worth of green bonds to companies wishing to offset their own carbon emissions. It has bought a huge concession at Grande Mayumba, on Gabon's south-west coast, investing \$200m in sugar, rubber, fishing, forestry, cattle-ranching, and—for the very rich—eco-tourism.

Mr Mitchell is confident that African green bonds will eventually take off. But for the moment markets are still wary of buying any sort of African bond, let alone newfangled green ones. One worry is politics, as Gabon's example illustrates. If investors are to pay more for green bonds financing forests, they would have to be certain that the carbon absorbed within the trees would be contained there for many years. Many may wonder what might happen if, for example, Mr Bongo's regime in Gabon were to fall?

The question is far from academic. The Bongo family has run Gabon as a patronage-ridden fief for 54 years; no one pretends it is a democracy. At its most recent election, in 2016, it was obvious that the main challenger, Jean Ping, had actually won. Moreover, Mr Bongo suffered a serious stroke three years ago and may not be well enough to run again. Should he die, it is unclear if his Eton-educated, half-French son Noureddin, not yet 30, would seek to replace him, presumably using the regime's usual tricks.

Without the backing of Mr Bongo, it may not be certain that Mr White would be able to continue to protect the forest. As it is, his position is somewhat improbable. A 56-year-old white Briton, he is an expert on biodiversity, gorillas and forest elephants. For nearly ten years he ran Gabon's national parks, until two years ago, when an illegal-logging scandal was exposed over the illicit export of kevazingo, a reddish hardwood. In the fallout the president fired his vice-president and environment minister, and replaced the latter with Mr White.

He has won widespread admiration for promoting tree-hugging and animal-coddling in Gabon, thereby bolstering Mr Bongo's claim to be Africa's green champion. But his policy is far from popular with the many villagers whose crops are routinely trampled by unruly elephants. A standard cry among Gabonese tired of the ruling family runs, "Ali Bongo prefers elephants and trees to people." It is a sentiment the leaders at the COP will need to get to grips with, if their plans to protect Africa's forests are to come to fruition. ■



Algeria, Morocco and Western Sahara

The disputed desert

DAKHLA AND MAHBES

Things are heating up in Western Sahara, aggravating the old rivalry between Algeria and Morocco

THE TEA was highly caffeinated, but the mood was dour. As the night wore on, the sound of artillery could be heard in the distance. Fifteen or so Sahrawi soldiers had set up camp under one of the rare thickets in the Western Saharan desert. The youngest among them, looking no older than teenagers, scoured the sky for surveillance drones. “War is the only way,” said one. A little before midnight a radio operator received news that Moroccan batteries were opening fire. Then came the thunderous echo of falling missiles.

The decades-old conflict between Morocco and the Polisario Front, a nationalist movement seeking independence for Western Sahara, is heating up again. Over the past year Morocco has logged with the UN more than 1,000 “incidents” of Polisario firing on its units, though Polisario says it has staged more attacks than that. The fighting has mostly involved artillery duels along the world’s longest frontline—a 2,700km (1,700-mile) wall of sand, or berm, built by the Moroccan army and sown with mines. Polisario commanders say a dozen of their soldiers and as many civilians have been killed. Morocco officially denies that the war has resumed.

But the war is affecting the wider region in ways that are undeniable—most notably by feeding the rivalry between Morocco and Algeria, which supports Polisario. The conflict in Western Sahara contributed to Algeria’s decision to cut diplomatic ties

with Morocco in August. Algeria has since stopped supplying natural gas to the kingdom through the Maghreb-Europe pipeline. That may hurt Spain too, which also receives gas from the pipeline and is in the midst of an energy crisis. Meanwhile, the Biden administration has been tied in knots by Donald Trump’s decision in 2020 to break the international consensus and recognise Morocco’s sovereignty over Western Sahara. Decades after the fate of the disputed territory was to have been decided, it is still causing no end of trouble.

Broken promises

Morocco and Polisario began fighting around the time Spain, the colonial power, withdrew from Western Sahara and Morocco annexed the territory in 1975. In 1991 the two sides agreed to a ceasefire and a UN-sponsored peace process designed to conclude with a referendum on independence in the territory. But the vote never happened, thanks in large part to Moroccan obstructionism. The kingdom wants to use a vague offer of autonomy as the basis for new negotiations. Polisario dismisses that suggestion and says the ceasefire is over. As things stand, Morocco controls nearly 80% of Western Sahara. Polisario runs the remaining part (see map on next page).

The feud between Morocco and Algeria goes back even further. They fought a brief war over their border after Algeria’s independence from France in 1962. Algeria’s

support for revolutionary movements around the world has always made Morocco’s monarchy uncomfortable. But Algerian officials claim Morocco is fomenting unrest in their country by backing armed groups, such as Islamists during Algeria’s civil war. That prompted Algeria to close the border in 1994 (it remains closed). This year it was reported that Morocco had targeted the phones of Algerian officials with spyware. Algeria also said the kingdom supported groups allegedly involved in starting fires in northern Algeria, and blamed it for a bombing that killed three Algerian truck drivers on November 3rd.

Polisario’s actions come with the blessing of Algeria, which hosts the group’s leaders and many humbler Sahrawi refugees. “We are facing a war situation,” says an Algerian diplomat. The country has a habit of backing guerrilla movements. Algeria hosted Che Guevara, trained a young Nelson Mandela and invited Yasser Arafat to address the UN in 1974, shining a spotlight on the Palestinian cause. Last year Algeria railed against Morocco for establishing diplomatic ties with Israel as part of the deal that saw America recognise Moroccan control of Western Sahara.

Algeria’s motivations are also strategic, though. If Polisario controlled Western Sahara, Algeria would gain access to the Atlantic and easier routes into west Africa, while Morocco would be hemmed into the north-west corner of the continent. Instead it has watched Morocco exploit the territory. The kingdom’s portion of Western Sahara comes with phosphates, oil and fishing rights. It has sought to cement its hold on the territory, offering Moroccans who move there generous subsidies. This policy may also help to sway the vote if Morocco is ever forced to hold a referendum on Western Saharan independence.

The kingdom has spent billions of dollars fixing up Western Sahara. Many of the buildings in Laayoune, the capital, look as if they have been built rather recently, including the consulates opened by a growing number of African countries. The city of Dakhla, on the coast, was a fishing hamlet four decades ago. Now it is a burgeoning resort, packed with kite-surfers. A large port, aimed at supplying west Africa, is being built. Lorries ply the coastal road connecting Western Sahara—and thus Morocco—to the wider region. The kingdom’s deployment of troops into a UN-patrolled buffer zone to clear the road of protesters last year helped spark the current fighting.

Morocco has long been a low-cost manufacturing hub for European firms. Lately it has tried to cultivate allies and trade links in sub-Saharan Africa. After boycotting the African Union for 32 years over its inclusion of Western Sahara, Morocco returned in 2017. King Mohammed VI has opened dozens of new embassies and ►

consulates on the continent; most of Morocco's foreign investment goes to sub-Saharan Africa. This has paid off: less than half the AU's members now recognise Western Sahara. In general, Morocco's influence in Africa is growing—as Algeria's wanes. When two Moroccan truck drivers were killed crossing the Sahara earlier this year, jihadists were blamed. But Western diplomats suspect Algeria, trying to thwart Morocco's push south, played a role.

The situation in Western Sahara complicates Morocco's foreign relations elsewhere. In September the General Court of the European Union annulled fishing and agriculture agreements between the EU and Morocco because they included the territory. (An appeal is pending.) Earlier this year the kingdom allowed thousands of would-be migrants to descend on Ceuta, a Spanish enclave, because Spain had admitted Brahim Ghali, the leader of Polisario, for treatment for covid-19. Morocco also fell out with Germany over its "negative attitude" towards Western Sahara.

In October the UN Security Council extended MINURSO, the UN's peacekeeping mission in Western Sahara, and called for the resumption of talks. A new UN envoy, Staffan de Mistura, has been appointed for the territory. But America's position is confusing matters. The resolution extending MINURSO called for "self-determination of the people of Western Sahara", a phrase added by America, reportedly at the request of Russia. That would seem to conflict with America's official position of recognising Moroccan control. President Joe Biden has yet to say whether he will maintain that stance, which critics argue sets a dangerous precedent.

Channelling their anger

Polisario leaders, based in refugee camps near the Algerian city of Tindouf, say that Morocco's manoeuvring left them no choice but to break the ceasefire. But they were also under pressure at home. The 173,000 Sahrawi refugees in Algeria are growing restless. They say it hasn't rained in Tindouf in years and that their herds have been struck by disease. International aid has fallen. Yet Algeria seems intent on keeping the Sahrawis in the camps so that they don't abandon the struggle. Polisario worries that the frustration could boil over or lead to radicalisation. "The situation is like a volcano which could erupt," says a Sahrawi journalist.

The fighting has bought the leadership time. But young Sahrawis now want to escalate. "They don't feel that we are in a true war yet," says Bachir Mustapha, an adviser to Mr Ghali. Malainin Lakhel, a Sahrawi diplomat, agrees. Young Sahrawis "want attacks", he says. "They want prisoners. They want to see big operations like in the 1970s and 1980s." Many of them have

signed up for military training. Sahrawis living abroad have made gruelling ten-day trips through the Mauritanian desert to link up with Sahrawi forces and skirt Algeria's covid-related travel restrictions.

The war has put wind in Polisario's sails for the first time in years. What comes next, though, is not clear. Mr Mustapha promises a "second phase" of fighting. "All the leadership is for this," he says. But Polisario's military capacity declined during the ceasefire and is nowhere near that of Morocco. It is normal to see Sahrawi officers well into their 70s commanding soldiers in their early 20s. Algeria's support would be essential if things were really to kick off. Polisario hopes Algeria will see the war as a chance to revitalise the country's drifting foreign policy.

Some in Polisario want to pursue other tactics, such as attacking deeper in Moroccan-occupied territory. It is "much more than a possibility", says Mohamed Wali Akeik, who was recently named chief of staff of the Sahrawi army. "Companies and consulates, airlines and other sectors" are all potential targets, he says. Much of this may be bluster. Polisario likes to claim that its artillery barrages and raids are undermining Moroccan morale. It hopes any escalation will make Morocco uncomfortable enough to make concessions.

Morocco's troops, though, are digging in along the frontline. Its surveillance drones patrol the skies over Western Sahara; in September it received a first batch of Turkish combat drones. Morocco's military spending rose by 29% last year. Algeria fears it will work with Israel to impose its will on the region. Moroccan officials voice support for Algeria's Berber separatists and suggest that its ruling generals should return to the barracks. Algeria, in turn, has moved troops to the border. Diplomats say it is working with the Wagner Group, a controversial Russian security firm.

There is little chance that Polisario will

achieve its dream of independence for Western Sahara. Some observers think that is for the best. Without the support of Morocco, an independent Sahrawi state might struggle. It would have help from Algeria, which is richer than Morocco thanks to abundant hydrocarbons. But Algeria itself is in turmoil. Efforts to wean the economy off oil and gas have faltered. Big protests in 2019 led to the president's resignation. The public, though, sees the new one as a puppet of the army. The state is preoccupied with cracking down on groups associated with the pro-democracy Hirak movement.

Nae to autonomy

Morocco is better prepared for the future. It is home to Africa's largest car and plane manufacturers and its fastest trains. Over 60% of Moroccans have received two jabs of covid-19 vaccine, compared with 10% of Algerians. More than a third of the country's energy comes from renewables. Yet Sahrawis on the Moroccan side have plenty to be unhappy about. Those who talk of independence say they are denied jobs. Activists are hounded by the police. As for Morocco's offer of autonomy, Sahrawis point to the repressive monarchy. It would not be like Scotland in Britain, they say.

Of course things are worse on the other side of the berm, where many Sahrawis have spent their whole lives in dusty camps. Some took part in the Hirak—and have thoughts about Polisario's leadership. Mr Ghali is 72. Yet Polisario's greying leaders seem disinclined to hand over to a new generation. For now, anyway, the focus is on the war. No one trusts the UN to find a just peace. In the Boujdour refugee camp a young Sahrawi woman says renewing the old ceasefire is out of the question: "We would not allow that." The mood is the same on the frontline, where a fighter called Omar stands armed and ready. "If there are negotiations in the future, it will be under the sound of guns," he says. ■





Italy

The Mario magic

ROME

Italy's new prime minister has had a good nine months. But there is a lot left to do, and not much time to do it in

FOR THE past six months Italians have been floating from triumph to triumph. It began in May when an Italian band, Maneskin, won the Eurovision song contest. In July their men's football team became Europe's champions and in August, at the Olympics, their male sprinters astonished the sporting world, claiming gold in the 100 metres and 4 x 100 metres relay. In October an Italian scientist, Giorgio Parisi, shared the Nobel prize for physics.

Italy has meanwhile had what is, for it, the novel experience of being governed by an internationally respected prime minister, Mario Draghi, with a huge parliamentary majority that allows him to turn his projects swiftly into law. Supported by an effective vaccination campaign, the economy is recovering strongly. On October 28th Mr Draghi, a former president of the European Central Bank, forecast economic growth this year of "probably well over 6%", though few expect Italy's GDP to regain its pre-pandemic level until 2022, well behind America and Britain, among others. But Standard & Poor's, a rating

agency, has revised its outlook for Italian debt from stable to positive, and Italians can look forward to a period in which their government will be in a position—under an obligation, indeed—to spend liberally for the first time since the days of the post-war, American-funded Marshall Plan.

Italy stands to be the biggest beneficia-

ry in absolute terms of the EU's post-pandemic recovery project. From the core Recovery and Resilience Facility alone, it is due to receive €191.5bn in grants and loans. Such an influx of cash cannot help but have an impact on an economy that, even before covid-19, had barely grown this century: in real terms, Italy's GDP in 2019 was only 4% above its level in 2000, thanks to a combination of slow growth in even the best years and big declines in the bad ones. Real GDP per person was 1% lower over the period, compared with increases of 16% in France and 24% in Germany. Oxford Economics estimates that over the next three to four years the EU's recovery project will add on average a helpful annual 0.5 percentage points to Italian GDP growth.

Enzo Moavero, a professor at LUISS university in Rome who has served as a non-party minister in three recent governments, warns that the real challenge for Mr Draghi will be to deliver sustainable growth at or preferably above the European average. This, he reckons, will require "effective reforms that lead to thoroughgoing structural change."

The EU's recovery project is designed to address that issue. It makes the allocation of funds contingent on specific reforms and investments aimed at improving the growth prospects of member states. Italy has so far been given an initial €25bn with no strings attached. But it will have to satisfy a daunting 51 requirements by the end of the year to qualify for the next tranche. ►

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► And it could struggle to meet the target. A report to the cabinet on September 23rd revealed that at that point only 13 of the 51 objectives had been reached.

Italy's reform programme is not the problem; that is ahead of schedule. In May a package was approved that simplified a wide range of bureaucratic procedures. And a shake-up of the criminal-justice system is about to be implemented. A further reform, focusing on civil justice, is in the pipeline. Officials say that legislation to promote competition is also coming soon.

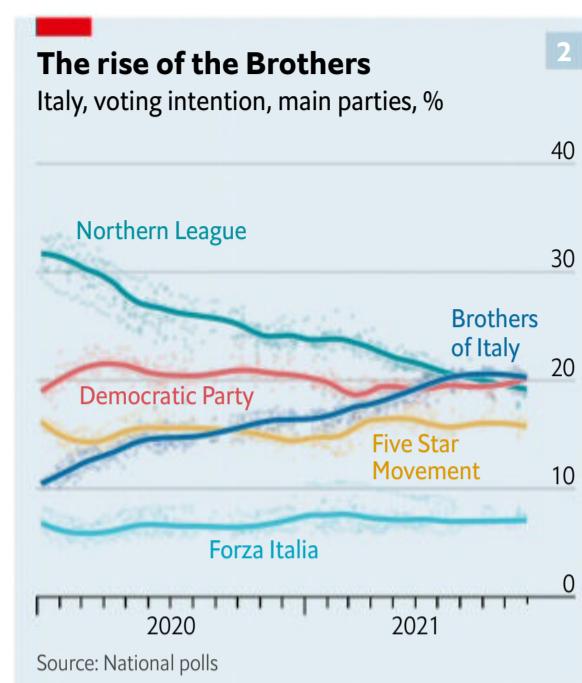
The problem is with investment. The outstanding foot-draggers appear to be the ministry of tourism, which at the time of the report had yet to implement any of the six investments for which it is responsible; and the department for ecological transition, which had implemented only one.

Looking beyond the end of this year, two doubts arise. The first concerns the fate of legislation after it is handed out for implementation at the sub-national level. "In Italy, the intention of policies is all too often lost in translation," says Paolo Graziano, who teaches political science at the University of Padua. There is a shortage of the necessary project-management skills among officials charged with implementing complex programmes—a shortcoming the Draghi government says it has begun to address. But another reason, says Fabrizio Tassinari of the European University Institute in Florence, is that "secondary legislation becomes hostage to vested interests, from local authorities to trade unions."

A further doubt centres on Mr Draghi himself. He is known to want the presidency, which becomes vacant in February, and if he were chosen he would have to resign as prime minister. Even if he does not become head of state, he is unlikely to remain in government after a general election that has to be held by the spring of 2023, and may well come sooner.

On October 18th mayoral candidates from the Democratic Party (PD) were elected in Rome and Turin, completing a clean sweep of Italy's biggest cities by the centre-left. But the PD and its allies are weaker in the provinces. Polls continue to suggest that Italy's next government will be a coalition dominated by two parties that have long been critical of the European Commission: the Brothers of Italy (FDI) party, which has links to neo-fascism, and the hard-right Northern League.

Those close to Mr Draghi argue that his departure need not lead to a radical break. His government has established bureaucratic mechanisms for steering and controlling the flow of the recovery money that will, with luck, outlive it. And future governments will be just as constrained by the deadlines the commission imposes and loth to forfeit the flow of cash from Brussels by failing to meet them.



Perhaps. But the League, which is a part of the coalition underpinning Mr Draghi, and the FDI, which is not, are both wedded to policies and interests that are at odds with the reforming thrust of the recovery plan. The League has already succeeded in parrying it in one important area. A significant weakness of the Italian economy is that, while taxes on labour are too high, those on property are too low. Mr Draghi's government moved to adjust the balance by changing the criteria used in the land registry in a way that would have boosted the revenue from property. But he ran into determined opposition from the League's leader, Matteo Salvini. As a result, the changes will not now come into effect until 2026; and even then they will not be used to calculate tax liability.

"I am more positive now than I was a year ago," says Nicola Nobile of Oxford Economics. "But I still consider a permanent improvement in Italy's economic prospects to be an upside scenario rather than a base case." ■

Portugal

The contraption crashes

LISBON

Snap elections are called after the prime minister's allies desert him

A GERINGONÇA IS pleasing to say, but difficult to operate. The Portuguese term, sometimes translated as "contraption", refers to a device patched together from oddly fitting parts. Although the governing arrangement that António Costa, Portugal's prime minister, assembled in 2015 was dubbed the *geringonça*, it proved surprisingly durable. But on October 27th it finally fell apart, as two left-wing partners voted down his budget, triggering elections two

years early—a rare occurrence in Portugal.

Though the budget was expansive, splashing out on free kindergarten and other goodies and increasing the minimum wage, it was not lavish enough for Mr Costa's radical allies, the Portuguese Communist Party (PCP) and the Left Bloc (BE). Marcelo Rebelo de Sousa, the president, had announced in advance that if it failed, he would call elections. If he was hoping to put pressure on the parties to seal the deal, the gamble failed.

The parties are scrambling to influence the electoral timetable. Most want elections on January 16th, to avoid prolonged instability. But the calendar is complicated by the plans of the biggest opposition party, the Social Democrats (PSD), a centre-right outfit despite its name, to hold leadership elections on December 4th. That would leave the winner scant time to pick candidates for the general elections. One PSD candidate, Paulo Rangel, is lobbying Mr Rebelo de Sousa (who hails from the PSD himself) to hold the elections later, to allow the party time to regroup. The current leader, Rui Rio, wants to postpone the primary instead. The president was due to announce the date on November 4th.

After an inauspicious start Mr Costa has won respect, not least in neighbouring Spain (where the centre-left Socialists also depend on a far-left party, Podemos). His Socialists came second in 2015's election, then toppled the short-lived minority PSD government, cobbling together a majority with the BE and PCP, previously considered untouchable by the moderate Socialists.

The then-president required a written agreement between the parties: the BE and PCP never joined the government but made clear commitments of support. But Mr Costa increased his party's seat count in 2019's elections. Mr Rebelo de Sousa decided not to insist on a formal agreement before blessing the second *geringonça*. The Bloc and the Communists, weakened and unbound by any deal, were sure to flounce out at some point.

Some think Mr Costa might have been happy for them to do so now. Portugal's covid-19 vaccination rate, 87%, is one of the world's highest. He can point to decent GDP growth and falling unemployment until the pandemic (which in 2020 caused GDP to plunge further than in any year since the 1930s). He has kept the deficit, which made Portugal a ward of the European Union and the IMF after the financial crisis, low enough to win international respect.

But this has come at the cost of public investment: Portugal's is thought to be the lowest in the EU in 2020 and 2021. Salaries are low by Western European standards: the minimum wage, at €775 (\$900) a month, is around €300 less than Spain's. Many Portuguese head abroad to work.

If Mr Costa nonetheless does well, he ►



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► might be able to govern with smaller, more tractable allies than the ones that have just let him down. Miguel Maduro, an ally of Mr Rangel in the PSD leadership contest, wants to return to an informal arrangement where whichever of the two biggest parties ends up with the second-largest tally of seats agrees not to try immediately to topple a minority government led by the other one.

But all the moderate parties are warily watching Chega, a far-right party with just one deputy now, but worryingly strong support in the polls. Mr Rangel refuses to govern with Chega. (Mr Rio has been more equivocal.) If Chega squeezes the other parties, any new government will be tricky. Portugal may be joining a new European normal: shrinking established parties, growing extremes and complex coalitions, a kind of permanent *geringonça*. ■

Global warming and food

Hot cuisine

How will climate change affect gastronomy?

FARMERS IN SOUTHERN Italy are cultivating avocados and mangos. Tropical creatures such as the rabbitfish are turning up in Mediterranean nets. And Bordeaux winemakers fret that their Merlot grapes may become extinct. Fifty years ago all this would have been unthinkable. But since the early 1980s rising temperatures have forced some farmers to swap grapes for passion fruit.

Italy and France have long been proud of their cuisines. Both countries jealously guard the rules that say only ham made in Parma can be called "Prosciutto di Parma", and only fizzy wine made in Champagne can be called champagne. Roquefort, that most celebrated of blue cheeses, was given special protection by the parliament of Toulouse in 1550.

The fact of having been grown somewhere famous has traditionally been seen as a guarantee of quality. But climate change could upset that. Take polenta, a popular Italian dish consisting almost entirely of ground maize. High temperatures and drier weather have already reduced maize yields in southern Italy. If this pattern continues and spreads northwards, will Italian polentamakers have to order their maize from elsewhere? And what about durum wheat, which grows abundantly in Mediterranean lands and is used to make pasta, flatbreads and couscous? Modelling suggests that durum yields will sharply fall there if the temperature keeps on rising.

So should gourmands worry about the

Georgia

Heavy vetting

TBILISI

Bouncers at gay clubs screen patrons for homophobia

QUEEN YULIA spends her nights lip-synching in a cheap wig and a disco-ball bra. Sometimes she does so on a plastic horse. She is one of a handful of professional drag queens in Georgia. She is also a co-owner of Success Bar, the country's only avowedly gay pub. (Some other clubs in Georgia run occasional gay nights.) Before she made a living on stage, she was in charge of "face control" for the bar. For bouncers at most other venues, that means

maintaining an air of exclusivity by letting in only stylish folk. For Queen Yulia and security guards at other LGBT events in Georgia, it means screening out bigots who might turn violent.

This is hard. Hatred, unlike a cool outfit, is not instantly visible. Partygoers hoping to attend a gay night at Bassiani, a nearby club, must submit their names, dates of birth, links to their Facebook profiles and even passport numbers days in advance. The party's security team then screen for signs of prejudice before allowing anyone to hit the dance floor. Nomadic Boys, a travel blog catering to gay tourists, advises clubgoers in Tbilisi to "avoid entering in big groups" and "keep silent as the bouncer scans you", lest innocent punters be taken for violent homophobes. Such scrutiny is needed in Georgia, where violence against gay people is alarmingly common.

On July 5th anti-gay rioters ransacked the headquarters of gay-rights groups that had planned a pride march that day. The thugs injured dozens of journalists covering the attack. One cameraman who was beaten later died, though the cause of his death remains unclear. Irakli Garibashvili, Georgia's prime minister, called the pride march a "propagandistic parade". He said it ought to have been cancelled, since 95% of Georgians oppose its message. The march planned for Tbilisi wasn't like pride celebrations in other European capitals where revellers throw condoms around, says Nia Gvatua, another co-owner of Success Bar. We were just trying to walk down "one fucking street", she says.

Gay Georgians are used to having their events disrupted. In 2019 bigots threw smoke bombs at a screening of a gay romance film. In 2013, as activists marked May 17th, a day on which activists worldwide decry homophobia and transphobia, rioters threw stones at pro-gay demonstrators and tried to lynch a man they thought was gay, says Amnesty International, an NGO. The next year, the head of Georgia's Orthodox church chose to designate the same day as an annual celebration of family values.

Most Georgians think gay sex is immoral. In a survey in 2018 by the International Social Survey Programme, 84% said it was always wrong. That was a higher share than in the Philippines, Russia or Turkey.

Success Bar thus offers an island of tolerance. Gay people can mingle, dance and have sex in the Dark Room, a dimly lit section of the bar. That is handy. More than 40% of Georgians live in multigenerational households. Grandma's watchful eye makes sex at home awkward for anyone, but especially for gay couples.

Tight security keeps clubgoers safe, for the most part. According to Queen Yulia, gay-bashers sometimes create fake Facebook profiles, posing as gay, to get into her ►



► bar. Once inside, they figure out who is gay or trans so that they can attack them later, outside. They tend to avoid fights inside the bar, where they are outnumbered.

Covid-19 restrictions and the fear of violence left Georgia's gay nightlife shuttered for months. Success Bar reopened in October. On its first day back, two gay activists were arrested outside the bar, supposedly for breaking a covid curfew.

Queen Yulia no longer feels safe in Georgia. Since the attack on July 5th, life for LGBT people has become worse, she says. She takes taxis everywhere now because she "can't take two steps" on the street without getting yelled at or beaten. She is saving money to leave the country. Others are leaving, too. For those who remain, the party goes on, but so does the struggle for acceptance. ■

Germany's Turks

From guest worker to citizen?

COLOGNE AND DÜSSELDORF

After 60 years, Germany is still confused about its Turkish population

IT WAS NOT poverty or ambition that drew Irfan Demirbilek to Germany from Turkey in 1968, but the lure of its splendid cars. Spotting a queue outside an employment office in Istanbul one day, Mr Demirbilek, an electrician who had long dreamed of having his own wheels, decided to join them in applying to work in West Germany. The countries had signed a "guest-worker" deal in 1961, and a brief spell earning Deutschmarks would suffice for an Opel or vw Beetle. A few months later Mr Demirbilek was on a three-day train to Cologne, his head full of excitement and apprehension.

As with so many Turkish guest workers, his brief German sojourn turned out to last a lifetime (and several cars, he chuckles). Now 84, he is sitting with his wife at a theatre in Düsseldorf, where the pair have just been garlanded with flowers in a ceremony to mark the 60th anniversary of the guest-worker treaty. The moment has offered Germany a chance to reflect on the complex history of what is now a 2.75m-strong Turkish minority, its largest by a distance.

Three-quarters of a million poor and largely unskilled Turks came to West Germany during the 12 years the agreement was in force. (Family reunification, and later waves of political exiles, boosted the numbers further.) Talk to guest workers and their descendants and you hear complex family histories: of immigrants vacillating between return and staying; women struggling to make sense of a place to which they had no economic or cultural

link; and "suitcase children" tossed back and forth between the two countries.

Germany, too, went through agonies, as its *Gastarbeiter* became a permanent minority in a country with little understanding of itself as a land of immigration. Integration policy came late, and was halting. First-generation Turks often lived in dormitories in enclaves where encounters with Germans were rare. Learning German was seldom needed for the manual work most performed. Children could be placed in migrant-only classes on the assumption they would one day go "home"; the gifted were often held back from the best schools.

Public distrust found expression in government policy. In 1983 Chancellor Helmut Kohl, who wanted to halve Germany's Turkish population, offered guest workers repatriation payments. It was not until 2014 that Turkish-Germans born in the country could retain dual citizenship into adulthood. Today some 1.5m residents, including nearly two-thirds of adults, do not have a German passport. (The incoming coalition is discussing reform of Germany's citizenship laws.) Xenophobic violence, common in the 1990s, is still a threat: four Turkish- and Kurdish-Germans were among the ten victims of a mass shooting in Hanau last year.

The reality for most is more prosaic. Germany's Turks own some 90,000 businesses, employing half a million people. They have spread beyond well-known neighbourhoods such as Marxloh in Duisburg or Mülheim in Cologne to suburbs and rural areas. Turkish-Germans are familiar faces from football to film. Eighteen won seats in the Bundestag in September's election. But difficulties persist. Children with a Turkish background are likelier to



You say guest, I say entrepreneur

drop out of school and earn less at work than other Germans, even when family background is accounted for. Zerrin Salikutluk, an expert on integration at Humboldt University in Berlin, describes studies suggesting that teachers' low expectations for Turkish pupils tend to reduce their grades. Germans with Turkish-sounding names still face discrimination in housing and hiring.

Such problems should dwindle over time, though others have emerged. Recep Tayyip Erdogan, Turkey's autocratic president, has directly appealed to Turkish-Germans who struggle to find a place in Germany—and has exported his own country's turbulent politics. At times of strain between the two governments, surveys find that a growing number of young Turks say they feel drawn to Turkey. Hakan Demir, a newly elected Turkish-German MP for Neukölln, a diverse district in Berlin, says local children enjoy provoking him by calling themselves *Ausländer* (foreigners), something he does not hear from older constituents. Well-integrated Turks bristle at having their loyalties questioned.

Even Germany's belated recognition of the achievements of its migrants often comes wrapped in well-meaning condescension. "The labels have changed," says Meral Sahin, a wedding-shop proprietor in Cologne, reeling off half a dozen of them, from "guest worker" to "foreign resident". But, she adds, they always said more about the Germans using them than the people to whom they were applied. Ugur Sahin and Özlem Türeci, the Turkish-German scientists behind the BioNTech covid-19 vaccine, have expressed unease at the politics of being held up as immigrant role models.

Germany has learned from some of its mistakes. It quickly channelled Syrian and other migrants from the 2015-16 wave into language and integration courses. Yet, notes Nesrin Tanç, a Duisburg-based author, for all the commemorations Germany still lacks an overarching story capacious enough to include Germans, Turks and other groups. Such notions can seem eccentric, even dangerous, in a country where patriotism is regarded with queasiness for obvious historical reasons. But since people with a "migrant background", in the German argot, are more than a quarter of the population, the need for a unifying narrative has only grown.

At a recent ceremony to honour guest workers, Frank-Walter Steinmeier, Germany's president, urged his compatriots, Germans and Turks alike, to "develop a history together" in which the contribution of all German residents could be acknowledged and celebrated. Germany, now rapidly ageing, is once again crying out for foreign labour. When the next wave of recruitment from abroad takes place, previous episodes will provide valuable lessons. ■

Charlemagne | Noisy neighbours

Rows between Britain and the EU are inevitable, but need not be harmful



THE BRITISH government is easily distracted. At the G7, it was sausages that knocked its concentration. Leaders gathered in Carbis Bay in June to discuss the pandemic and climate change. Instead they found Boris Johnson, their British host, embroiled in an argument with the EU about the export of chilled meats to Northern Ireland. At COP26, the environmental jamboree in Glasgow in Scotland, it was fish. Mr Johnson argued with France over the fate of a few dozen fishing licences in the Channel Islands.

Britain's relationship with the EU has a habit of interfering with set-piece events. France threatened to ban British boats from its ports, as well as jam up freight heading to and from Britain with extra checks. In turn Britain threatened to sue France for breaching the terms of a trade deal between the EU and Britain, agreed on with a mixture of stress and haste at the end of 2020. Two NATO allies, nuclear powers and partners on the UN Security Council with a combined GDP larger than Japan's, issued threats over a fishing industry worth only about 0.1% of it—though they managed to park the issue for a few days while the bigwigs were in town.

Fishing illustrates the Richard Scarry rule: politicians are terrified to mess with workers whose jobs are often depicted in children's books, since voters have a romantic view of farmers, fire-fighters, cops, etc. So fights between national fishing fleets can swiftly escalate, until prime ministers and presidents are slapping each other with figurative flounders. The EU keeps such squabbles in check between its members, but Britain has left the club. Dull meetings of a fisheries council have been replaced by a British minister dashing across the Channel for talks to avert a trade war.

Franco-British ties have often frayed. When all went well, it led to good things such as jointly developing Concorde, the world's first supersonic passenger jet. When things went poorly, it led to bad stuff, like the operational performance of Concorde, which lost lots of money and then fizzled out. When both countries were in the EU, it took larger disputes, such as Iraq, to strain the relationship. Now, even scallops can blow things off course.

Take away bodies like the EU, which tie governments together in ceaseless dialogue, and friction is inevitable. Neighbours row, no matter how well-tempered they usually are. Across the Atlantic, local hegemon America frequently squares up against Canada,

the most placid neighbour imaginable, over everything from timber to milk. Japan and South Korea are both rich democracies fearful of authoritarian neighbours and allied to America, but they do not let that get in the way of a reliably spiky relationship.

Although the EU is skilled at soothing things between its members, that can make things more complex for its neighbours. Ottawa can speak to Washington directly, without having to worry much about bilateral relations between Canada and Montana. When Britain tries to deal with its EU neighbours, it now faces an overlapping matrix of legal and political authority, between the EU and national governments. At times, the British government still clings to the false hope that convincing a few big countries is enough to sway the EU. The opposite is the case: those that are most affected by an issue hold the pen on controversial files, whether they are large or small. Other governments back them, building up favours that can be repaid. The EU is complicated. Dealing with it is complicated, too.

Britain is hardly alone in enduring a rocky relationship with the EU. So do most of the club's neighbours and allies. Turkey, ostensibly an ally but more usually an annoyance, is a constant thorn. The club often clashes with America, another economic power used to having its way. Switzerland's relationship (the most similar to Britain's) is often barbed. For an example of somewhere that usually has a calm relationship with the EU, the best options are Norway or Liechtenstein, which is less a country than the answer to a pub-quiz question. Britain is too large to accept being pushed around but too small to force its way.

Perpetual arguments beckon, says Samuel Lowe of the Centre for European Reform, a think-tank. When the row over fish passes, attention will turn to Northern Ireland, a more serious problem. The British government wants to overhaul the Northern Ireland protocol, which oversees trade involving the province. Depending on how it does it, this could trigger an all-out trade war between Britain and the EU, or, at best, months of negotiations. When that issue passes, others will flare up, whether on data protection, financial regulation or British exporters facing a carbon border-tax.

The threat is not the rows themselves, but the opportunity costs of dealing with them. Britain and France will remain strong military allies. In the midst of the row, a French sub popped up in Faslane, which is home to Britain's nuclear subs. The Lancaster House treaties, in which the two countries tied their armed forces together, still stand. Such agreements do not collapse overnight. But they can wither if there is little political desire to keep them watered. Amid the noise, the longer-term damage being done can be silent. Don't worry about the bang; fear the whimper.

We need to talk

After Brexit, officials in Britain and the EU come together almost only in crisis or confrontation. Rather than regular meetings aimed at solving problems before they appear, diplomats talk when things have already gone wrong. Politicians will always scrap, whether inside or outside the EU. But there are now fewer forums for diplomats to heal the wounds. Even America and the Soviet Union had a red phone. European history is one of grumpy relations between neighbours. The EU did not exist, so they had to invent it. Over 60 years, an apparatus emerged to stop small technical arguments becoming big political headaches. Brexit means having to reinvent a space for arcane policy discussion between Britain and its European neighbours. Until it does, public fights over scallops or sausages will be too tempting to resist. ■



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Political lobbying

Tory sleaze, again

The government has behaved disgracefully in protecting one of its MPs from justified censure

HERE ARE things that democratic governments are not supposed to do. They are not supposed to change the rules of the game at the last minute because they are going to lose. They are not supposed to make it easier to take money for favours. They are not supposed to force MPs to do things that make them hang their heads in shame. Yet on November 3rd Boris Johnson's government did all this and more. The father of the House, Peter Bottomley, declared that he could not in conscience vote with his party. Younger Tory MPs with careers still to make looked embarrassed.

On October 26th Parliament's standards committee issued a damning report on Owen Paterson, a veteran MP and leading Brexiteer. He was guilty of "an egregious case of paid advocacy" and had "brought the House into disrepute", it said. He should be suspended for 30 days, long enough to trigger a recall if enough voters demanded it. Mr Paterson had lobbied ministers and officials on behalf of two companies, Randox, a clinical-diagnostics firm, and Lynn's Country Foods, a meat

processor and distributor. They paid him more than £100,000 (\$137,000) a year between them for consulting work.

The report brought a furious rebuttal from Mr Paterson and a fusillade of complaints from his friends in Parliament and the media. They accused the standards commissioner, Kathryn Stone, of bias against Tories, particularly Brexiteers, of having used the two-year-long inquiry to torment Mr Paterson (his wife, Rose, took her own life during it) and, in the *Daily Telegraph*, of wearing a nose-stud and refusing to condemn the IRA.

If the Tories disagreed with the verdict, they could have voted to reject the report or reduce Mr Paterson's suspension. Instead Dame Andrea Leadsom, a former leader of the Commons, tabled an amendment to create a new committee to fix "potential defects" in the disciplinary system. The government then used its might to rescue Mr Paterson by imposing a three-line whip on its MPs to vote for the amendment.

His allies had little to say about the evidence against him, probably because it was

overwhelming. He had lobbied ministers and officials not once but repeatedly, using contacts acquired when he was secretary of state for Northern Ireland and then the environment. He used his parliamentary office for business meetings, and parliament-headed notepaper for lobbying. He claimed in his defence that he raised issues of food safety with the Food Standards Agency. But after that he made further attempts to contact officials and to promote "Randox's superior technology". The committee concluded that "no previous case of paid advocacy has seen so many breaches or such a clear pattern of confusion between the private and public interest".

Instead, Mr Paterson's supporters criticised the process. Jacob Rees-Mogg, leader of the house, argued that it had denied him the right of appeal as required by "natural justice", a phrase he and other Tories used with the reverence of Thomist scholars. In fact, the system offers several chances for reconsideration—the standards committee can reject the commissioner's report and even if it does not, the House of Commons has final say. The committee read all the evidence Mr Paterson presented, and no court is obliged to listen to any and all supporters a defendant nominates.

Whatever the current system's failings, the government's plan was worse. The new committee was to dispense with the independent commissioner and consist entirely of MPs, with a built-in Tory majority. It made a nonsense of Mr Rees-Mogg's talk of

► an appeals process: what sort of appeal court is controlled by the governing political party? Other parties said that their MPs would refuse to sit on it.

As if to acknowledge these shortcomings, the government appeared to back down as we went to press. It would, Mr Rees-Mogg said, bring about reform on a "cross-party" basis and break the link between Mr Paterson's case and future cases.

Today's system is itself the product of the cash-for-questions imbroglio in 1994 and the parliamentary expenses scandal of 2009. Yet the government is now dismantling it to wish away another money-related scandal. Almost a quarter of the 59 back-benchers who signed Dame Andrea's amendment had previously been found in breach of parliamentary standards. David Cameron, the prime minister from 2010 to

2016, was recently hauled over the coals for lobbying on behalf of Greensill Capital, a financial company that later failed. Yet the government has now protected yet another Tory MP who used his office to lobby.

The Paterson affair looks likely to further undermine public trust in politicians in general and Tories in particular. How will rich rewards for lobbying go down with the Conservative Party's new working-class voters in northern constituencies? That MPs voted for the amendment by just 250 to 232, despite a government majority of 80 and a three-line whip, suggests many Tory MPs are uneasy. Mr Rees-Mogg closed his speech by saying that "sometimes to do the right thing, one has to accept a degree of opprobrium". The government has just earned a great deal of opprobrium by doing the wrong thing. ■

must not be the continuation of politics by other means. She took aim at court rulings in two Brexit cases: one that the process for leaving the EU could only be started through primary legislation, the other nullifying a prorogation of Parliament.

It seems bizarre that law officers normally expected to defend the judiciary should attack it instead. It is also misleading of critics to claim that the judges in these two cases were trying to frustrate the Brexit referendum (the *Daily Mail* headlined its report on one "Enemies of the People"). In fact the judgments sought to bolster the role of Parliament, supposedly a big goal of Brexiteers.

A similar confusion besets another of Mr Raab's targets: foreign judges. He wants not just to end any role for the European Court of Justice in Luxembourg, but to overhaul the Human Rights Act, which obliges domestic judges to take account of rulings by the separate European Court of Human Rights in Strasbourg. But the ECHR's role derives from the European Convention on Human Rights, to which Britain is a signatory (indeed, British lawyers wrote most of the treaty). To withdraw would make Britain one of only two significant European countries outside its jurisdiction (the other is Belarus).

David Gauke, a former Tory lord chancellor, points out that gutting the Human Rights Act could, perversely, see more cases going direct to Strasbourg. It would also send an unhelpful signal about the importance of international law. Britain has long been a firm supporter of the concept. Any reversal would be especially unfortunate at a time when countries such as Poland and Hungary are under attack for undermining judicial independence.

This anti-judicial agenda seems at odds with the separation of powers. Britain has never been purist about this (Lord Mackay, another former Tory lord chancellor, used to say he was its antithesis, as a judge serving in the cabinet and also a member of the legislature). But the British constitution broadly accepts that the legislature, executive and judiciary should be separate.

If there is a problem, it is surely an overweening executive. Parliamentary scrutiny of government can be feeble. A good example, as it happens, was the Brexit trade deal, which saw a treaty of over 1,000 pages rushed through with minimal debate (Tory MPs have only just woken up to the implications for Northern Ireland of measures they enthusiastically voted for). Undermining international law and intimidating judges will hardly improve checks on the executive. Some 45 years ago Lord Hailsham, yet another former Tory lord chancellor, talked of the risks of "elective dictatorship". He had in mind a Labour government, but his words may apply more to a Conservative one. ■

Judicial independence

Government v judges

Tory claims that judges intrude too far into politics are wrong-headed

MINISTERS NEVER like seeing their decisions overturned. But in a rules-based system, they must usually live with it. Yet Britain's government has concluded that such reversals happen too often—and wants to change the rules to curb one purported cause, an obstructive judiciary. This raises constitutional concerns.

Exhibit one is a bill now going through Parliament that seeks to curb judicial reviews, in which senior judges consider the legality or otherwise of a public body's actions. They have certainly become more common in recent decades. Ministers from both parties have at times sought to limit their scope or even stop them altogether, partly to save money. The draft bill is actually quite mild. But it includes an ouster clause that would prevent judicial review of controversial immigration cases.

David Davis, a former Conservative minister, opposes the bill for this reason. He fears that the ouster clause may become a model for obstructing review of employment-tribunal or social-security decisions. Yet some prefer to broaden the bill instead. Richard Ekins, an Oxford academic who runs the judicial-power project at Policy Exchange, a think-tank, says excessive judicial review has led unaccountable judges into areas that should be decided by politicians accountable to Parliament.

Some ministers agree. Dominic Raab, the lord chancellor and justice secretary, has criticised some judicial-review decisions, notably relating to Brexit. He wishes

to stop the powers of Parliament being whittled away by what he characterises as "judicial legislation". To this end, he wants an unspecified mechanism to allow Parliament swiftly to "correct" what ministers deem to be wrong judgments. Mark Elliott, a Cambridge academic specialising in public law, finds this idea deeply troubling, especially if it is done through secondary legislation or applied retrospectively.

Yet it is favoured by Suella Braverman, the attorney-general. In a recent speech she said judicial review was being used "as a political tool by those who have already lost the arguments", and that litigation



Bagehot | Blue Leviathan

The Conservatives are building a bigger, busier state, from raising taxes to stoking culture wars



THE CONSERVATIVES have undergone many transformations in their time: from the party of the landed squirearchy to that of the industrial bourgeoisie; from the post-war consensus to free-market radicalism. Now they are undergoing another. For 40 years, from the choice of Margaret Thatcher as its leader in 1975 to David Cameron stepping down as prime minister in 2016, Tories stood for small government. Today they are the party of big-government conservatism.

The budget provided a vivid illustration. By the mid-2020s public spending will be the highest, as a share of GDP, since the mid-1970s. By the same measure, taxation will be its highest since the early 1950s. But there is more to big-government conservatism than the size of the state. There is the philosophy of the state as well. And under Boris Johnson, the Conservatives have set themselves aims they think can be achieved only by big-state activism.

The most obvious is “levelling up”. The division between prosperous south and deprived north goes back centuries: read Elizabeth Gaskell’s “North and South”, published in 1854. And London’s economic pre-eminence is the result of natural agglomeration. Successful banks attract others, which attract accountants and lawyers, which attract restaurants and art galleries, and so on. Increasingly, the government seems to feel this cannot be countered without it intervening muscularly, for example by splashing out on infrastructure and backing economic clusters.

Levelling up also involves reining in the over-mighty “liberal elite”, from the BBC and academia to the legal system and civil service. Tories like to refer to this elite as the “blob” because its members all live in the same sorts of places (Islingtonia) and believe the same sorts of things (“diversity”, meaning varied ethnicities rather than viewpoints). The government thinks Brexit exposed a dangerous gulf between liberal elites and the masses who pay their salaries. And it worries that a “woke ratchet” is making that gulf wider, as members of the elite try to impress each other by embracing trans rights, critical race theory and cancel culture.

The result is a flurry of state activism, including an academic-freedom bill that is designed to prevent the no-platforming of speakers; a housing bill that gives locals a say over the appearance of new buildings; a judicial review and courts bill that it says will

increase democratic oversight; a more confrontational stance towards the BBC and legal profession, and a policy of moving civil servants out of London and into the provinces.

Some of this is political hardball. The Conservative Party captured huge swathes of northern England in 2019, and is pouring resources into these new territories. It is increasingly the party of the working class and the elderly, so picking a fight with young and middle-aged trendies makes sense. But the embrace of state activism also means an evolution in conservative thinking—or perhaps, more accurately, a growing recognition of the difference between conservatism and classical liberalism.

Legend has it that Mrs Thatcher used to pull Friedrich Hayek’s “The Constitution of Liberty” from her handbag and declare: “This is what we believe.” Yet the book’s postscript is called “Why I am not a conservative”. Tories are returning to explicitly conservative thinkers such as Edmund Burke, who said government was a “contrivance of human wisdom to provide for human wants. Men have a right that these wants be provided for by this wisdom.” They are concluding not only that market-first policies do not always produce conservative solutions, but that unleashing market forces in academia and the legal profession coincided with a leftward move in both, as universities embraced critical theory in various guises and lawyers struck gold in human-rights law. Indeed, market forces can undermine a conservative society’s foundations. Big government is then not an aberration, as Thatcherites contend, but a tool to achieve conservative ends.

In a democracy, conservatism relies on equality of opportunity. The race of life, in which only some get prizes, is seen as illegitimate unless everybody gets a fair start. But in the past four decades the starting line has become more uneven, as the successful have hoarded resources for their children, and wealth has become more regionally concentrated. Seen in this light, conservatives are duty-bound to embrace vigorous state action in order to restore faith in the system.

Conservatism also depends on healthy communities, including the nation state. In her glory days, Thatcher saw no tension between market and nation. The orgy of patriotism that followed the Falklands war coincided with an orgy of money-making in the City. But the tensions have increased as Chinese competition has destroyed manufacturing jobs and Amazon has laid waste to bricks-and-mortar retailers. In 2019 the Conservatives’ election manifesto promised government action to spruce up town centres and improve bus services. Mr Johnson has presented labour shortages caused by tighter immigration rules since Britain left the European Union as a chance to increase wages and productivity.

Super-size me

Big-government conservatism is rife with problems and potential problems. The government may pursue narrow party advantage rather than tackle them: the choice of Nadine Dorries, a combatively philistine MP, as culture secretary is hardly encouraging. It may also override the few checks that restrain Britain’s overmighty executive. The idea that “out-of-touch” lawyers need to be subject to democratic control would be more convincing if the government didn’t treat Parliament with such contempt. And Thatcher’s warning that socialist governments “always run out of other people’s money” applies equally to big-government conservatism. But whatever squalls or shipwrecks lie ahead, Mr Johnson’s Conservative Party is the party of government activism, rather than government restraint. ■



Forests and climate change

Up a tree

KYIV AND SÃO PAULO

If the world really loves forests, it should put a price on their carbon

THE WORLD'S leaders may quail at closing coal-fired power plants or raising petrol prices, but they can be relied upon to embrace one ally in the fight against climate change: the tree. For all his claims that climate change was a hoax, even Donald Trump, as president, championed an initiative to plant a trillion trees. Yet there is cause for scepticism about the pact, announced at the Glasgow climate summit this week, to put an end to deforestation before the decade is out.

The world has seen similar unenforceable declarations before. In 2014 governments, companies and NGOs promised to halve deforestation by 2020 and end it by 2030. The first target was missed, making the second, to which many of the same countries have now resubscribed, a stretch. And those trillion trees remain an achievement chiefly of alliteration.

Still, this week's announcement is more credible than previous pledges. This time, Brazil and Indonesia, both deforestation hotspots, have signed up (India has not). Rich countries have promised to stump up cash to protect and restore forests. All sig-

natories have recognised that indigenous people are best placed to care for forests they live in. At least as significant is a commitment from the private sector, including financial institutions, to uproot deforestation from their supply chains and investment portfolios.

Slashing, burning or thinning trees or otherwise degrading ecosystems accounts for 11% of emissions. Standing forests, by contrast, serve as carbon "sinks", breathing in a net 7.6bn tonnes of carbon dioxide each year. Programmes to plant and protect forests will be essential to meeting the Paris agreement's targets of limiting global average temperature rises to "well below 2°C" above pre-industrial levels. The Paris agreement calls for the amount of carbon sequestered each year in sinks to equal or exceed human-made emissions "in the second half of this century".

This has spurred national and corporate strategies to hit net-zero emissions through forestry, from restoring carbon-rich peatlands to developing agroforestry. China and India have vast tree-planting programmes. Russia, home to 20% of the

world's forests, wants to use them to offset its sizeable greenhouse-gas emissions. Bhutan, which plausibly claims to have reached net-zero, can do so only by taking credit for a heavy dose of forestry. Myanmar is in a similar situation.

The problem is that the world lacks a shared, sensible system for valuing the contribution of trees to sequestering carbon. This is an accounting puzzle of great complexity. Depending on whether and how it is solved, trees could wind up being either part of the solution to global warming or part of the problem.

The accounting standards now in use and new standards for a carbon market in which forestry offsets can be traded are on the agenda in Glasgow. But quantifying the carbon sequestered by any project, ensuring benefits are durable, providing consistent, transparent data and weeding out bogus schemes all pose thorny problems.

The natural carbon cycle of forests is self-regulating. Trees soak up CO₂ from the atmosphere, then return some of it when they decompose or burn in wildfires. Over time, new plants absorb that CO₂.

Humans are distorting things in two ways. Deforestation and forest degradation increase emissions by releasing stored carbon. And the 1.1-1.3°C of global warming that has come with the 2.5trn tonnes of CO₂ already added to the atmosphere further increases carbon emissions: more warming means faster decay and more fires.

At the same time, carbon dioxide from fossil fuels gives plants more to work with,

► increasing the effectiveness of some sinks. But this is not an unqualified benefit: trees migrating into the Arctic Circle thanks to “carbon-dioxide fertilisation” are darkening land that had been snow-covered and white. Darker lands absorb more energy from the sun, amplifying the warming of the polar region.

All these ways humans affect forests, and with them the atmosphere, are devilishly complicated to disentangle from one another—and from what would have happened in their absence. Some standards and methods are in place. Independent scientists and the bean-counters of the UN Framework Convention on Climate Change have devised a shorthand to help countries measure their exhalation and inhalation of carbon.

In annual greenhouse-gas inventories that countries submit to the UN, changes in emissions in land labelled as “managed” are deemed to be anthropogenic. What falls under “managed” varies by country; it can include everything from pastures on deforested land to protected forests that, while not actively managed, firefighters would defend if spark came to flame. The changes in emissions from managed land thus include natural carbon cycling not directly affected by human activity.

In addition to enabling some fuzziness around what counts, this system allows countries to offset industrial emissions against existing forests. For example, Myanmar’s latest greenhouse-gas inventory shows it emits 8m tonnes of greenhouse gases, while its managed forests soak up 96m tonnes. Although the country still burns fossil fuels, it can claim carbon neutrality under the rules. Myanmar’s emissions are a tiny fraction of the global annual total of 52bn tonnes, so any fudging does not matter much.

The same cannot be said of Russia, the world’s fourth-largest emitter. For years Russia has viewed its vast forests as central to its efforts against climate change. Russia’s commitment to the Paris goals is to reduce its emissions by 2030 by 70% relative to 1990 levels, “taking into account the maximum possible absorptive capacity of forests and other ecosystems”. In 2019 Russia claimed its forests absorbed the equivalent of 25% of its emissions.

That effect is declining, as ageing trees soak up smaller amounts of CO₂. According to Russia’s Ministry of Environment and Natural Resources, the sink will drop to zero—emitting as much carbon as it absorbs—within 40 years. It was a boon, then, when last year Russia’s first inventory of its forests since the mid-1990s found that their volume had increased by 25%. Earlier this year, a study published in *Nature*, a scientific journal, calculated that this carbon sink is 47% greater than previously understood. Much of the increase is

because of natural growth, as forests reclaim abandoned agricultural land or trees creep north. Such revisions are worth hundreds of millions of tonnes of carbon emissions, and should show up in Russia’s future inventories.

To add to this windfall, Russia recently announced it would include unmanaged “reserve” forests alongside managed forests in its greenhouse-gas inventory. That could improve Russia’s annual reports, if not the climate, by helping to add hundreds of millions of tonnes of CO₂ to its forest sink.

The numbers racket

Shared standards for measuring the contribution of trees to national emissions would make it easier to compare progress, country by country, towards climate goals. But ecologists have warned that a disconnect between national greenhouse-gas inventories and the estimates by independent scientists currently makes this impossible. Because official greenhouse-gas inventories count emissions from loosely defined “managed” ecosystems as anthropogenic, and global climate models use a more narrow classification, the two systems yield different results.

According to climate models, Earth’s land masses emit 5.5bn tonnes more CO₂ each year than the inventories account for. Neither count is better, say the researchers, but since the climate models map out paths to a stable climate, and the inventories track progress along those paths, they are comparing apples and oranges.

This relates to the talks in Glasgow, where delegates will be finalising the guidelines for a “global stocktake” that will see parties to the Paris agreement assess their collective progress towards the Paris goals. For the exercise to be meaningful, it must adjust for the disconnect between national inventories and climate models, or risk giving the impression that governments are doing better than they are.

Improved standards would also create a sounder basis for the growing market in

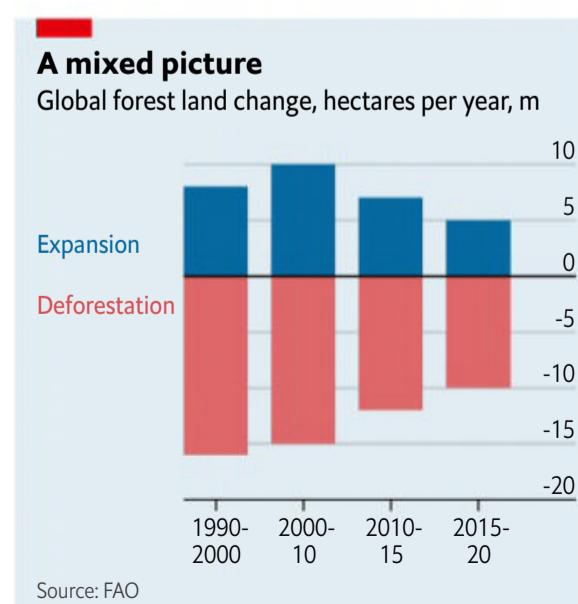
carbon offsets, and thus help marshal the private sector against climate change. For example, Brazilian politicians see global trading in carbon credits, envisioned in article 6 of the Paris agreement, as a silver bullet for reducing deforestation, the cause of roughly half of Brazil’s emissions. Their thinking is that a global carbon market will turn forests into a tradable commodity, making land in the Amazon more valuable with trees than without.

But to help stabilise the climate, projects that receive carbon credits for stopping deforestation, or promoting reforestation, must be able to demonstrate they are decreasing emissions that would otherwise have taken place—in carbon offset jargon, this is known as additionality. It is possible, for instance, to buy carbon offsets for protecting trees in the Amazonian state of Pará. But most land there is already federally protected, and so should not be seen as a basis for carbon credits.

When it comes to forests, the carbon-offset market is also unable now to factor in what is known as permanence. Replacing a diesel bus with an electric one probably removes emissions for ever: with any luck there will be no diesel buses left to buy when the electric one reaches the end of its life. But a patch of forest can be cleared or burnt in a decade, or even next week. How can the market ensure that offsets bought today have enduring effects? And in Brazil and elsewhere, programmes to reforest or plant new forests come with a leakage problem: saving one bit of land may encourage deforestation elsewhere.

All these problems apply to the existing, voluntary carbon markets. An economy ticket on a flight from London to New York generates some 600kg of CO₂; offsets for that carbon can be bought for as little as a few dollars through commercial tree-planting schemes. That may ease a traveller’s conscience but does little to protect the climate. Over the coming fortnight, delegates at COP26 will try to reach agreement on guidelines to assure permanence and account for additionality, in hopes of creating a model that can be emulated in the voluntary markets.

That is all to the good. There is indeed no poem lovely as a tree, and carbon offsets, and the forests they may cause to be planted or protected, can help slow climate change. But for that to happen the world’s leaders will need to demand far less popular measures as well, like ending the use of fossil fuels and transforming farming. Climate models show that ecosystem sinks will be most effective at absorbing CO₂ if warming remains in the range of the Paris goals. If temperatures soar, as looks likely, carbon-rich tropical ecosystems will dry out, burn and become carbon sources rather than sinks. Trees cannot solve the climate crisis. Only people can. ■



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Businesses' ability to pass on costs is highly prized by investors

MCDONALD'S HAS employed a "barbell" pricing strategy for decades, luring customers with low-cost items in the hope that they will then splurge on pricier fare. This balancing act is now at risk. On October 27th the fast-food giant said that, due to rising costs, prices at its American restaurants will increase by 6% this year compared with 2020. The burger chain says labour expenses have risen by 10% at its franchised restaurants and 15% at its company-owned locations. Add the rising cost of ingredients and the result is higher prices for burgers and fries. For now, it seems, customers can stomach it. Chris Kempczinski, McDonald's boss, said the increase "has been pretty well received". After digesting the news, investors have sent shares in the fast-food firm up by 6%.

A growing number of companies are raising prices as costs for labour and raw materials rise, often with no ill effects. This summer PepsiCo, an American food giant, lifted prices for its fizzy drinks and snacks to offset higher commodity and transport costs; it plans further increases early next year. Ramon Laguarta, the firm's

boss, suggested in an earnings call in October that customers do not seem bothered. "Across the world consumers seem to be looking at pricing a little bit differently than before," he said. In September Procter & Gamble, a multinational consumer-goods giant, raised prices for many of its

products. The effect on demand was minimal. "We have not seen any material reaction from consumers," Andre Schulten, the firm's chief financial officer (CFO), told analysts last month.

"Pricing power", the ability to pass costs to customers without harming sales, has long been prized by investors. Warren Buffett has described it as "the single most important decision in evaluating a business". It is easy to see why. When hit with an unexpected expense, firms without pricing power are forced to cut costs, boost productivity or simply absorb the costs through lower profit margins. Those with pricing power can push costs onto customers, keeping margins steady.

Today, firms are eager to flaunt their price-setting clout. "We can reprice our product every second of every day," Christopher Nassetta, boss of Hilton Worldwide, a hotel operator, told investors last month. "We believe we've got pricing power really better than almost anybody if not everybody in the industry," boasted John Hartung, CFO of Chipotle, a restaurant chain, in October. Companies such as Starbucks, Levi Strauss and GlaxoSmithKline make similar claims. "We are a luxury company, so we do have pricing power," bragged Tracey Travis, CFO of Estée Lauder, a cosmetics firm, on November 2nd.

They are not alone. Of the S&P 500 companies that have reported third-quarter results, over three-quarters beat projections, according to Bank of America Merrill Lynch. "This earnings season there was a

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lot of angst on the part of investors that higher input costs would erode margins," says Patrick Palfrey of Credit Suisse, a bank. "In fact, what we have seen is another spectacular quarter on behalf of corporations so far in spite of input cost pressures." According to Savita Subramanian and Ohsung Kwon of Bank of America mentions of "price" or "pricing" in American earnings calls—a proxy measure for pricing power—increased by 79% in the third quarter from a year earlier. In the second quarter, such mentions were up by 52% year on year.

If costs spiral out of control, the power to raise prices will become ever more important. On November 2nd JPMorgan Chase's global purchasing-managers index, a measure of manufacturing activity, showed that input prices in the sector increased in October at the highest rate in more than 13 years. But the prices of manufactured goods and services also rose at the fastest pace since records began in 2009. A gap between input and output price inflation is typically interpreted as a sign that firms are struggling to raise prices and that margins are being squeezed. That isn't happening yet.

Identifying firms with pricing power is crucial for investors. Analysts tend to look for three things. The first is a big markup—the difference between the price of a good and its marginal cost—which only firms with market power can get away with. Big and steady profit margins are another sign of pricing power. "If you are a firm that is dominant in your market, you are much more resilient to shocks," explains Jan Eeckhout, an economist and the author of "The Profit Paradox", a book published earlier this year.

Size is another factor. All else equal, bigger companies with greater market share have more pricing power than smaller ones. A recent survey of American CFOs conducted by Duke University and the Federal Reserve Banks of Richmond and Atlanta found that 85% of large firms reported passing on cost increases to customers,

compared with 72% of small firms.

A "pricing-power score" for companies in the S&P 1500 compiled by UBS is based on four indicators: mark-up, market share, and the volatility and skew of profit margins. The bank found that firms providing consumer staples, communication services and IT have the most pricing power and that energy, financial and materials companies have the least (see chart 1 on previous page). When UBS compared the financial performance of companies with strong and weak pricing power, they found that the former have delivered more profit growth since 2010 and generated better stock returns, particularly during periods of high inflation (see chart 2).

Firms that score well on this index have lagged in the past year, notes UBS. This may be explained by cyclical factors. When profit margins are expanding, the argument

goes, firms with pricing power tend to generate relatively low returns; when margins are shrinking, they produce high returns. At the moment, profits are still healthy.

For now, demand is robust and consumers seem relatively insensitive to price changes. But companies are planning more price increases. A survey by America's National Federation of Independent Business, a trade group, found that the margin of small-business owners planning to raise prices in the next three months over those planning to lower them grew to 46%, the biggest gap since October 1979. This is a concern for some central bankers such as James Bullard, president of the Federal Reserve Bank of St Louis. In October he noted that for years companies have worried that if they raised prices, they would lose market share. "That may be breaking down," he says. ■

American basketball and China

The audacity of hoops

HONG KONG

Player protests put a lucrative foreign market at risk

ENES KANTER'S campaign against China's Communist Party has been unrelenting. The basketball star has recently walked into professional games sporting custom shoes that read "Free Tibet", a slogan that has long raised hackles in Beijing. He has invited the co-founder of Nike, a sportswear firm, to visit "slave labour camps" in China's north-west (Nike says it does not source products from the region). On November 2nd Mr Kanter, who plays for the Boston Celtics, posted a message for China's president on Twitter: "Ruthless Dictator XI JINPING...hear me loud and clear: Hong Kong will be FREE!"

The slam-dunk on China, America's National Basketball Association (NBA) and clothing brands such as Nike has the potential to do extraordinary damage. Tencent, the Chinese internet giant contracted to stream NBA games, has already blocked the Celtics. The league relies heavily on Chinese sponsors and has already had a taste of what cancellation means. The airing of NBA games was halted for more than a year in China starting in October 2019 after the general manager of the Houston Rockets voiced support for anti-government protesters in Hong Kong. The embargo was painful. Nearly all Chinese corporate partners cancelled or suspended their arrangements at the time. The league's commissioner estimated as much as \$400m in lost revenue. It has projected income of \$10bn for the current season.

Mr Kanter has also brought more unwanted attention to clothing brands caught in a controversy over sourcing cotton from China's Xinjiang region, homeland of the Uyghurs and where human-rights groups say forced labour is common. Multinationals are being forced to take a side on free-speech issues, says Badiucao, the Chinese artist who designed Mr Kanter's evocative shoes (he goes by a pseudonym). Some are doing just that. Yahoo, an American internet giant, said on November 2nd that it would pull out of China, citing challenging business conditions. Weeks earlier LinkedIn, a professional-networking group, announced it would shut down its main China operations after it was forced to comply with increasingly tough censorship rules.

The NBA is wildly popular in China. Many fans disavowed the league in 2019 but were eager to resume watching it last year. Communist Party authorities must balance the popularity of the sport with their instinct to punish critics, says David Bach of the Institute for Management Development, a Swiss business school. Instead of stirring up sentiment against the NBA and announcing an all-out ban on broadcasts, as in 2019, so far only Celtics games have been blocked. The NBA has neither criticised Mr Kanter nor affirmed his rights to such speech. The stand-off amounts to a form of bargaining between the NBA and the Communist Party, says Mr Bach. ■

Price discovery

Market returns of strong pricing power
S&P 1500 companies relative to weak ones
Jan 2010-Apr 2021, %



Source: UBS

Newspapers

Paperchase

Soaring newsprint costs make life even harder

IT'S LIKE TASERING an elderly person who's already on a pacemaker," says a British newspaper boss of the newsprint market, where prices have risen by over 50% in a matter of months. The cost of paper that feeds into presses around the world is rising to record highs, pushing up expenses for newspapers from Mumbai to Sydney. When times were good, before ads shifted online, newspapers had a supportive partnership with paper mills. As ads departed and circulations fell, relations became more transactional. They are now at the shouting stage.

Paper mills had the worst of it for years as newspapers reduced pagination, went wholly digital or shut for good. The papers were able to hammer down the cost of newsprint from firms fighting for business as demand declined. Price-taking paper mills suffered in silence. Many hesitated to shut massive machines costing hundreds of millions of dollars.

That hesitation has disappeared; mills are taking out newsprint capacity and diversifying. Norske Skog, a Norwegian pulp and paper firm, said in June it would close its 66-year-old Tasman Mill in New Zealand, for example. Many mills are converting machines to make packaging for e-commerce. UPM, a Finnish firm, announced this year the sale of its Shotton newsprint mill in Wales to a Turkish maker of containerboard and packaging. For JCS Volga, a Russian mill, newsprint used to account for 70% of production; now half of what it makes is packaging. The mills "moved from being price takers to being capable co-participants in a declining market," says Tim Woods of IndustryEdge, a research firm for Australia and New Zealand's forestry and paper industries.

The pandemic, with people working from home, meant even fewer newspaper purchases, which depressed demand for newsprint again and increased the pain for paper suppliers. In the past 24 months European mills have responded by shutting almost a fifth of their newsprint capacity, says a buyer for a large British newspaper group.

Then economies reopened. Newsprint demand shot up. That, combined with much reduced capacity and coupled with soaring energy prices, has resulted in a price shock. Particularly controversial are energy surcharges that some paper suppliers are seeking to pass on. Newspaper

Amazon in Germany Strike season

BERLIN
A big union's fight to preserve national pay standards

FOR EIGHT CONSECUTIVE years ver.di, Germany's second-biggest trade union, has called a strike during the pre-holiday season at Amazon's fulfilment centres, the vast warehouses where packages are prepared for delivery. This year the tradition continued. Around 2,500 Amazon employees at seven centres walked out on November 2nd. The union warned that the strikes could continue up to Christmas.

Ver.di demands an "immediate" salary increase of 3% this year, followed by 1.7% next year, in line with a collective labour agreement for the retail sector. Amazon is making heaps of money in Germany and cannot continue to "refuse

wage increases that other companies in the sector pay", says Orhan Akman of ver.di. Mr Akman vows not to give up as strikes in previous years yielded results. Union pressure forced Amazon to increase wages several times, he states.

The wider goal of the strike is the preservation of the *Tarifvertrag*, a periodic agreement between unions and bosses that sets wage levels for each industry. It is credited with playing a big part in Germany's harmonious labour relations. Such "tariff" agreements have been eroded over the past couple of decades, especially in eastern Germany. Many firms in service industries in particular no longer adhere to them.

"Amazon is an excellent employer without the tariff agreement," insists Michael Schneider, a company spokesman. In the summer Amazon raised pay for all employees to at least €12 (\$14) an hour—the minimum wage is €9.60. After two years workers earn on average €2,750 a month. Half of its 19,000 employees have worked at Amazon for over five years and seem unwilling to walk out.

Amazon is hiring an additional 10,000 temporary employees for the busy Christmas season in its second-biggest market. The company says it can fulfil all orders in spite of the strikes. In likelihood this year's industrial action will end like the others every year since 2013 with Amazon making some concession. But by not adhering to the *Tarifvertrag*, the company is further chipping away at wage agreements both for the retail industry and Germany as a whole. ■



Cycle of industrial unrest

firms reckon this amounts to breaking contracts. European newspapers will have to pay newsprint prices that are 50-70% higher in the first quarter of 2022 compared with the year before. As for their counterparts in Asia and Oceania, they are facing prices around 25% to 45% above their usual level. Kenya's Nation Media Group is paying around \$840 per tonne, compared with \$600 at most in the past, says Dorine Ogolo, a procurement manager at the firm. North American prices went up earlier, and more gradually; contracts are fixed monthly rather than half-yearly. But there, too, newsprint prices are 20-30% higher in 2021 than in 2020.

Germany's print and media industry association has warned that mills are going to force newspapers to dump paper editions, hurting each other in the process.

"It's about the famous branch that both of them are sitting on," it said recently. But mills can sell packaging instead. "We're not going to save the publishing industry by being unprofitable ourselves," says a mill executive in North America.

For some publishers, price rises will wipe out profits. They will need to do further restructuring involving axing titles and layoffs. Iwan Le Moine of EMGE, a British paper-industry consultancy, expects a big increase in 2022 of the number of papers that shut compared with a typical year. That will lower demand and nudge the market back towards equilibrium. But newspapers will have more hard conversations about paper, full stop, says Douglas McCabe of Enders Analysis, a research firm. More digital adrenaline is one possible riposte to the paper mills' taser. ■

The new face of old tech

Reinvention as a service

SAN FRANCISCO

The IT establishment is rewiring itself for the next age of tech

WE ARE A different company now. We are no longer focused just on mobile. And we have the numbers to back it up." Cristiano Amon, the boss of Qualcomm, which makes chips mostly for smartphones, is emphatic when he describes what he will tell Wall Street at the firm's investor day on November 16th. He is in good company. Some of the other famous members of a previous generation of big-tech firms (Cisco, Dell Technologies, Hewlett Packard Enterprise and IBM) have recently met investors to explain how they intend to stay relevant in the age of cloud computing and artificial intelligence (AI).

There is action as well as words. On November 1st Dell spun off VMware, a big software-maker; later in the week IBM floated much of its professional-services business. The tech old guard hope to reinvent themselves, much as Microsoft has done in recent years in spectacular fashion.

Although dwarfed by the current big-tech generation (see chart 1), this handful of IT veterans still has clout. There is hardly any business that does not use some of their products and services. In the past 12 months they cranked out a huge \$284bn in revenues collectively and \$56bn in gross operating profits. And they employ 690,000 people worldwide. Each firm has its own specialisms. Qualcomm designs its chips, but outsources manufacturing. Both Cisco and IBM, mainly regarded as hardware-makers, have become largely software firms. As for Dell and Hewlett Packard Enterprise (HPE), their reputation is rooted in personal computers (PCs), even though they now sell other hardware, from storage devices to supercomputers (the PC business stayed with HP's other branch when the company split in 2015).

Yet all face similar challenges. For a start, they mostly used to sell wares, be they hard or soft. In recent years, however, delivering IT in big distinct chunks has moved to providing it "as-a-service", or "AAS," in the parlance—a business that is now dominated by startups and big cloud-computing providers such as Amazon Web Services (AWS) and Google Cloud Platform (GCP). The internet allowed such things as number-crunching and data storage to be served up online. AI is part of this story, too: the more data are collected in the cloud, the more they can be mined and turned into algorithms, which then become the engines of new services, such as

detecting hacking attacks.

The quest to escape commoditisation is pushing the industry towards services. It has always been a lumpy business, with customers paying large sums of money for new wares once every few years. At the same time hardware and even some software have become low-margin businesses. Subscriptions to services, by contrast, bring more predictable revenues and higher profits. Services are good for buyers, too, argues Pierre Ferragu of New Street, an equity-research firm. In the past a customer might have had to buy an oversized network switch for \$10,000. Now it can be had for \$3,000, plus \$2,000 a year for services. "Everybody is happier," he explains.

That means taking on cloud operators that offer similar subscriptions, such as AWS. The pandemic has accelerated the cloud's rise but it has become apparent that

not all number-crunching can be done in big data centres. Firms have many reasons to keep some computing in-house, including regulations preventing others processing their data and the risk of depending on a big cloud provider. Then there are "edge" devices, from smartphones to intelligent sensors, which connect to the cloud and extend it, generating ever more data. It is often more efficient to bring computing to the data than the other way around.

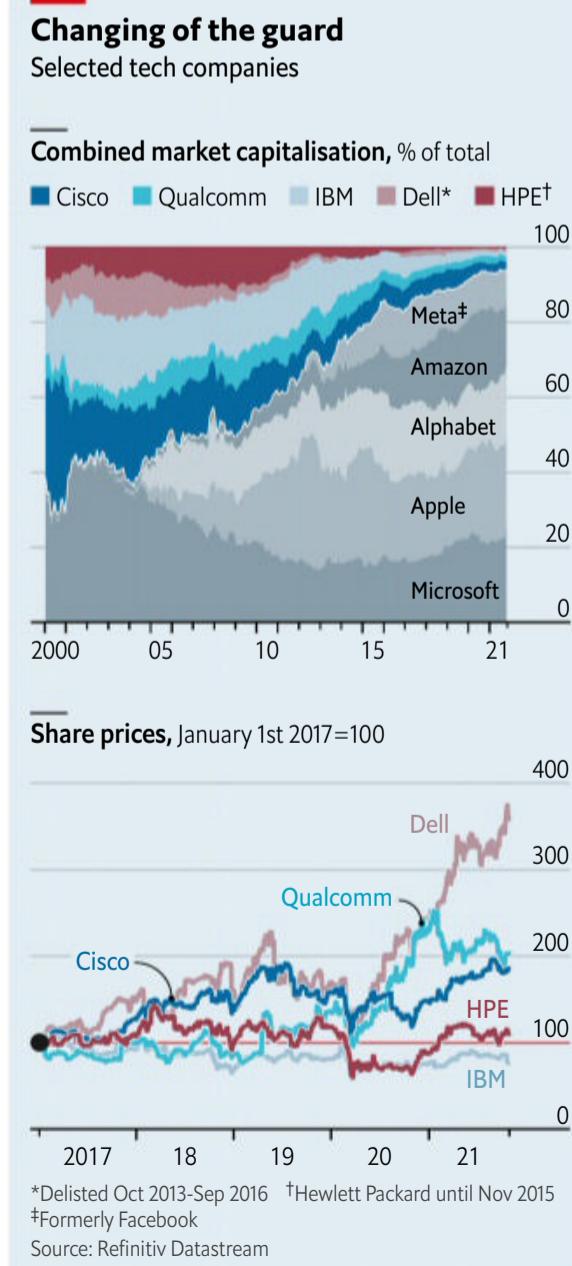
The tech veterans want to help firms manage this world of many clouds ("hybrid" or "multi" in the lingo). Red Hat Hybrid Cloud Platform, now at the centre of IBM's software offerings, is an uber-cloud of sorts that runs on top of many systems, including IBM's own machines, public clouds and edge ones. It is supposed to allow customers to stay independent of any one system. HPE offers something similar called GreenLake. Cisco boasts several more specialised platforms, including one to optimise a firm's many applications.

Dell and Qualcomm are different. By floating VMware, which sells software similar to IBM's platform, Dell appears to be moving against the stream. But the spin-off mainly serves to get rid of a conglomerate discount. Dell has negotiated a detailed agreement to continue to benefit from VMware's products. It has also launched an as-a-service effort of its own, called APEX, which is supposed to offer cloud computing in Dell's trademark "pragmatic and predictable way", in the words of Allison Dew, the firm's chief marketing officer, who is also in charge of APEX.

As for Qualcomm, it sees the cloud not as a threat but an opportunity. As growth slows in its main market, smartphones, it hopes that the cloud will create new demand for its chips from makers of other devices, from connected cars to intelligent sensors. "If you believe in the cloud, you have to believe in the edge," says Mr Amon. "You can't have one without the other."

As well as developing new lines of business, deals large and small have been part of the metamorphosis. IBM's hybrid cloud platform owes its name and underlying technology to Red Hat, an open-source software maker it acquired for \$34bn in 2019. The creation of Kyndryl, the name given to the business that IBM has spun off, allows it to hive off its army of IT workers and consultants in favour of selling tools and digital services to automate customers' businesses. "We are a technology firm again," says Rob Thomas, a senior executive at the company.

What are the results so far of the tech incumbents' transformation dreams? Cisco was the first to react, promising in 2017 that more than half of its revenue would come from software and subscriptions within three years. HPE announced an even more ambitious goal in 2019, saying ►



Bartleby Why executives like the office

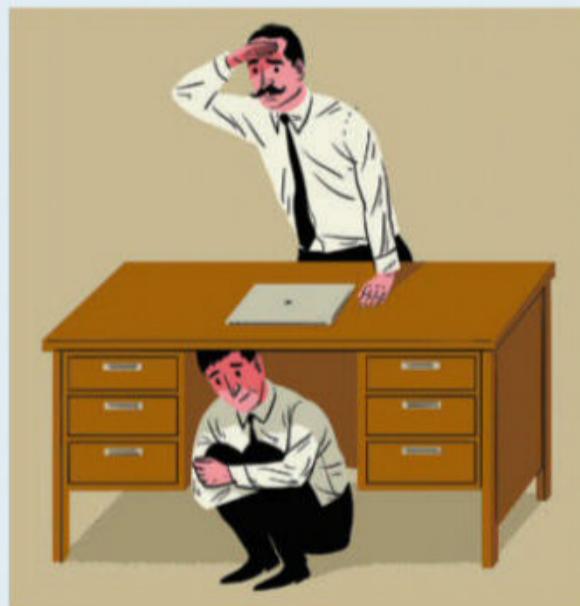
Blame a mixture of carpets, caring and conditioning

AN OFFICE IS meant to bring people together. Instead, it has become a source of division. For some, the post-pandemic return to the workplace is an opportunity to re-establish boundaries between home and job, and to see colleagues in the flesh. For others it represents nothing but pointless travelling and heightened health risks. Many ingredients determine these preferences. But one stands out: seniority.

Slack, a messaging firm, conducts regular surveys of global knowledge workers on the future of work. Its latest poll, released in October, found that executives are far keener to get back to the office than other employees. Of those higher-ups who were working remotely, 75% wanted to be in the office three days a week or more; only 34% of non-executives felt the same way.

The divide has played out publicly at some companies. Earlier this year, employees at Apple wrote an open letter to Tim Cook, the firm's chief executive, objecting to the assumption that they were thirsting to get back to their desks: "It feels like there is a disconnect between how the executive team thinks about remote/location-flexible work and the lived experiences of many of Apple's employees." Why are bigwigs so much keener on the office?

Three explanations come to mind: the cynical, the kind and the subconscious. The cynical one is that executives like the status that the office confers. They sit in nicer rooms on higher floors with plusher carpets. Access to them is guarded, politely but ferociously. When they walk the floors, it is an event. When they sit in meeting rooms, they get the best chairs. On Zoom the signals of status are weaker. No one gets a bigger tile. Their biggest privilege is not muting themselves,



which isn't quite the same power rush as using the executive dining room.

The kind explanation is that executives believe that in-person interactions are better for the institutions they lead. Working from home "doesn't work for people who want to hustle, doesn't work for culture, doesn't work for idea generation," was the verdict of Jamie Dimon, the chief executive of JPMorgan Chase, earlier this year. Ken Griffin, the boss of Citadel, a hedge fund, has warned young people not to work from home: "It's incredibly difficult to have the managerial experiences and interpersonal experiences that you need to have to take your career forward in a work-remotely environment."

These concerns have substance. Virtual work risks entrenching silos: people are more likely to spend time with colleagues they already know. Corporate culture can be easier to absorb in three dimensions. Deep relationships are harder to form with a laggy internet connection. A study from 2010 found that physical proximity between co-authors was a good predictor of the impact of scientific papers: the greater

the distance between them, the less likely they were to be cited. Even evangelists for remote work make time for physical gatherings. "Digital first does not mean never in person," says Brian Elliott, who runs Slack's research into the future of work.

But the advantages of the office can also be exaggerated. The Allen curve, which shows how frequency of communication goes down the farther away colleagues sit from each other, was formulated in the 1970s but still rings true today. Every workplace has corners that people never visit; no gulf is greater than that between floors. And the disadvantages of remote working can be overcome with a bit of thought. Research by a trio of professors at Harvard Business School found that lockdown-era interns who got to spend time with senior managers at a "virtual watercooler" were much likelier to receive full-time job offers than those who did not.

If physical workspaces have drawbacks, and remote working can be improved upon, why are executives clear in their preferences? The subconscious supplies a third explanation. As Gianpiero Petriglieri of INSEAD, a French business school, observes: "people advising youngsters to go into the office are those who made their way in that environment." Executives who have achieved success by working in an office are the least likely to question its efficacy.

That is a problem, especially since a majority of executives say that they have designed return-to-work policies with scant input from employees. A hybrid future beckons, in which workers divide their time between home and office. Managers need to improve both environments, not assume that one is obviously superior to the other.

that it will offer its entire portfolio of products as a service by 2022. IBM, mainly thanks to its mainframe business, has always had a healthy stream of subscription revenues, but wants to grow these further.

Taken at face value, the numbers are impressive. Cisco announced that it had reached its targets set in 2017: software and services now generate 53% of revenue. HPE boasted services revenues of \$1.2bn and after the Kyndryl spin-off IBM's software sales will leap to 65% of revenues. Mr Amon will hammer home the point that Qualcomm's non-handset businesses,

such as cars and the internet of things, already have revenues of \$10bn, about a third of the total, and are growing 1.6 times faster than its handset ones.

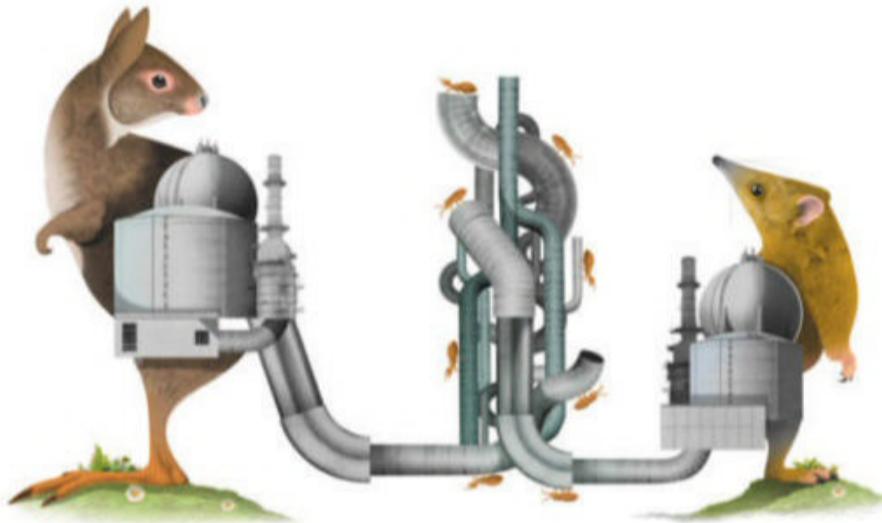
But so far, investors do not seem to be convinced that old IT's new clothes are a good fit: the group's collective market capitalisation, now amounting to about \$600bn, has only barely budged from where it was before the charm offensive aimed at Wall Street. Much will depend on whether they will be able to attract top technical talent. Without it, they will have a hard time competing with both the big

cloud providers and hot startups. Antonio Neri, HPE's chief executive, says he recently moved the firm's headquarters from Silicon Valley to Houston, Texas, in part because recruitment is easier there.

Do these firms still have what it takes? Most have new ranks of hungry executives but even the veterans still have fire in the belly. Michael Dell has remained at the wheel of the firm he founded in 1984, except for a hiatus in 2004-07. Asked about his future, he replies: "I love what we do: It's fun, it's interesting, it's exciting. I have no plans to change my involvement." ■

Schumpeter | The Gorgon knot

Supermajors are in a bind over their LNG ambitions



BARROW ISLAND, off the coast of Western Australia, is an unlikely place to find what will with luck become the high-water mark of the hubris of the West's international oil companies (ioCs). It is a nature reserve dotted with termite mounds. Since it was severed from the mainland about 8,000 years ago, its local species, including golden bandicoots and spectacled hare-wallabies, have lived free from predators. Some call it Australia's Galapagos. Yet a sliver of it is also home to one of the world's biggest liquefied natural gas (LNG) developments, mostly owned by Chevron (47%), ExxonMobil (25%) and Royal Dutch Shell (25%).

Gorgon, as it is called, has a pockmarked history. It cost \$54bn to build, a whopping \$20bn over budget. That was partly because the cost of manpower and material soared amid a \$200bn Australian LNG investment binge during the past decade. To respect the sanctity of the island's wildlife, Chevron enforced covid-like quarantining. On arrival, thousands of construction staff had to be inspected at the airport for stray seeds; bulldozers, diggers and trucks were fumigated and shrink-wrapped before shipment. Since production started in 2016, Gorgon has been dogged by unplanned outages. Tax filings suggest it has yet to make a profit. And its failure so far to sequester four-fifths of the carbon dioxide produced from its gas reservoirs has shredded the credibility of its environmental commitments. Carbon capture is considered crucial for the future of LNG on Barrow Island and elsewhere.

For all that, it is emblematic of the belief among ioCs that even if oil demand peaks as the world shifts to cleaner fuels, consumption of LNG will continue to grow for decades to come, especially in Asia. Gorgon alone hopes to produce and ship natural gas until the mid-2050s, one day for considerable profits. A sharp rise in LNG prices in recent months amid a surge in demand from China has fanned those hopes. Yet even as the majors double down on the fuel, they are running up against the reality that it is becoming harder to take controlling stakes in new megaprojects, and even those they can develop have rising risks. LNG is nothing like the relatively safe bet the oil industry portrays it as.

The immediate problem the majors face is a shift in the balance of power. The deep pockets and risk appetite of giants like ExxonMobil, Shell and TotalEnergies used to be essential for coping with

the challenges of building frozen gas factories in inhospitable places. Now national champions in Qatar and Russia, home to the most promising resources, say they can largely make do without them. Qatar Energy, a gas giant, has taken the lead in developing the biggest LNG complex in history, a \$30bn extension to its North Field site. The ioCs have been relegated to bidding for minority stakes in the project, mostly giving them the right to market a surge of Qatari gas that is expected to hit the market by mid-decade. Chinese oil companies may invest, too. The majors are squeezed, says Giles Farrer of Wood Mackenzie, a consultancy.

Other opportunities have turned into nightmares. A jihadi conflict on the north-eastern coast of Mozambique has at least temporarily halted a \$20bn offshore LNG project by Total, which declared *force majeure* in April. Neil Beveridge of Bernstein, an investment firm, quips that it is "the only LNG project to hit *force majeure* before it's even started." For the same reason, ExxonMobil's \$30bn LNG plan in Mozambique is in limbo. The firm has also been bogged down for years trying to strike a deal with the government of Papua New Guinea on a \$13bn expansion. That leaves America's Gulf Coast as the most likely domain outside Qatar and Russia's Arctic to supply more LNG in the next five years. But operators there can secure gas to liquefy from producers across America, and engineering skills from domestic construction companies. That leaves the oil majors twiddling their thumbs.

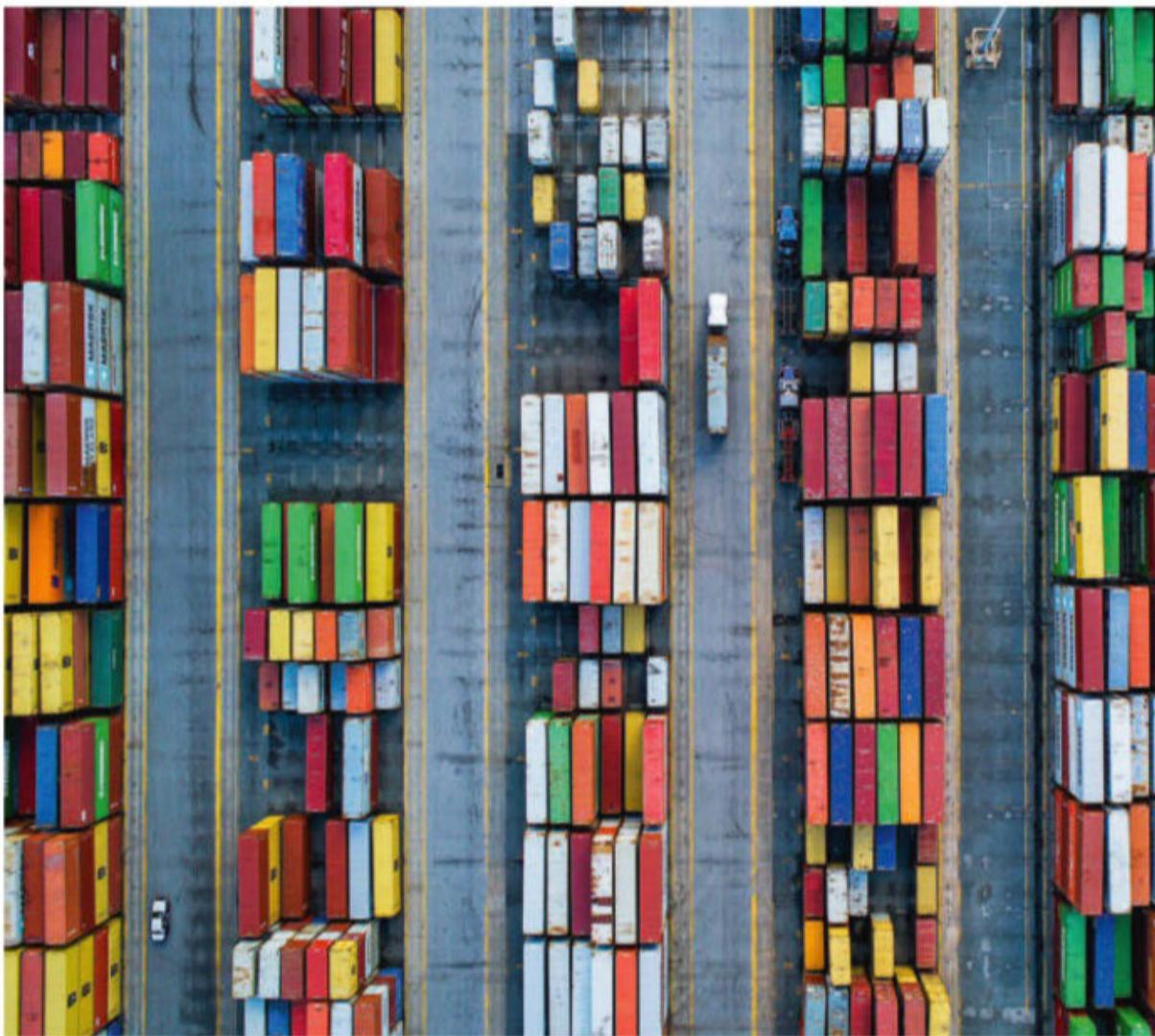
They still have scope to build some projects. But for those a structural change in the LNG market poses a further challenge. As Alastair Syme of Citi, a bank, explains, for decades the majors reduced the risk of long-term investments by striking 20-year-plus contracts with big customers, such as Japanese utilities. However, a slide in the spot price of LNG in the second half of the 2010s caused a rethink. Buyers have shifted to shorter-term contracts (say ten years) or the spot market.

The recent spike in spot prices may change the mood once again. Nonetheless some buyers face such uncertainty about the future of natural gas because of the growth of renewables that they will remain loth to sign long-term contracts. For ioCs, the corollary is that shorter contracts increase the risk of LNG investments with long paybacks. This adds to the arguments for them to focus on short-cycle projects to reduce the danger that, as the world economy decarbonises, they will be left with stranded assets.

Trading places

There is a way out of the bind. The majors, particularly European ones, are turning from megaprojects towards trading cargoes of other producers' fuel. It reduces the amount of capital they have tied up in heavy assets and dirty fuels. It also helps them keep their promises to become portfolio companies trading all sorts of energy sources in an era of mass electrification. But it's a different business. The barriers to entry are lower. There is competition from trading houses such as Trafigura, Vitol, Gunvor and Glencore. And Chinese firms like Sinopec, which last month signed two long-term contracts with Venture Global LNG, an American exporter, are emerging as potential rivals.

It all adds up to uncertainty. The big investments, complex engineering and generation-spanning paybacks of projects such as Gorgon have long made the LNG business one of boom and bust. In an era of shorter-term contracts, amid all the question-marks associated with climate change, the future may be no less volatile. The world has changed since Gorgon was conceived. For the ioCs, the big bet on Barrow Island may soon belong to a bygone era. ■



America's economy

Inner strength

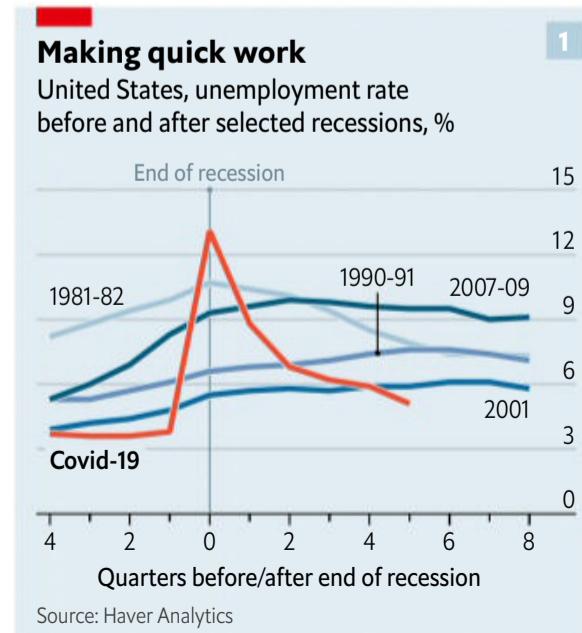
WASHINGTON, DC

Despite supply snarls, inflation and stimulus withdrawal, the economy is still in high gear

MANAGERS AT HUB GROUP, a transport company, used to be able to click a few buttons at their headquarters in Illinois and, eight weeks later, receive a new shipping container from China, ready for use in America. Recently, though, Phillip Yeager, the firm's president, faced a headache. After a long wait at the congested port of Long Beach, its container was at last next in line to go ashore. But the ship in front did not have a chassis for moving its freight and was blocking the landing berth. Mr Yeager's team scrambled to find a chassis for it. Only then could Hub get its container, a full month late.

Multiply by thousands of containers, and the tale helps explain how supply chains have become so snarled, particularly in America, the world's biggest consumer market. And this is just one of the cross-cutting forces buffeting the economy. Demand for goods is incredibly strong, but companies are struggling to find workers and supplies, which in turn is pushing up wages and prices, all against a backdrop in which the pandemic—the original cause of

the distortions—is fading but not gone. And officials, poised to withdraw the extraordinary fiscal and monetary stimulus of the past 18 months, are throwing another element into the fray. At the end of its policy meeting on November 3rd, the Federal Reserve said that it would start paring



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back its \$120bn monthly bond-buying programme, putting it on track to halt all purchases by June next year.

All this makes for a volatile mix, as was illustrated by third-quarter GDP, published on October 28th. The economy grew at an annual rate of 2% compared with the previous three months. That, depending on your frame of reference, was either most impressive or very disappointing. Compared with forecasts made in late 2020, growth during the first three quarters of this year has been more than a third faster than projected. But forecasts had zoomed higher since: at one point economists expected third-quarter growth to be more than three times as fast as it actually was.

The fourth quarter may bring a bounce-back. Consumer confidence fell precipitously as the summer wore on and the Delta variant took hold. Now Delta is receding and confidence rebounding, which bodes well for shopping and travelling during the holiday season. Supply chains, though still far from normal, may be improving a bit. Mr Yeager talks of better “network fluidity”, with more trains arriving on time and warehouses running more efficiently. Analysts at Bank of America reckon that growth could pick up to an annual rate of 6% over the final three months of the year.

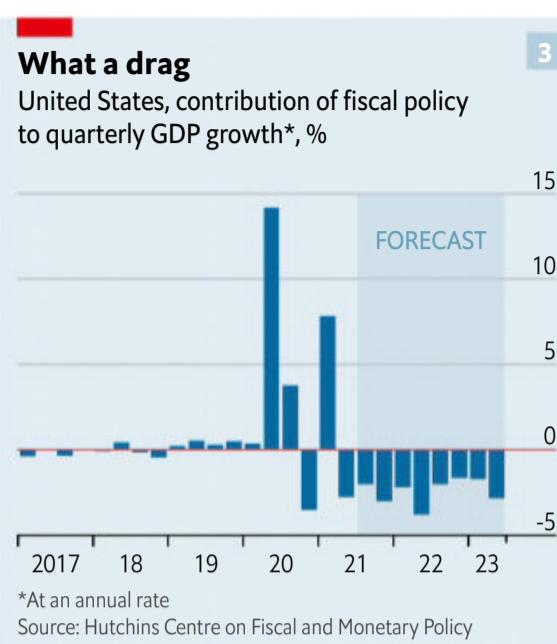
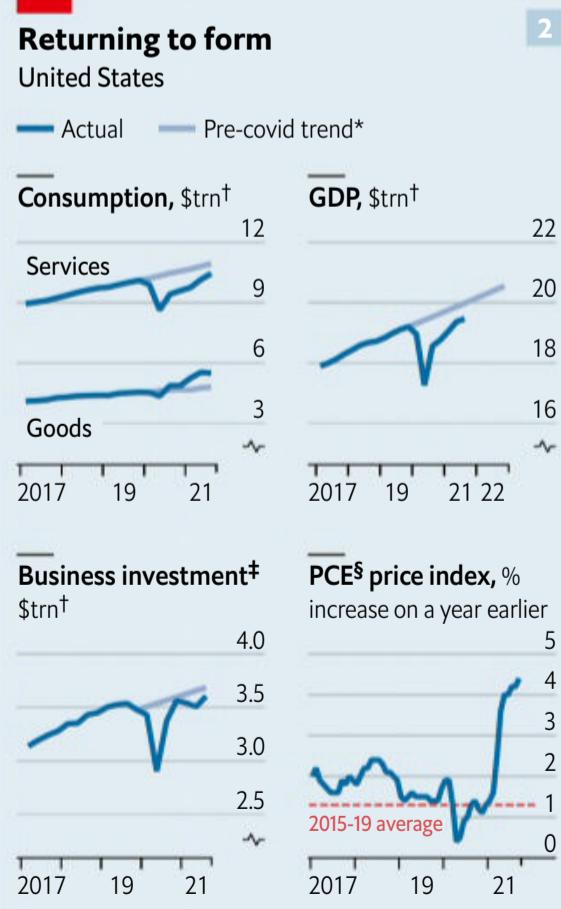
Any near-term rebound aside, however, how much longer before the recovery runs out of air? Three big factors suggest that it may be nearing its end: a tight labour market, stubbornly high inflation and a rapid ↗

► unwinding of stimulus. Yet there is also cause to think that each will not undercut the recovery, and that growth momentum may remain strong.

Easily the most positive economic development of the past year has been the remarkable decline in unemployment. After a recession the labour market usually takes years to heal. Things looked grim at the height of the pandemic, when unemployment soared to 14.7%, the highest rate since the Depression. Yet the return to work, albeit not to offices, has been astonishingly strong. The unemployment rate, 4.8% in September, is low for this point in a recovery (see chart 1 on previous page).

Indeed, the focus now is on how hard it is for companies to hire workers, especially for blue-collar jobs. That might suggest that the recovery is nearing an end, with the economy straining at its limits. Yet some slack remains. About 3m people, 2% of the pre-pandemic labour force, have still to return to work. Some may have retired early, but many are on the sidelines, concerned about child care and catching covid-19. As those concerns diminish—the return to school has gone well so far and vaccines are proving effective against severe illness—such people are, little by little, resuming work.

The surge in inflation presents another big worry about the recovery (see chart 2). The personal consumption expenditures price index, the Fed's preferred gauge, increased by 4.4% in September from a year earlier, the most in more than three decades. For much of the past year officials at



the Fed and many other economists, too, have argued that inflation is transitory, an outgrowth of gummed-up supply chains.

The tight job market, however, complicates the picture. Wages rose by 1.5% in the third quarter compared with the second, the biggest gain in at least two decades. Welcome as it is to see nurses and waiters get pay bumps, the fear is that rising wages will lead to yet more upward pressure on prices and ultimately to a dreaded wage-price spiral, as experienced in the 1970s. But conditions are very different. Far fewer workers are represented by unions today, and far fewer contracts have cost-of-living adjustments baked into them. That should weaken the link between inflation and pay. The Fed may have been unduly optimistic in thinking that price pressures would quickly subside, but its logic remains persuasive. As supply chains slowly return to normal and as people re-enter the labour force, inflation should ebb without the need for forceful interest-rate rises.

Related to that is the final big concern: the withdrawal of stimulus. With the fiscal deficit hitting 15% of GDP in 2020, the highest level since the second world war, the comedown was bound to be painful. The shift to smaller deficits will deduct about 2.5 percentage points from growth over the next year, easily the biggest fiscal drag of the past two decades, according to the Hutchins Centre on Fiscal and Monetary Policy in Washington (see chart 3).

The monetary cliff will not be as steep, but it now looms over the economy. The next question after tapering is when the Fed will raise interest rates. On October 29th Goldman Sachs, a bank, said that the first rate rise could come as soon as July, a full year earlier than it had previously forecast, because of its expectation that inflation will remain elevated.

An end to stimulus would usually augur poorly for growth. Yet other factors could insulate the economy. The consumption of goods is about 15% higher than its trend level, partly because people

have spent much less money than usual on holidays and restaurants and much more on furniture, exercise bikes and stay-at-home essentials. But with the pandemic now apparently petering out, people are buying experiences again—a fillip for growth, given that services account for nearly 80% of output.

Even without any more stimulus cheques, momentum for spending is strong. Jay Bryson of Wells Fargo, another bank, says that the strength of household balance-sheets should be the starting point in any analysis of America's growth prospects. Personal debt obligations as a share of disposable income are near their lowest on record. Business inventories are also near all-time lows, implying substantial need for restocking, if only companies can get the goods they need on time. "Knowing what I know today, I would say that we are still in the early stages of this recovery," says Mr Bryson.

Mr Yeager has reached a similar conclusion. As retailers rush to restock their shelves, Hub's order books are filling up fast. It has even had to turn some prospective clients away. "We think the strength really does carry through to the end of next year and potentially beyond," he says. ■

Interest rates

Bond markets v central banks

HONG KONG

Investors bet that policymakers will have to break their promises

FOR MUCH of the past two years, central bankers have found themselves playing second fiddle to governments. With interest rates in the rich world near or below zero even before the pandemic, surges in public spending were needed to see economies through lockdowns. Now central bankers are firmly in the limelight. During the past month, as inflation has soared, investors have rapidly brought forward their expectations for the date at which interest rates will rise, testing policymakers' promises to keep rates low.

The expected date of lift-off in some countries is now years earlier. In the last days of October Australia's two-year government-bond yield jumped from around 0.1% to nearly 0.8%, roughly the level at which five-year bonds had traded as recently as September, prompting the central bank to throw in the towel on its pledge to keep three-year yields ultra-low. The bank formally ditched its policy of yield-curve control on November 2nd, though it said it would wait for sustained inflation to emerge before raising interest rates. ►

On October 27th the Bank of Canada announced the end of its bond-buying scheme (though it will still reinvest the proceeds of maturing securities). The bond market had already reached the same conclusion before the announcement, and is pricing in a small interest-rate increase over the next year. Investors' expectations for rate rises in Britain have ratcheted up dramatically (see chart). As we wrote this, the Bank of England was due to decide whether to raise its policy rate.

Such moves have been mirrored in America and the euro area, albeit on a smaller scale. The Federal Reserve announced a tapering of its asset purchases on November 3rd. That had been widely expected, but the MOVE index, which tracks the volatility of American interest rates, has this month hit its highest level since the early days of the pandemic. On October 28th Christine Lagarde, the head of the European Central Bank, pressed back against market expectations that interest-rate increases could begin as soon as the second half of 2022, noting that an early rise would be inconsistent with the bank's guidance. That failed to stop two-year German bond yields inching up the day after, to their highest level since January 2020.

The movements so far are not large enough to constitute a bond-market tantrum on the scale of that seen in 2013, when the Fed also announced a taper. But the fact that the mood is much more febrile than it has been for most of this year reflects the uncertainty over the economic outlook, particularly that for inflation.

Whether the markets prove to be right on the timing of interest-rate rises or whether central bankers instead keep their original promises will depend on how persistent inflation looks likely to be. Central bankers have said that price rises so far are transient, reflecting an intense supply crunch. But some onlookers believe that a new inflationary era may be on the way, in which more powerful workers and faster

wage growth place sustained pressure on prices. "Instead of decades in which labour has been coming out of people's ears it's going to be quite hard to find it, and that's going to raise bargaining power," says Charles Goodhart, a former rate-setter at the Bank of England.

Recent moves also highlight the sometimes-complex relationship between financial markets and monetary policy. In normal times central bankers set short-term interest rates, and markets try to forecast where those rates could go. But bond markets might also contain information on investors' expectations about the economy and inflation, which central bankers, for their part, try to parse. Ben Bernanke, a former chairman of the Fed, once referred to the risk of a "hall of mirrors" dynamic, in which policymakers feel the need to respond to rising bond yields, while yields in turn respond to central banks' actions.

All this makes central bankers' lives even harder as they try to penetrate a fog of economic uncertainty. Yet there is some small relief to be had, too. If investors thought inflation had become sustained, instead of being driven largely by commodity prices and supply-chain snarls, yields on long-dated government bonds would have begun to move significantly. So far, however, investors have dragged interest-rate increases forward rather than baking in the expectation of permanently tighter monetary policy. The ten-year American Treasury yield, for instance, is still not back to its recent highs in March.

Furthermore, some bond markets are still calm. In Japan, consumer prices were just 0.2% higher in September than a year ago, and are still in deflationary territory once energy and fresh food are stripped out. The Bank of Japan's yield-curve-control policy remains in place, contrasting with the collapse in Australia. Setting policy is a little easier when investors are more certain of the outlook. That, sadly, is not a luxury many central bankers have. ■

Emerging markets

Living the high life

Cautionary tales from high-inflation economies

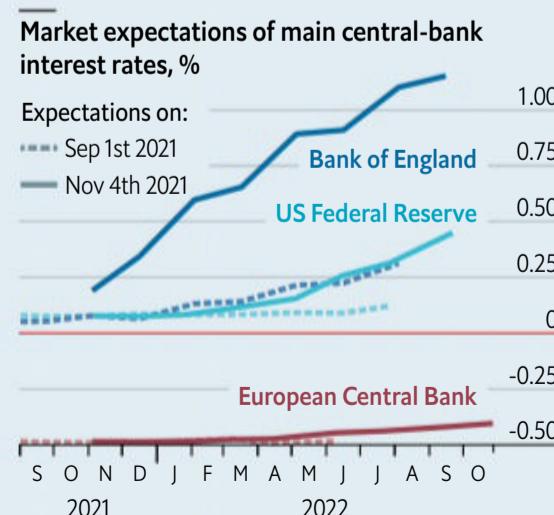
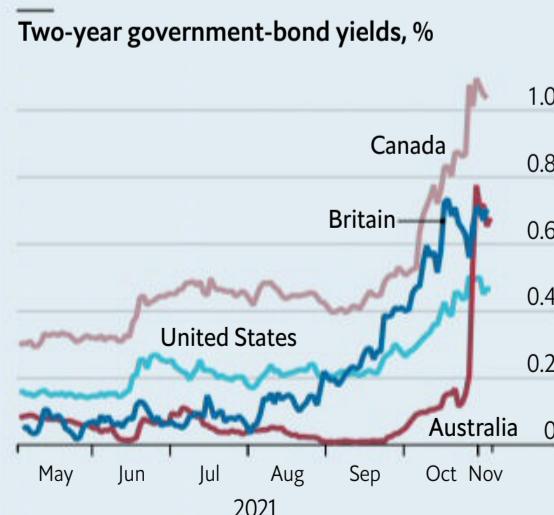
IN RECENT MONTHS the world economy has come to resemble a badly microwaved dinner: generally hot, but with some bits merely lukewarm and others positively scorching. Consumer prices globally are likely to rise by 4.8% this year, according to the IMF, which would be the fastest increase since 2007. But price rises in emerging markets are running ahead of those in the rich world, and a few unfortunates, such as Argentina, Brazil and Turkey, are feeling particular pain. Their experience helps illustrate how and when inflation can get out of hand.

Although inflation rates in emerging markets tend to be higher and more volatile than those in advanced economies, they did generally decline between the 1970s and the 2010s, much like those in the rich world. The median inflation rate among emerging economies fell from 10.6% in 1995 to 5.4% in 2005 and 2.7% in 2015, thanks to efficiency-boosting developments like globalisation and improved macroeconomic policymaking. The IMF expects consumer prices in emerging economies to rise by 5.8% this year, which is not a huge departure from recent trends; prices rose at a similar pace as recently as 2012. But some economies have strayed well above the mean. Inflation stands at 10.2% in Brazil, 19.9% in Turkey, and 52.5% in Argentina.

Such high inflation reflects more than soaring food and energy prices. In advanced economies and many emerging ones, a jump in prices usually triggers a restraining response from the central bank. That response is more powerful when central banks are credible, say because inflation has been low in the past, and the fiscal picture benign. Then people behave as if a price spike will not last—by moderating wage demands, for instance—which reduces inflationary pressure.

This happy state can be disturbed in a number of ways. Compromising the independence of the central bank is sometimes enough to make the temperature rise. Recep Tayyip Erdogan, Turkey's president, has declared himself an enemy of interest earnings and leaned on the central bank to reduce its benchmark rate, a step he claims will bring down inflation. Over the years he has sacked a number of central-bank officials, most recently three members of the bank's monetary-policy committee in October. Such antics have contributed to cap-

Higher, faster, stronger



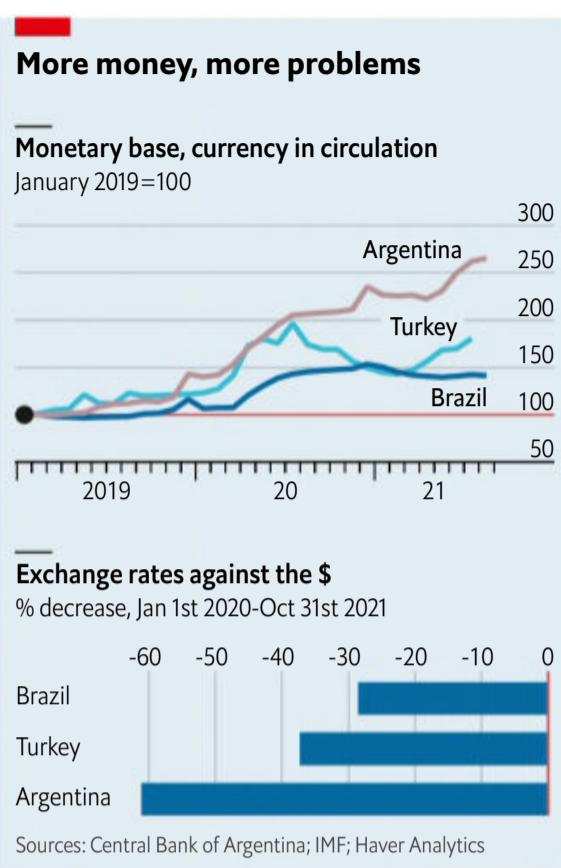
ital outflows and a tumbling lira (see chart). The sinking currency, by raising the cost of imports, has helped push up inflation by about eight percentage points over the past year, to a rate around four times the central bank's target.

Brazil demonstrates how inflation can get out of hand despite the best efforts of a central bank, because of fiscal woes. After suffering hyperinflation in the early 1990s, when the annual inflation rate approached 3,000%, Brazil placed itself on a firmer macroeconomic footing by adopting budget reforms and enhancing the central bank's independence. But from 2014 to 2016, and again over the past year, the ability of the central bank to fight inflation has been threatened by an erosion of confidence in the public finances.

Government spending in Brazil has surged since the onset of the pandemic. Jair Bolsonaro, the president, plans to extend relief payments despite roaring inflation. Worries about debt sustainability have reduced investors' confidence, leading to falling asset prices and a weaker currency. Despite booming foreign demand for Brazil's commodity exports, the real has tumbled by nearly 30% since the beginning of 2020.

Higher import prices have contributed to stubbornly high inflation, forcing the central bank to raise its benchmark interest rate by nearly six percentage points since March. Yet interest rates may be approaching levels at which the additional fiscal cost they impose on the government exacerbates debt-sustainability worries and further weakens the currency, leaving the central bank in a no-win situation. The real has dropped by nearly 2.5% since late October alone—after the central bank raised interest rates by a full 1.5 percentage points and promised to do the same again at its next meeting in December.

What happens if neither monetary nor fiscal policy can be counted upon for eco-



nomic discipline? Here Argentina provides an illustration. The government has long relied on the printing press to cover budget deficits, and has been in particular need of monetary financing since defaulting on its debt, for the ninth time in its history, in May 2020. Over the past two years the amount of money in circulation has risen at an average annual rate of more than 50%. The peso has fallen by over 60% against the dollar since the beginning of last year.

Argentina, like Brazil, has experienced hyperinflation in recent times. Its economic situation may yet be salvaged. But as policymakers in rich and poor countries alike confront the enormous economic and budgetary costs of covid-19, some may be tempted to depart from norms around monetary and fiscal policy. The result, in some unhappy places, could be inflation that is too hot to handle. ■

Payments in Africa

Turf wars

Fintech firms vie for domination

THE PAYMENTS frenzy is going global, and Africa is catching the bug. So far this year four of the continent's financial-technology firms have reached or exceeded billion-dollar valuations, more than doubling Africa's population of "unicorns". OPay, a mobile-payments company, acquired its horn in August, after raising funding from investors including SoftBank, a Japanese firm. Other recent unicorns include Wave, a Senegal-based start-up that runs a mobile-money network; Chipper Cash, which offers peer-to-peer payments; and Flutterwave, which simplifies payments for businesses. As foreign investment pours in, Africa's fintech firms are expanding both across the continent and into new services.

Africa is an obvious choice for fintech investors. They are betting that young African talent can innovate its way out of the region's most pressing financial problems faster than legacy firms can. By 2025 the continent will be home to 1.5bn people, most of whom will have grown up in the era of the internet. Nigeria, which has received almost two-thirds of Africa's fintech investments this year, has a young and entrepreneurial population. But more than half of Nigerians do not have a bank account. Across the continent, digitally literate unbanked (and underbanked) people, who have long been largely ignored by conventional lenders, are instead turning to the upstarts. In Ivory Coast, for example, 94% of pupils' school fees were being paid using mobile money by 2014. This makes it fertile territory for companies like Wave, which moved into the country in April.

One reason for firms to expand geographically stems from the African Continental Free Trade Area, a deal that was first agreed on in 2018 and which has now been ratified by 38 countries. The Pan-African Payment and Settlement System was launched in September as part of the deal, in order to make the region's many systems work better together. As a consequence, investors are backing firms with ambitions that extend beyond their home countries. Flutterwave had reached more than 33 African countries by the time of its latest funding round this year; those tak-



Up, up and away

ing part included Tiger Global, an investment firm based in New York.

For the biggest African fintechs, simple payments are only an entry point. OPay was founded three years ago and was once a ride-hailing app. It now offers interest-free credit that is easier for workers in informal jobs to get than bank loans. The firm, now worth around \$2bn, is about as valuable as Nigeria's biggest bank. Chipper Cash, which is backed by Jeff Bezos, the founder of Amazon, is taking its vision beyond Africa. It lets Nigerians in Britain send money home instantly, and could

revolutionise transfers in sub-Saharan Africa, which has some of the highest remittance costs in the world.

Banks may not be the only incumbents feeling threatened by the newcomers. In some cases telecoms providers, which also provide mobile money, are drastically lowering their fees as competition in payments heats up. The battle leaves regulators struggling to control an industry that is rapidly evolving. Wave is moving through the continent at pace, and is now available in four countries.

Despite a bumper year, Africa's biggest

startups are still relatively young compared with those in the rest of the emerging world. Getting payments right in such a large market could unlock a wealth of opportunity. Iyin Aboyeji, a co-founder of Flutterwave and an investor, says international venture capitalists are realising that Africa "looks a little bit like China in the 1970s. Folks are hoping to get in early and do some good deals." The emergence of rigorous cross-continental competition this year shows that African fintech is nonetheless maturing, and that the world is at last beginning to pay attention. ■

Buttonwood Schrödinger's markets

A quantum walk down Wall Street

FINANCE AND physics have long been productive bedfellows. When he wasn't writing the laws of mechanics and gravity, Isaac Newton ran the Royal Mint, making coins harder to forge and forcing counterfeiters to the gallows. The quantitative tools developed in 1900 by Louis Bachelier to study the French stockmarket were taken up by Albert Einstein to prove the existence of atoms. Norbert Wiener formalised them into a mathematical framework that remains at the heart of today's financial models.

Yet finance has been slower to absorb other big ideas from 20th-century physics. That is perhaps unsurprising, because they are generally bizarre. Fire a beam of electrons through two slits onto a screen and they will pass through both at once, travelling as a wave but arriving as particles. Concentrate enough energy in a region of space, and matter and antimatter pop out of the void. Introduce the right two particles to each other and they pop back into it.

All this seems worlds away from the mundane reality of traders tapping out buy and sell orders on their keyboards. But on a closer look finance bears a striking resemblance to the quantum world. A beam of light might seem continuous, but is in fact a stream of discrete packets of energy called photons. Cash flows come in similarly distinct chunks. Like the position of a particle, the true price of an asset is unknowable without making a measurement—a transaction—that in turn changes it. In both fields uncertainty, or risk, is best understood not as a peripheral source of error, but as the fundamental feature of the system.

Such similarities have spawned a niche area of research known as quantum finance. In a forthcoming book, "Money, Magic, and How to Dismantle a

Financial Bomb", David Orrell, one of its leading proponents, surveys the landscape. Mr Orrell argues that modelling markets with the mathematical toolbox of quantum mechanics could lead to a better understanding of them.

Classical financial models are rooted in the mathematical idea of the random walk. They start by dividing time into a series of steps, then imagine that at each step the value of a risky asset like a stock can go up or down by a small amount. Each jump is assigned a probability. After many steps, the probability distribution for the asset's price looks like a bell curve centred on a point determined by the cumulative relative probabilities of the moves up and the moves down.

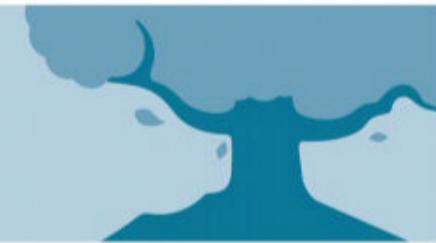
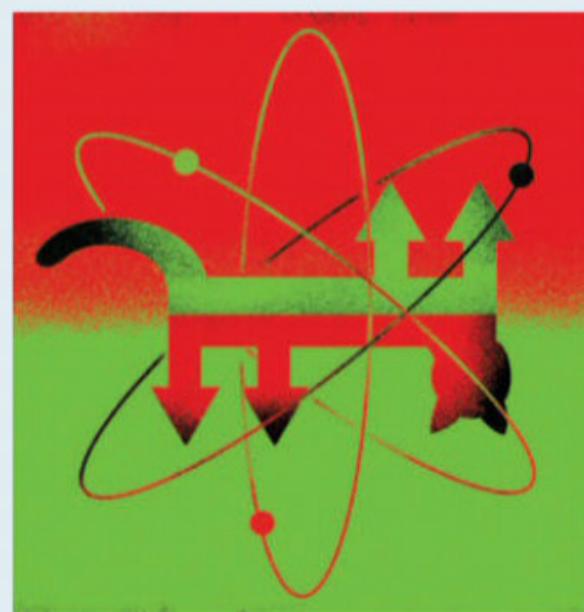
A quantum walk works differently. Rather than going up or down at each step, the asset's price evolves as a "superposition" of the two possibilities, never nailed down unless measured in a transaction. At each step, the various possible paths interfere like waves, sometimes amplifying each other and sometimes cancelling out. This interference creates a very differ-

ent probability distribution for the asset's final price to that generated by the classical model. The bell curve is replaced by a series of peaks and troughs.

Broadly speaking, the classical random walk is a better description of how asset prices move. But the quantum walk better explains how investors think about their movements when buying call options, which confer the right to buy an asset at a given "strike" price on a future date. A call option is generally much cheaper than its underlying asset, but gives a big pay-off if the asset's price jumps. The scenarios foremost in the buyer's mind are not a gentle drift in the price but a large move up (from which they want to benefit) or a big drop (to which they want to limit their exposure).

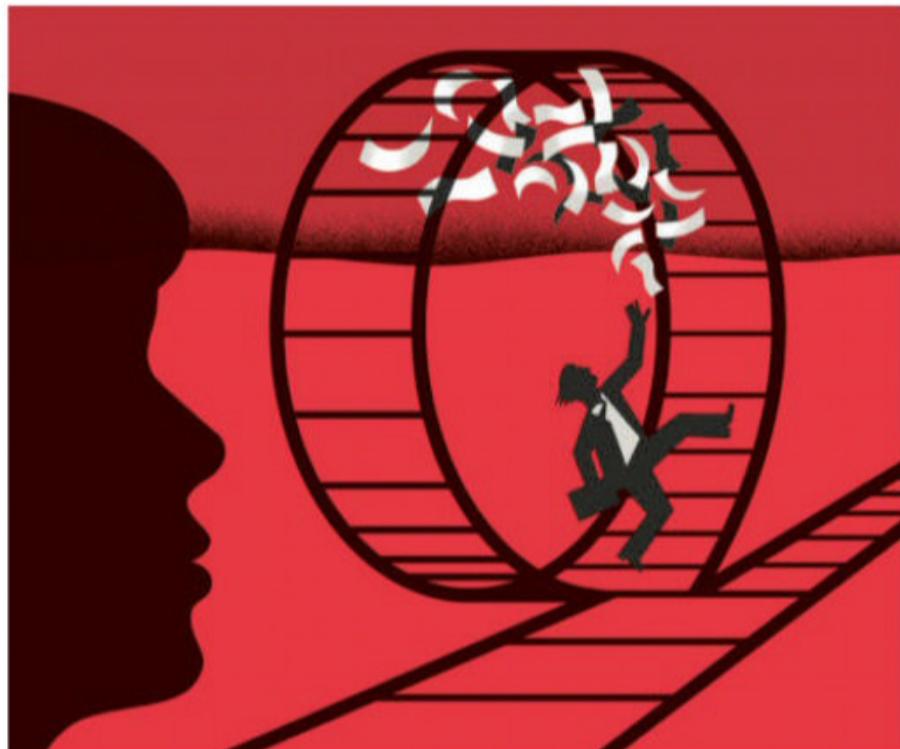
The potential return is particularly juicy for options with strikes much higher than the prevailing price. Yet investors are much more likely to buy those with strikes close to the asset's market price. The prices of such options closely match those predicted by an algorithm based on the classical random walk (in part because that is the model most traders accept). But a quantum walk, by assigning such options a higher value than the classical model, explains buyers' preference for them.

Such ideas may still sound abstract. But they will soon be physically embodied on trading floors, whether the theory is adopted or not. Quantum computers, which replace the usual zeros and ones with superpositions of the two, are nearing commercial viability and promise faster calculations. Any bank wishing to retain its edge will need to embrace them. Their hardware, meanwhile, makes running quantum-walk models easier than classical ones. One way or another, finance will catch up.



Free exchange | The greedy-jobs gap

Mothers' careers suffer when parents maximise their combined income, says a new book



RADICAL AND liberal feminists, as defined by philosophers, differ on the extent to which women's freely made choices matter. A liberal feminist desires maximum autonomy for women, demanding equal rights and an end to sex discrimination. A radical feminist sees in society patriarchal forces that are bigger than any one person, and which oppress women in part by influencing their choices. Economic differences between the sexes—such as the gender pay gap—are always a sign of injustice.

A new book by Claudia Goldin of Harvard University, an expert on women and work, is a study both of American women's choices and of the context in which they are made. "Career and Family: Women's Century-Long Journey Toward Equity" traces the history of work and family for college-educated women, and diagnoses what still troubles their careers today.

A caricature of history might involve a journey from home to the workplace. In fact, the first generation Ms Goldin studies, born in 1878-97, contained plenty of working women. But a successful career typically required forgoing children and sometimes marriage. Among those listed in "Notable American Women", a collection of biographies, no more than three in ten had a child, she writes. The choice women faced was "family or career".

By the third generation, those born between 1924 and 1943, college-educated women had a more uniform life experience: "family then job". The typical woman worked after graduation, but soon married, had children and dropped out of the workforce. She returned once her children were in school, and the gradual removal of formal discriminatory barriers opened up opportunities for her. But her prolonged absence from work meant she did not have the skills and experience necessary to thrive in the workplace.

It is only by the fifth group, born after 1958, that many women aspired to achieve "career and family". The shift was aided by the contraceptive pill, which helped women delay marriage; improved fertility treatments, which helped them delay child-bearing; and more liberal social norms. Yet, despite the staggering extent of the change Ms Goldin documents, a clear gender gap still exists for these women, most notably with respect to pay. American women earn on average 20% less per hour worked. For college graduates, the gap is larger, at 26%.

It is at this point that the book becomes provocative. Drawing on reams of research Ms Goldin argues that most women no longer suffer much labour-market discrimination in the sense of unequal pay for equal performance, as is often claimed by the left. Nor is the gender pay gap driven primarily by women's choice of occupation, an explanation sometimes favoured by the right. Even if the distribution of women's occupations matched that of men—"if women were the doctors and men were the nurses"—she calculates that at most a third of the pay gap would disappear.

The most important cause is that women curtail their careers as a part of a rational household response to labour markets, which generously reward anyone, male or female, who is willing to hold down what Ms Goldin calls a "greedy job". These are roles, such as those in law, accountancy and finance, that demand long and unpredictable hours. Parents need somebody to be on-call at home in case a child falls ill and needs picking up from school, or needs cheering on at a concert or football match. That is incompatible with a greedy job, which requires being available for last-minute demands from a client or boss. No one person can do both. The rational response is for one parent to specialise in lucrative greedy work, and for the other—typically the mother—to prioritise the children. Ms Goldin writes that "couple equity has been, and will continue to be, jettisoned for increased family income."

A gender pay gap resulting primarily from the choices of households is a thorny problem for liberals who prize freedom of choice. It is also tricky territory for economists, who often emphasise the "revealed preference" of those they study, and the resulting efficiency of market outcomes. True to her membership of the Chicago school of conservative-leaning economists, Ms Goldin does not offer the confident prescriptions for the expansion of government that could have easily followed her compelling diagnosis of the problem. Some parts of her book suggest she supports more subsidies for child care, like those proposed by President Joe Biden. But speaking to *The Economist* she was more circumspect, pointing out that among Mr Biden's proposals she would prioritise cash transfers to parents (a policy that makes no attempt to change households' choices). The book is about "what happened and why", she says, rather than solutions.

For love or money

Another theme of the book, however, is just how much progress for women is a result of technological change and innovation. Could similar forces disrupt greediness? For some jobs it is hard to see how little can stop the self-employed pouring hours into their businesses, say. But firms have an incentive to make jobs less greedy, because hiring and promoting mothers means drawing from a bigger pool of talent. Ms Goldin points to pharmacy as an example of an industry that has made the transition. Many pharmacists used to be self-employed, with customers expecting personal service. But computers and consolidation have led to pharmacists becoming more substitutable for each other, making the job less greedy without a loss of status or pay. Perhaps remote work or artificial intelligence will do the same for other professions.

Like a radical, Ms Goldin has identified a structural feature of the economy: "It isn't you, it's the system," she reassures the reader. But she has the liberal's hesitancy about disrupting a system that is built on choice. ■



To listen to our interview with Claudia Goldin, go to
www.economist.com/goldin



Greenhouse gases

Set in green concrete

How cement, a bane of environmentalists, may yet help slow global warming

THE ROMANS perfected concrete, and their legacy still stands in the form of the magnificent roof of the Pantheon, the world's largest unreinforced concrete dome. Since it was completed in around 125AD by the Emperor Hadrian, an awful lot more concrete has been poured—some 30bn tonnes every year, at the moment, to put up buildings, roads, bridges, dams and other structures. The grey stuff has become the most widely used construction material on the planet, and demand is growing.

This is bad news for global warming. The problem is that concrete's crucial ingredient, cement, which is mixed with sand, gravel and water to make the stuff, is responsible for a huge amount of greenhouse-gas emissions. Taking in its various stages of production, the 5bn tonnes of cement produced each year account for 8% of the world's anthropogenic CO₂ emissions. If the cement industry were a country it would be the third-largest emitter in the world, after China and America.

So far, concrete has few practical alternatives. The development of cross-laminated, "engineered", timber—which, being

produced from wood, can be a renewable resource—is gaining interest, even for some high-rise buildings. But compared with concrete, engineered timber remains, for now, a novelty. Concrete's biggest users, especially China, which makes more than half of the world's cement, are not about to stop employing it. Hence cleaning up the industry might seem a hopeless task. But it isn't, for technologies are being developed to make concrete greener. Green enough, perhaps, for it to go from adding CO₂ to the atmosphere, to subtracting it.

The place to start is where emissions are greatest. Cement production begins with the quarrying of limestone, the main component of which is calcium carbonate (CaCO₃). This is mixed with clay and passed

through a rotating kiln at more than 1,400°C in a process called calcination. The heat drives off the carbon and part of the oxygen, which combine to form CO₂. The remaining lumps, called clinker, are made of molecular complexes of calcium oxide and silica, known collectively as calcium silicates. The clinker is then cooled and milled into cement. More than half the emissions involved in cement-making are a consequence of calcination, and most of the rest result from burning coal and other fossil fuels to power the process (see chart, overleaf). All told, nearly one tonne of CO₂ is released for every tonne of fresh cement.

Hot stuff

The inevitability of calcination's creation of CO₂ makes capturing the gas before it can enter the atmosphere, and storing it away, the most effective approach to decarbonise the cement industry, according to a study by Paul Fennell of Imperial College, London, and his colleagues, published earlier this year in *Joule*. The captured CO₂ could be held underground or used by other industries—for instance to make synthetic fuel (see box overleaf). But it might also be injected back into concrete at the point when it is being mixed with water to cure it. Water promotes chemical reactions that cause cement to harden. CO₂ has a similar effect and, in the process, gets locked up as calcium carbonate.

In fact, reversing calcination in this way makes concrete stronger than if water alone is used. So, not only is some of the

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original emission thus dealt with, less cement is needed for a given job, lowering overall emissions still further. McKinsey, a consultancy, reckons reverse calcination could, at present, sequester up to 5% of cement's emissions. As the technology improves it expects that might rise to 30%.

Several companies are starting down this route. CarbonCure, a Canadian firm, has fitted equipment which injects CO₂ into ready-mixed concrete to more than 400 plants around the world. Its system has been used to construct buildings that include a new campus in Arlington, Virginia, for Amazon, an online retailer (and also a shareholder in CarbonCure), and an assembly plant for electric vehicles, for General Motors, in Spring Hill, Tennessee.

At present the CO₂ used by CarbonCure has been captured by industrial-gas companies. But firms are developing equipment intended to collect the gas directly from cement kilns. And Calix, based in Sydney, Australia, is working on an electrically powered system which heats the limestone indirectly, from the outside of the kiln rather than the inside. That enables pure CO₂ to be captured without having to clean up combustion gases from fuel burnt inside the kiln—so, if the electricity itself came from green sources, the resulting cement would be completely green.

A pilot plant using this technology has run successfully as part of a European Union research project on a site in Belgium operated by Heidelberg Cement, a German firm that is one of world's biggest cement-makers. A larger demonstration plant is due to open in 2023, in Hanover, to help scale up the technology.

Energising rubbish

Another approach—less green, but still better than using fossil fuels—is to substitute some of the coal burnt in kilns with municipal and industrial waste. Several firms are already doing this. Cemex, a Mexican building-materials giant, for example, makes a kiln fuel called Climafuel out of municipal waste that has been denuded of

its recyclable substances. This is rich, in the form of plant material ("biomass"), in carbon that has recently been in the atmosphere, and is simply returning there, rather than having been dug up as fossil fuel. Up to 60% of the coal used by some of Cemex's British cement plants has been replaced with Climafuel.

Companies are also looking at ways to substitute some of the cement in concrete with other materials. Many add fly ash, a by-product of coal-fired power plants, or crushed slag from the blast furnaces used to make iron. But neither of these approaches is sustainable in the long run. As Peter Harrop, boss of IDTechEx, a firm of analysts in Cambridge, England, and the

co-author of a new report on the future of concrete and cement, observes, coal use is dwindling and steel production aspires to move to newer, cleaner technologies.

For Dr Harrop, an important part of the answer is to "tech-up" concrete in ways which mean that less of it will be needed to do particular jobs. This means adding things like synthetic and natural fibres—or even graphene, a substance stronger than steel that consists of single-layer sheets of carbon atoms. Only small amounts are needed to produce beneficial results.

Graphene and other reinforcement will lead to new, ultra-high-performance concretes, which Dr Harrop thinks will be particularly suitable for 3D printing. This ➤

Green aviation Liquid sunshine

A way of combining atmospheric CO₂ and water to make aircraft fuel

MOST PEOPLE who think about such things agree that replacing fossil fuels with renewable electricity, either directly or indirectly, is the best way to decarbonise industry, transport and the heating and cooling of buildings. But there are some holdout areas where this is hard. Cement (as described in the adjacent piece) is one. Aviation is another, because batteries are too heavy and hydrogen (which could be made using renewable electricity) too bulky to do the job easily. Hydrocarbon aviation fuels are thus likely to be around for a while.

But such fuels need not be fossil. They might be synthesised from the CO₂ exhaust of various industrial processes. And a study just published in *Nature*, by Aldo Steinfeld of ETH Zurich, a technological university in Switzerland, and his colleagues, shows how they might literally be plucked from thin air.

Dr Steinfeld and his team devised and tested a system that, in essence, reimagines the natural process of photosynthesis. Plants take in atmospheric CO₂ and water and, with sunlight providing the energy, turn those raw materials into organic molecules. And that is exactly what Dr Steinfeld has done.

The process has three stages. The first absorbs CO₂ and water from the atmosphere using a so-called direct-air-capture device made by Climeworks, a spin-off of ETH founded by two of Dr Steinfeld's students that made the news recently by opening a demonstration carbon-capture-and-storage system in Iceland. There, however, the CO₂ is reacted with basalt rock to dispose of it. Dr Steinfeld's system makes use of it.

The second stage is the clever bit. It

employs concentrated sunlight to heat a material called cerium oxide which, when so heated, reacts with both CO₂ and water. The reaction with CO₂ creates carbon monoxide. The one with water creates hydrogen. In both cases the by-product is oxygen, which is vented into the atmosphere. But a mixture of carbon monoxide and hydrogen is a familiar one to industrial chemists. It is called syngas, and is widely used as a raw material to make other things.

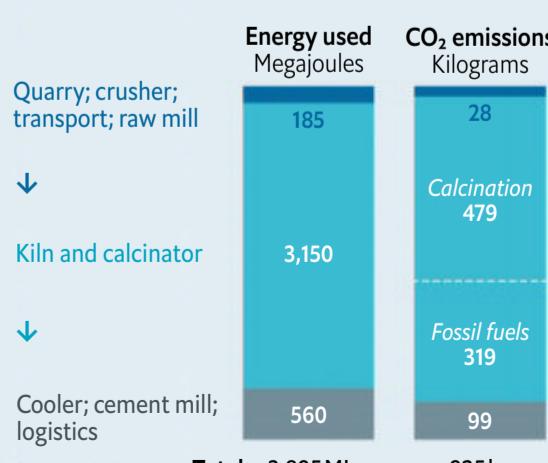
The third part of the process is therefore to turn the syngas into organic molecules. For the hydrocarbons that make up aviation fuel an industrial chemist would normally turn to what is known as the Fischer-Tropsch process. For their demonstrator, the team chose another route, which led to methanol rather than hydrocarbons. But the general idea is the same.

The team's demonstration rig, which they installed on the roof of ETH's Machine Laboratory Building, had a typical yield of 32ml of pure methanol per seven-hour day—tiny, but a clear proof of principle. A back-of-the-envelope calculation suggests that substituting the world's aviation-fuel market entirely in this way would need 45,000km² of suitably isolated land. That sounds a lot, but is equivalent to about 0.5% of the area of the Sahara Desert.

Air-captured aviation fuel would certainly need its path to market smoothed by appropriate carbon taxes on the fossil variety, and possibly other measures. But Dr Steinfeld's rig does seem to have demonstrated a credible and potentially scalable way to go about making the stuff.

The ins and outs of making cement

Manufacturing processes per one tonne of cement



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builds up precise layers of material under robotic control, and greatly reduces waste. "Using much less cement is a very important part of the answer," he adds, especially as cement production looks otherwise set to double over the next 20 years.

Additives can also make concrete last longer and reduce the need for maintenance. At the University of Michigan, Victor Li and his colleagues use synthetic and natural fibres, along with CO₂ injection, to produce a bendable concrete they call Engineered Cementitious Composite (ECC). The internal structure of this material was inspired by nacre, a flexible material commonly called "mother of pearl" that coats the insides of the shells of molluscs such as abalone and oysters.

Adding such flexibility to concrete lets bridges and roads cope more easily with heavy traffic, and improves the earthquake resistance of tall buildings. ECC develops only tiny surface cracks when it ages. Dr Li says it is thus better at keeping water out and preventing corrosion of reinforcing steel bars inside. Such corrosion can cause reinforced-concrete structures to crumble within a few years of their construction—sometimes resulting in their collapse.

To zero and beyond

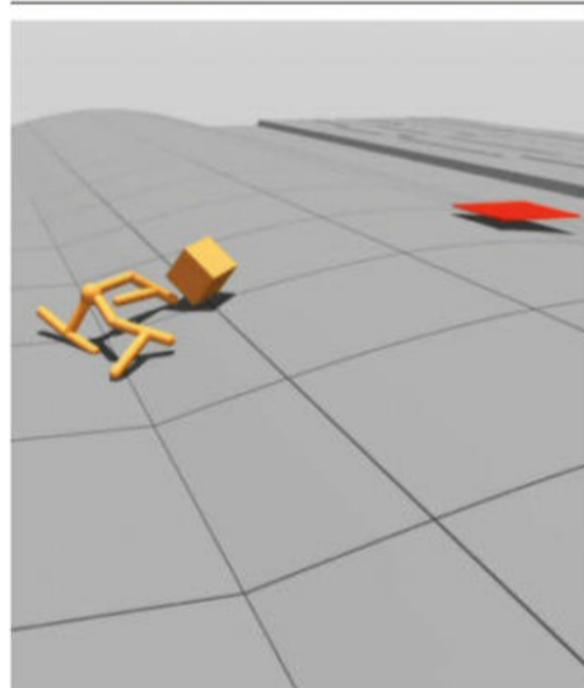
Substitution of materials could go still further. Solidia, a firm in New Jersey, makes cement containing calcium silicates with a higher ratio of silica to calcium oxide than the standard "Portland" variety. This has two consequences. One is that Solidia's process requires less heat (and therefore less fossil fuel) than conventional calcination, and so releases less CO₂ in the first place. The other is that, when mixed into concrete, Solidia's silica-rich silicates can be cured more rapidly than regular cement by using captured CO₂ instead of water. Solidia is working on applications for its cement with one of its investors, Lafarge-Holcim, a Swiss building-supplies giant.

Taking all these developments into account, how green could concrete get? Dr Fennell says it would be reasonably easy to reduce the industry's CO₂ emissions to around 80% of present levels per tonne of concrete produced by better energy use and the modification of materials. But companies could really pull the stops out if they moved to kilns largely or entirely powered by biomass, such as wood. The carbon in this would, until recently, have been CO₂ in the air. If, after being turned back into that gas by being burned in the kiln, it was stored away and not released, the consequence, as new trees grew to replace those consumed, would be a net flow of

Correction An eagle-eyed reader has spotted that the picture illustrating one of last week's Science and technology stories, "No sex please, we're condors", was of an Andean condor, not one of the Californian variety. Sorry.

carbon out of the atmosphere.

This sort of system, called bioenergy with carbon capture and storage (BECCS), is one way climate modellers imagine providing the "negative emissions" needed for net-zero or net-negative emissions targets. BECCS-based electricity generation is often talked of, but BECCS might actually be better suited to cement-making—because in a carbon-conscious world the CO₂-capturing equipment will already be there, dealing with results of calcination. And if that happened, one of the pariahs of global warming might thus redeem itself by helping alleviate the damage being done to the planet, and so leave behind a legacy as impressive in its way as that of the Romans. ■



Unimals

Balls, sticks and the Baldwin effect

A novel way to optimise robots

IT MIGHT SOUND obvious that if you want to improve a robot's software, you should improve its software. Agrim Gupta of Stanford University, however, begs to differ. He thinks you can also improve a robot's software by improving its hardware—that is, by letting the hardware adapt itself to the software's capabilities.

As they describe in *Nature Communications*, he and his colleagues have devised a way of testing this idea. In doing so, they have brought to robotics the principles of evolution by natural selection. They have also cast the spotlight on an evolutionary idea that dates from the 1890s, but which has hitherto proved hard to demonstrate.

There is a wrinkle. The team's robots, which they dub "unimals", are not things of metal and plastic. Rather, they are soft-

ware entities that interact with a virtual environment in the way that metal-and-plastic devices might interact with a real one. Unimals are pretty simple, having spheres for heads and cylinders for limbs (see picture). The environments through which they roamed were also simple, and came in three varieties: flat arenas, arenas filled with hills, steps and rubble, and ones that had the complexities of the second sort, but with added props like cubes that needed to be moved around.

To begin with, the unimals were given a variety of randomly assigned shapes, but with identical software running each of them. That software was a piece of artificial intelligence called a deep evolutionary reinforcement learning algorithm, or DERL.

Newly created unimals started in a virtual boot camp, in which the DERL learned enough about the world to face the challenges to come. They were then entered into tournaments. In groups of four, Dr Gupta put them through tests of agility, stability and ability to manipulate objects. Each group's winner was allowed to "breed" by spawning a daughter with one mutation (an extra limb for stability, perhaps, or extra rotation in a joint, for flexibility). This daughter was substituted for the oldest unimal in the pool, assigned to a new group of four, and the process repeated.

Unimals were withdrawn from the fray after ten generations of evolution, and Dr Gupta reckons about 4,000 varieties of them underwent training. The team were surprised by the diversity of shapes that evolved. Some had arms as well as legs. Others had only legs. There were bipeds, tripeds and quadrupeds. Some moved like lizards. Others resembled an octopus walking on land. Crucially, though, the researchers found that the most successful unimals learned tasks in half the time that their oldest ancestors had taken, and that those which evolved in the toughest arenas were the most successful of all.

In this evolution of unimals' morphology to promote the ability to learn, Dr Gupta sees a version of something called the Baldwin effect. In 1896 James Baldwin, an American psychologist, argued that minds evolve to make optimal use of the morphologies of the bodies they find themselves in. What Dr Gupta has shown, though in software rather than in the real, biological world, is that the obverse can also be true—changes in body morphology can optimise the way minds (or, at least, DERLs) work. Even though he held the software constant from generation to generation, it became more efficient at learning as the unimals' bodies evolved.

Whether that discovery can be turned to account in the way robots are developed remains to be seen. But it is certainly, in the jargon beloved of some businessfolk, an out-of-the-box idea. ■

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Animal migration

Eel meet again

Don't know where, don't know when

FROM ARISTOTLE to Sigmund Freud, eels' reproductive habits have puzzled observers of the natural world. In a life-cycle the opposite of a salmon's, they grow from youth to maturity in rivers and ponds and then go to sea to spawn. Exactly where they do this spawning, though, was a mystery—until, a century ago, a Danish marine biologist called Johannes Schmidt painstakingly trawled eel larvae from the depths of the Atlantic Ocean and found that they got smaller and smaller until he arrived at the Sargasso Sea, which thus seemed to be European eels' *fons et origo*.

Subsequent work traced American eels to the Sargasso, too, while those from East Asia and some other parts of the Pacific spawn near Guam. Even with all this to go on, however, no one has yet captured a sexually mature eel from the wild, nor observed the species in the act of spawning. And there also remains the question of how adult eels, having left their riparian homes, find their way to these spawning grounds in the first place. To investigate that, Caroline Durif of the Institute of Marine Research in Bergen, Norway, has been studying eels' magnetic sense.

Dr Durif knew from previous work that, like many other animals which migrate long distances, eels can sense Earth's magnetic field. But the details were obscure. Her hypothesis was that the fish must be able to detect not only the direction of the field (as this previous work had shown they could), but also its strength—or "flux", to use the technical term. Since the flux of Earth's field varies with latitude, being weakest at the equator and greatest at the poles, flux detection would provide a way for European eels (for example), to know how far south they were. That, combined with their established ability to know the direction of north, would be enough for them to find their way back to the Sargasso by swimming more or less south-west.

In a study published in *Fish and Fisheries* Dr Durif and her colleagues tested this idea by comparing geomagnetic flux with existing tracking data for five eel species. They showed that eel larvae do indeed travel to regions of higher flux (which tends to propel those from the Sargasso northward) while adults do the opposite. Her hypothesis is that eels retain both a memory of the flux at their hatchery and a recollection of the details of how it changed as they migrated. Then, when mature, they invert

that pattern and use it as a navigation aid to return whence they came.

If true, this has implications for eel conservation. A crash in the Baltic eel population, for example, led to attempts, which began in 2007, to replenish that body of water each year with incoming youngsters collected from the densely eelied Atlantic coast of France. The hope was that these transplants would flourish in their new home, to the benefit of local fisherfolk, and that those fish not taken by people or other predators would ultimately find their way back to the Sargasso to spawn future generations of European eels.

The success of the second of these aspirations is in doubt, however. Recent stud-

ies suggest that only 13% of transplanted eels manage to escape from the Baltic. If Dr Durif is right, that may be because, first, the fish have been confused by the sudden shift in magnetic flux caused by their enforced journey north, and second, being predisposed by their internal compasses to head south-west—an appropriate direction of travel to the Sargasso from France—they have been unable to find their way out of the Baltic through the Danish archipelago, which requires an initial detour north. Only eels that made this journey in reverse as youngsters will carry an instinct to go the right way. Most of the involuntary migrants presumably perish, frustrated, on the shores of Poland and Germany. ■

Funerary rituals

Blood not so simple

A South American funeral mask raises intriguing questions

THIS FUNERAL mask, photographed by Yoshii Yutaka of the Sicán Archaeological Project, in Peru, was discovered 30 years ago, 800km to the north of Lima. The Sicán were a group who flourished around 500 years before the arrival, in the 1500s, of Europeans. The red paint adorning the mask is made of cinnabar, a compound of mercury and sulphur. But turning cinnabar into paint requires a binding agent—and in this case it must have been a good one, to keep the paint attached to the mask for so long. Luciana da Costa Carvalho of Oxford University therefore set out to discover what it was.

Initial mass spectroscopy suggested proteins were involved, but shed no light on which. A follow-up study, however, produced the astonishing suggestion

that the binder in question was chimpanzee blood—astonishing because chimps are African, not American animals. Further investigation revealed the mistake. The blood was actually from chimps' close relatives, *Homo sapiens*.

Human blood is sticky when it clots, and would certainly bind cinnabar to gold for a millennium—but so would that of many other species. This suggests human blood in particular was chosen for another, presumably ritual, reason. Being picked as the donor of this blood may well have been an honour, though that is impossible to tell. But given many pre-Columbian peoples' proclivity for human sacrifice, rather than mere bloodletting, it might not have been an honour that was highly sought after.



Mask of the red death

**Nationalism and revolution**

The day after the dream

The Greek struggle for independence helped inspire a wave of nationalism—and holds lessons for foreign intervention today

WHEN A COALITION of footloose merchants, sea captains, hard-pressed peasants, landlords, bandits, clerics and intellectuals raised the flag against the Ottomans in the spring of 1821, the great powers of Europe knew exactly what they thought. This impudent move to establish a state called Greece spelled trouble and should be discouraged.

After six years of grinding warfare, economic ruin and atrocities, the calculus shifted. Europe's masters felt they had more to fear from an Ottoman victory, with all the punitive killings and deportations that would follow. In October 1827 the British, French and Russian navies—notionally bent on enforcing a truce—sank the Ottoman and Egyptian fleet in Navarino Bay. That did not instantly create a functioning Greek state, but it was a matter of time.

In turn that set a precedent for the

The Greek Revolution: 1821 and the Making of Modern Europe. By Mark Mazower. Penguin Press; 608 pages; \$35. Allen Lane; £30

emergence of other small, proud European states, wrested from the grip of the Russian, Austro-Hungarian and Ottoman empires—a process lasting until the final collapse of those empires during or soon after the first world war. As the subtitle of Mark Mazower's new book maintains, events in Greece 200 years ago helped shape modern Europe. His elegant and rigorous account also holds lessons for modern geopolitics: about the galvanising effects of violence, the role of foreign intervention and the design flaws in dreams.

What changed the international view of the Greek struggle? To some extent, the

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emergence of a new phenomenon called public opinion. As Mr Mazower recalls, the Ottoman response to the uprising fanned philhellenic sentiment across Europe and America. Russia was appalled by the hanging of the Orthodox Patriarch in Constantinople; liberal Europeans and Americans were shocked by the slaughter of tens of thousands of Greeks on the island of Chios. Western idealists (including Lord Byron) flocked to fight for Hellenic freedom.

A powerful view of the drive for Greek independence is cynical about all this. And some Western philhellenes were indeed horrified when, after arriving in this supposedly enchanted land, they found that in appearance and manners the insurgent Hellenes were not so dissimilar from the Ottomans. One volunteer, Thomas Gordon, was dismayed by seeing a massacre of Muslims and Jews in the Peloponnesian stronghold of Tripolitsa.

Mr Mazower acknowledges the sins of some Greek warlords, but his emphasis is different. Somewhere amid the bloodlust, flight and ethnic cleansing, he says, a change in consciousness came about. "A new collective understanding of the Greek nation emerged out of the wartime refugee experience," not least as those involved "came from all over the Greek world".

► He writes sympathetically of the swash-buckling commander Georgios Karaiskakis, who, after some impressive victories, was slain in battle in 1827. As the author describes him, Karaiskakis came from a world of near-anarchy and opportunism in northern Greece but grasped that panhellenic interests must prevail over personal squabbles (a leap some bigwigs failed to make). If such laudatory views were expressed in a Greek textbook, they might be dismissed as patriotic hype. But coming from Mr Mazower, an eminent historian of the Balkans, they command respect.

And they capture an important truth, which applies to many nationalist uprisings. Yesterday's unrealistic goal can become today's imperative, given the rapid shifts of sentiment that bloodshed and suffering engender. Common agony can be an effective glue, as many would-be repressors of rebellion, including the British in post-1916 Ireland, realised too late.

I dream, you fantasise

Bulgarians, Poles, Romanians, Hungarians and Balts subsequently claimed and gained their independence. A rich variety of local circumstances coloured these nationalist movements, but several were inspired by the Greek example. All such projects are based in part on romantic fantasy, of which the Utopian dreams harboured by Greece's leaders and their foreign supporters were a peculiarly compelling specimen: they strove to recreate one of history's most glorious epochs, that of classical Hellas.

For Greece's external well-wishers and some Athenian patriots, that meant resurrecting Periclean Athens; others in the Greek ruling class dreamed of forging a neo-Byzantine empire based in Constantinople. Some entertained both visions at once. These dreams underpin some brilliant modern Greek poetry but they are a poor guide for practical statecraft.

Well into independence, Greece was a strange mixture of modern and premodern statehood. It incorporated an ambitious polyglot elite, enjoying fortunes made in Alexandria or Odessa, and a rural reality in which violent strongmen defied central power. Yet the Greek state did eventually become a more or less coherent polity, albeit with failings—such as a tendency to overspend and overreach—that can be traced to the delusions of grandeur which plagued the enterprise from the start.

That bears out Mr Mazower's portrayal of the insurgency as a truly transformative revolution. Many readers will see parallels with modern times more broadly. After all, in the past 30 years there has been a resurgence—and then a crash—of gung-ho liberal internationalism, which often echoed the pro-Greek sentiments voiced in Western capitals in the 1820s.

Both then and more recently there was a burst of confidence in the possibility of instigating reform and modernisation in remote, rugged lands through a mix of local fighting spirit and strategic intervention from afar. Think of the NATO bombardment that helped detach Kosovo from Yugoslavia in 1999, or the excitement felt in November 2001 when rough-hewn Tajik warriors and precision-guided missiles combined to overthrow the Taliban with seemingly miraculous ease. Or recall the certainty felt in 2011, among politicians in London and Paris, that high-tech support for tenacious Libyan rebels would establish a stable new order in Tripoli.

At the same time, the exasperation of starry-eyed philhellenes (even Byron) over the foibles of their Greek allies may seem familiar to any Western bureaucrat who struggled to prop up the NATO-protected order in Afghanistan. The miserable collapse of that order seemed to vindicate the sceptics who insist that nation-building in wild places is impossible, and an ill-advised use of military force.

Mr Mazower's argument is a counter-weight to that pessimism, albeit a nuanced one. In the story he tells, native pluck and endurance really can combine with strategic intervention to create new political and social realities. The proviso is that the intervention must go with the grain of local powerbrokers and the traditions they personify. That vital rider may explain why, in its own terms, NATO succeeded in Kosovo and failed in Afghanistan. ■

Women and philosophy

The moral of the story

The Women Are Up to Something.

By Benjamin Lipscomb. Oxford University Press; 326 pages; \$27.95 and £20

“**T**HREE HAS never been a woman who could do philosophy as she can.” So said Philippa Foot of her friend, Elizabeth Anscombe, in a recommendation to the head of an Oxford college in 1957. Letters of reference can exaggerate. If Anscombe had a precursor, would anyone have known? Before the 20th century, it was nearly impossible for a philosophically gifted woman to gain recognition, unless she was royal or at least a duchess. How that situation began to change, at least in Britain, is part of the story told in this fine group biography of four women, who became friends at Oxford during the second world war.

Its other two subjects are Iris Murdoch



Murdoch's piercing irises

and Mary Midgley, who, like Anscombe, had been well-educated, middle-class girls. As Benjamin Lipscomb, an American philosopher, explains, Foot was much posher. Her grandfather, Grover Cleveland, was twice America's president. Her earlier education was overseen by nannies and consisted mainly of riding and parties.

Murdoch (pictured), the most famous of the quartet, is best-known for her novels. But she was also a philosophy don at Oxford for 15 years, having decided to become one after hearing Jean-Paul Sartre lecture. Anscombe was the most eccentric. Monocled, cigar-smoking and renowned for removing her trousers when a restaurant informed her that women could not wear them, she was mistaken for a cleaning lady when she arrived to take up the Cambridge chair of philosophy once occupied by her friend, Ludwig Wittgenstein.

Much of Midgley's philosophical work was not written for academics. Her first book appeared when she was almost 60 and was followed by 15 more, many taking aim at what she saw as oversimplifications by biologists, psychologists and other scientists. She had a spat with Richard Dawkins over whether it is helpful to call genes “selfish”. Midgley paused her career for over a decade to care for three children. Anscombe, a devout Catholic, brought up seven without blinking; the secret was to realise that “dirt doesn't matter”.

What did matter to all four women was ethics. They were dissatisfied with the state of moral philosophy, especially as practised at Oxford. It was both too dry, because it focused on the language of morals rather than on ethical dilemmas, and mostly wrong, because it did not even get the linguistic questions right. Foot chipped away at the idea that descriptive and evaluative language could be neatly separated: calling an action “rude”, for example, both describes it and rebukes it. ►

► Against the orthodoxy of the time, she thus maintained that there was no yawning chasm between facts and values.

Anscombe argued along similar lines in a seminal paper published in 1958: Hume, Kant, Bentham, Mill and others all came in for a drubbing. Moral philosophers, she insisted, needed to rethink many of their beliefs about human nature and psychology. Two years earlier, she had made headlines in the wider world by objecting to the award of an Oxford degree to Harry Truman. In her eyes, the bombings of Hiroshima and Nagasaki made him a mass-murderer. The dons of one college were told to go and vote Anscombe down, because "the women are up to something".

The four women in Mr Lipscomb's lively tale did not only philosophise about morals (and, in Anscombe's case, much besides). They campaigned to improve the world, according to their lights. Anscombe was twice arrested at abortion clinics; Murdoch was refused an American visa because of her past membership of the Communist Party. Foot was devoted to the anti-poverty charity, Oxfam; Midgley was active in the animal-welfare, environmental and disarmament movements.

It may have been the war that made them. Midgley reckoned she had found her voice as a philosopher only because there were so few men at Oxford when she studied there. They were mostly away, fighting. The only time when most Oxford philosophy students have been women was when this quartet were undergraduates. ■

Nigerian fiction

Body blows

Chronicles from the Land of the Happiest People on Earth. By Wole Soyinka. Pantheon; 464 pages; \$28. Bloomsbury Circus; £20

WRITERS, LIKE most people, tend to slow down with age. Not Wole Soyinka, Africa's first Nobel laureate in literature. After focusing for nearly 50 years on plays, poetry and activism, at 87 he has returned to fiction, which he last published in 1972. As the narrator says of the mysterious enterprise at the heart of his new book, this is not some "mumbo-jumbo, cockatoofeather, dried-leather-thong, cowrie-and-tortoiseshell operation". Eccentric as the tale may seem, it is a tense, well-plotted novel comprised of several stories that come together in the final pages.

Four old friends go way back. As boys



A gloomy diagnosis

they made a secret pact, swearing to support one another come what may. They called themselves the "Gong o'Four". "Four for one, one for four, gung-ho!" they repeated when they met. Farodion was the first to lose touch, but he was always a bit of an outsider. Badetona was similar in character, marked out by his passion for figures. Gregarious Duyole, they all agreed, had the most fertile mind, a font of ideas that were "shared, not hoarded". His bond with Kighare Menka, who became a renowned surgeon, was always special.

Dr Menka narrates. He works in northern Nigeria, operating on the victims of bombings by Boko Haram; the people in his chronicles are hardly happy. When he finds that a trade in human body parts is being run out of his own hospital, his professional demeanour cracks. He embarks on a search that will transform his life—and those of the rest of the Gong o'Four.

Famed as a playwright, Mr Soyinka likes playing with words, and his prose is full of puns and witticisms. Above all, though, he enjoys dramatic set pieces, in which Nigerian society abounds; he brings funerals and fundamentalist prayer meetings to life in all their lurid splendour. But his purpose is not merely to ridicule his fellow Nigerians. During a scene in which a suspected robber is set upon by a market crowd and almost decapitated, Duyole turns to the narrator. "Something is broken," he tells the doctor. "Beyond race. Outside colour or history. Something has cracked."

On one level, this is a sophisticated thriller. On another, it is an excoriating moral satire about the vanity and corruption of Nigeria's political class, with its business cronies and kleptocratic preachers. In Mr Soyinka's telling, the country is not so much a failed state as a sick one. Infected with greed, vanity and self-delusion, its body politic appears, in his novel, to be beyond cure. ■

Books and social media

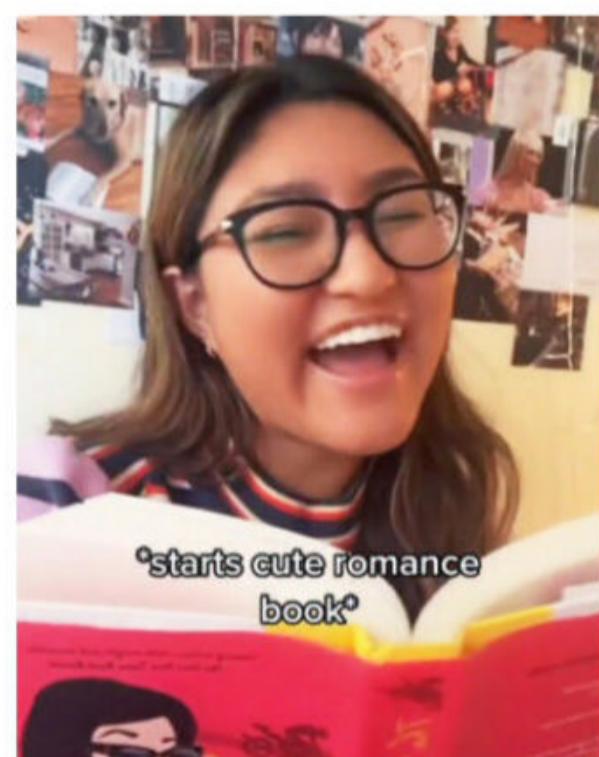
Word of mouth

A new form of literary criticism is boosting sales of books

A YOUNG WOMAN holds up a book and smiles. "This is day one of me reading 'The Song of Achilles,'" she says. The video jumps forward. "And this", she moans, her face stained with tears, "is me finishing it." Another clip, entitled "Books that will make you SOB", offers written notes on how assorted stories got readers to cry, such as "I can't think about it without bawling" and "ended up crying sm [so much] i had to change my shirt". This is BookTok, as the literary wing of the app TikTok is known. Imagine the emotional pitch of a Victorian melodrama, add music, and you have the general idea.

BookTok is passionate. It is also profitable—at least for publishers. Bloomsbury, a publishing house based in Britain, recently reported record sales and a 220% rise in profits, which Nigel Newton, its boss, put down partly to the "absolute phenomenon" of BookTok. On Amazon, BookTok is so influential that it has leapt into the titles of books themselves. The novel "It Ends With Us", for instance, is now listed as "It Ends With Us: TikTok made me buy it!" Evidently TikTok did a good job: the romance is riding high in the top 100 in both Britain and America.

The medium is not quite as gushy as it might seem. Much of the overdone emotion is ironic, and some of the videos are very funny—particularly those with the hashtag #writtenbymen, which poke fun at the male gaze. Nonetheless, many would ►



The new tastemakers

► make mainstream book reviewers tut. But why should the young women who are BookTok's stars care what fogeyish literary types think of them? Until fairly recently, their perspective was marginalised in both fiction and criticism. White men dominated both—even though most novel-readers are female.

BookTok has helped upend that hierarchy. Selene Velez (pictured on previous page), a 19-year-old American student, is behind @moongirlreads_ (an account with 185,000 followers). She focuses on authors who aren't typically "taken as seriously" as others. "I'm a woman of colour," she says. "I try to promote authors of colour."

At the same time, BookTok pushes back against publishing amnesia. Books are imagined to confer immortality on authors—to be a "monument more lasting

than bronze", as the Roman poet Horace wrote—but the lifespan of most is startlingly short. Dig out a list of bestsellers from 20 years ago: not only are today's readers unlikely to buy them, most won't have heard of them. Many of the books will have joined the legions of what W.H. Auden called the "undeservedly forgotten".

BookTok is resurrecting backlists. One reason publishers noticed it, says Philip Gwyn Jones of Picador, a British imprint, was that, under its influence, old titles were creeping back into the bestseller charts. It offers such books "a second lease on life", and he applauds it. "Eventually, a great book finds its readers," Mr Gwyn Jones says. "You just have to hope that, unlike Kafka, [authors] don't have to die before that happens." Start trending on BookTok, and they won't. ■

a public library and residential buildings, all part of a recent urban-renewal project.

The unusual design is controversial. Some Norwegians have criticised the airport-like feel of the monochromatic interior, apparently meant to accommodate throngs of Munch devotees. Others are wowed by the undulating aluminium cladding on the exterior, which gleams in sunlight during the day and emits light through perforations at night, setting the tower aflame. Juan Herreros, the museum's Spanish architect, says he wanted to make art the building's protagonist. No whimsy was to obscure the work on show.

As you might expect, "The Scream" is the centrepiece. Only on arrival will visitors learn which of three rotating versions will be on display. They are part of "Edvard Munch Infinite", a permanent exhibition of some of his best-known paintings, such as "Madonna" (sometimes called "Woman Making Love"), also stolen in the heist of 2004. "Edvard Munch Monumental" presents some of the large paintings he made for the University of Oslo. "The Researchers", a 36-foot (11-metre) bathing scene, reflects the interest he developed in vitalism after a nervous collapse. A school of thought popular in Germany, where Munch lived in the 1890s, vitalism emphasised hygiene, physical education and the life-enhancing force of the sun.

Munch's childhood was traumatic. His mother and favourite sister died of tuberculosis. Another sister was diagnosed with schizophrenia; his father suffered from depression. The artist himself struggled with mental illness. A lifelong bachelor, who saw out his days on an estate outside Oslo, his greatest attachment was to his work. When he died, aged 80, he gave thousands of items and his personal papers to his home town. It is at last doing justice to his munificence and his genius. ■

Edvard Munch

Light in the darkness

OSLO

A palatial new museum celebrates Norway's most famous painter

THIS GREAT and lonely artist", wrote J.P. Hodin of Edvard Munch, "has been appreciated...only by a handful of initiated people in the West. He has remained practically unknown to the Americans as well as to the English and French." A distinguished art historian, Hodin made his appraisal in 1950, six years after Munch's death, when the Museum of Modern Art in New York staged a retrospective of his work. In the seven decades since, Munch has become a rock star of world art.

"The Scream", in which a human figure clasps its skull against a swirling sunset, is as recognisable as Van Gogh's sunflowers or Monet's water lilies. Its mystique was boosted in 1994 when thieves stole Munch's original version of the painting (he made several) from Norway's National Gallery. In 2004 masked gunmen made off with another version in broad daylight from the poorly secured (and relatively small) Munch Museum. Both were recovered, though the picture swiped in the second theft was damaged.

The drama in 2004 contributed to a decision to build a new museum for the country's most famous painter. Four years later officials in Oslo announced plans to house the city's trove of 42,000 Munch-related objects, including paintings, sculptures, prints and photos. The inauguration was scheduled for 2014—when Norway celebrated the 200th anniversary of the signing of its constitution—but wrangling over costs and architecture, as well as the

covid-19 pandemic, delayed it until last month. A street party followed the ribbon-cutting by King Harald and Queen Sonja.

"Forget everything you know about museums," says Stein Olav Henrichsen, MUNCH's director. "This is totally different." (It has even dropped the word "museum" from its name.) The 13-storey building on the Oslo Fjord is one of the biggest institutions in the world devoted to a single artist, with a theatre, library, cinema, rooftop restaurant and space for temporary exhibitions. It towers over the city's opera house,



Everyone can hear "The Scream"

Economic data

	Gross domestic product			Consumer prices		Unemployment rate	Current-account balance	Budget balance	Interest rates		Currency units					
	% change on year ago latest	quarter*	2021†	% change on year ago latest	2021†	%	% of GDP, 2021†	% of GDP, 2021†	10-yr gov't bonds latest,%	change on year ago, bp	per \$ Nov 3rd	% change on year ago				
United States	4.9	Q3	2.0	5.7	5.4	Sep	4.4	4.8	Sep	-3.5	-12.5	1.6	70.0	-		
China	4.9	Q3	0.8	7.9	0.7	Sep	0.8	4.9	Sep‡\$	2.8	-4.9	2.8	§§	-24.0	6.40	4.5
Japan	7.6	Q2	1.9	2.3	0.2	Sep	-0.2	2.8	Sep	3.4	-8.9	nil	-8.0	114	-8.3	
Britain	23.6	Q2	23.9	6.4	3.1	Sep	2.8	4.5	Jul††	-3.9	-10.9	1.1	77.0	0.73	5.5	
Canada	12.7	Q2	-1.1	5.4	4.4	Sep	3.1	6.9	Sep	-2.3	-9.5	1.7	104	1.24	5.7	
Euro area	3.7	Q3	9.1	4.9	4.1	Oct	2.1	7.4	Sep	3.1	-7.1	-0.2	45.0	0.86	-1.2	
Austria	12.8	Q2	24.6	4.1	3.6	Oct	2.7	5.2	Sep	2.2	-7.4	0.1	50.0	0.86	-1.2	
Belgium	4.7	Q3	7.4	5.0	4.2	Oct	2.3	6.3	Sep	1.1	-7.1	0.1	51.0	0.86	-1.2	
France	3.3	Q3	12.6	6.1	2.6	Oct	1.9	7.7	Sep	-1.5	-8.5	0.3	63.0	0.86	-1.2	
Germany	2.5	Q3	7.3	3.1	4.5	Oct	2.9	3.4	Sep	6.9	-5.7	-0.2	45.0	0.86	-1.2	
Greece	16.4	Q2	14.5	6.5	2.2	Sep	0.1	13.3	Sep	-4.4	-9.6	1.2	19.0	0.86	-1.2	
Italy	3.8	Q3	10.8	6.0	2.9	Oct	1.6	9.2	Sep	3.8	-9.6	1.1	37.0	0.86	-1.2	
Netherlands	10.4	Q2	15.9	3.7	2.7	Sep	2.3	3.1	Sep	8.9	-5.2	-0.1	49.0	0.86	-1.2	
Spain	2.7	Q3	8.3	5.5	5.5	Oct	2.5	14.6	Sep	0.9	-8.9	0.6	47.0	0.86	-1.2	
Czech Republic	8.8	Q2	5.7	3.4	4.9	Sep	3.6	2.7	Sep‡	3.2	-8.3	2.6	160	22.0	3.8	
Denmark	10.0	Q2	11.7	3.2	2.2	Sep	1.7	3.3	Sep	7.5	-0.3	0.1	58.0	6.42	-1.1	
Norway	6.1	Q2	4.4	3.0	4.1	Sep	3.0	4.0	Aug‡‡	6.9	-3.0	1.4	76.0	8.54	9.5	
Poland	10.8	Q2	6.6	5.2	6.8	Oct	4.7	5.6	Sep§	2.1	-6.7	2.9	173	3.96	-2.3	
Russia	10.5	Q2	na	4.2	8.1	Oct	6.6	4.3	Sep§	5.2	-0.7	8.3	179	72.1	9.8	
Sweden	3.7	Q3	7.4	4.0	2.5	Sep	2.2	8.2	Sep§	5.2	-1.9	0.3	33.0	8.56	3.1	
Switzerland	7.7	Q2	7.4	3.5	1.2	Oct	0.5	2.8	Sep	5.3	-3.8	-0.1	38.0	0.91	nil	
Turkey	21.7	Q2	na	8.0	19.9	Oct	17.1	12.0	Aug§	-3.0	-3.2	18.9	471	9.67	-12.8	
Australia	9.6	Q2	2.7	4.2	3.0	Q3	2.4	4.6	Sep	1.8	-5.9	1.9	108	1.35	3.7	
Hong Kong	5.4	Q3	0.4	6.2	1.4	Sep	1.6	4.5	Sep‡‡	2.9	-4.2	1.5	91.0	7.78	-0.4	
India	20.1	Q2	-41.2	8.2	4.3	Sep	5.4	7.8	Oct	-0.9	-7.2	6.4	46.0	74.5	-0.1	
Indonesia	7.1	Q2	na	3.0	1.7	Oct	1.7	6.3	Q1§	-0.2	-6.0	6.2	-36.0	14,298	2.0	
Malaysia	16.1	Q2	na	3.8	2.2	Sep	2.4	4.6	Aug§	2.6	-6.0	3.6	93.0	4.15	0.2	
Pakistan	4.7	2021**	na	3.8	9.2	Oct	9.2	6.9	2019	-4.4	-6.9	10.6	†††	114	169	-5.7
Philippines	11.8	Q2	-5.1	4.2	4.8	Sep	4.5	6.9	Q3§	-1.4	-7.5	4.7	164	50.6	-4.3	
Singapore	6.5	Q3	3.4	6.1	2.5	Sep	1.9	2.6	Q3	18.1	-4.2	1.8	100	1.35	0.7	
South Korea	4.0	Q3	1.2	4.1	3.2	Oct	2.2	2.7	Sep§	4.6	-4.4	2.5	86.0	1,182	-4.0	
Taiwan	3.8	Q3	2.3	5.7	2.6	Sep	2.0	3.9	Sep	15.2	-1.2	0.6	24.0	27.9	2.7	
Thailand	7.5	Q2	1.5	1.4	1.7	Sep	1.0	1.5	Dec§	-1.4	-7.8	1.7	55.0	33.3	-6.8	
Argentina	17.9	Q2	-5.5	8.1	52.5	Sep	47.3	9.6	Q2§	1.6	-5.7	na	na	99.9	-21.0	
Brazil	12.4	Q2	-0.2	5.0	10.2	Sep	8.0	13.2	Aug‡‡	0.5	-5.4	11.9	422	5.62	1.4	
Chile	18.1	Q2	4.2	11.0	5.3	Sep	4.3	8.4	Sep‡‡	-1.8	-7.1	6.0	338	815	-7.6	
Colombia	17.0	Q2	-9.2	9.8	4.5	Sep	3.4	12.1	Sep§	-4.1	-8.5	7.8	250	3,846	-0.7	
Mexico	4.6	Q3	-0.8	6.4	6.0	Sep	5.3	3.9	Sep	1.8	-3.3	7.6	156	20.8	1.4	
Peru	41.9	Q2	3.5	12.6	5.8	Oct	4.2	10.1	Sep§	-3.4	-4.4	5.9	165	4.01	-10.0	
Egypt	7.7	Q2	na	3.3	6.6	Sep	5.4	7.3	Q2§	-4.4	-8.0	na	na	15.7	-0.1	
Israel	17.5	Q2	16.6	5.3	2.5	Sep	1.7	5.2	Sep	4.3	-6.5	1.3	38.0	3.12	9.3	
Saudi Arabia	-4.1	2020	na	2.2	0.7	Sep	3.1	6.6	Q2	4.5	-2.0	na	na	3.75	nil	
South Africa	19.3	Q2	4.7	4.9	5.1	Sep	4.4	34.4	Q2§	1.8	-8.5	9.7	36.0	15.4	3.9	

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

Markets

In local currency	Index Nov 3rd	% change on:			index Nov 3rd	one week	Dec 31st 2020	% change on:			Basis points	latest Dec 31st 2020
		one week	Dec 31st 2020	Dec 31st 2020				one week	Dec 31st 2020	Dec 31st 2020		
United States S&P 500	4,660.6	2.4	24.1		47,032.4	2.6	7.5					
United States NAScomp	15,811.6	3.8	22.7		3,219.7	nil	13.2					
China Shanghai Comp	3,498.5	-1.8	0.7		2,975.7	-1.6	3.6					
China Shenzhen Comp	2,393.6	-0.2	2.8		Taiwan TWI	17,122.2	0.3	16.2				
Japan Nikkei 225	29,520.9	1.5	7.6		Thailand SET	1,611.9	-1.0	11.2				
Japan Topix	2,031.7	0.9	12.6		Argentina MERV	92,095.0	7.9	79.8				
Britain FTSE 100	7,248.9	-0.1	12.2		Brazil BVP	105,616.9	-0.7	-11.3				
Canada S&P TSX	21,265.1	1.5	22.0		Mexico IPC	51,878.8	0.3	17.7				
Euro area EURO STOXX 50	4,309.6	2.1	21.3		Egypt EGX 30	11,685.1	2.8	7.7				
France CAC 40	6,950.7	2.9	25.2		Israel TA-125	1,966.6	1.8	25.4				
Germany DAX*	15,960.0	1.6	16.3		Saudi Arabia Tadawul	11,685.7	-1.0	34.5				

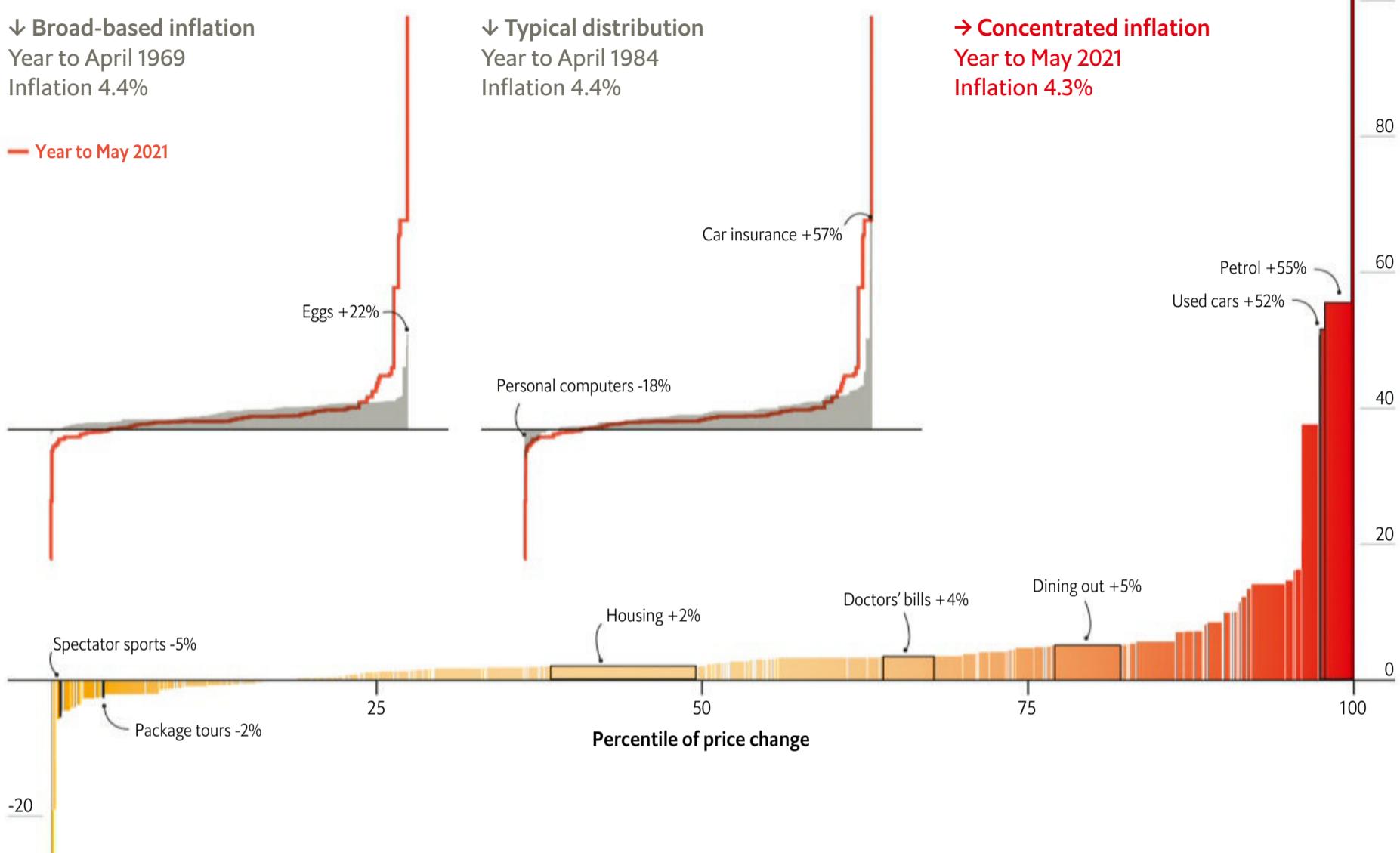
Inflation in America* by item, % change on a year earlier

↓ Broad-based inflation
Year to April 1969
Inflation 4.4%

— Year to May 2021

↓ Typical distribution
Year to April 1984
Inflation 4.4%

→ Concentrated inflation
Year to May 2021
Inflation 4.3%



The used-car conundrum

A handful of items are driving inflation in America. Our new measure shows that this portends lower inflation—but not enough for the Fed to drop its guard

CONSUMER-PRICE inflation has risen to 5.4% in America, the highest in 30 years. On November 3rd the Federal Reserve said it would taper bond purchases, a step towards higher interest rates. Most economists say that this bout of inflation is a result of temporary disruptions caused by covid-19, and that it will pass. But some think it presages a longer-term trend.

A leading argument by inflation doves has been that just a few items have caused a large share of total price increases. In the quarter to August used cars, hotel rooms and airfares made up less than 5% of America's consumer-price index, but together accounted for the majority of overall inflation. "This is really extreme," Paul Krugman, an economist, wrote at the time, "and does suggest transitory bottlenecks rather than broad-based inflation pressure."

This case rests on two claims, which both merit scrutiny. One clearly stands up: when compared with past periods with

similar inflation, current price rises are indeed unusually concentrated. The other—that inflation is likely to slow down as a result—is also broadly true. However, this effect is too small for the Fed to breathe easy.

To test these hypotheses, we built a dataset of price levels since 1959 for every item—from housing to lottery tickets—in the personal consumption expenditures (PCE) index, one of the Fed's preferred metrics. For each rolling 12-month period, we calculated a measure of how much price changes vary between items: their standard deviation. When a few components account for a large share of inflation, this number is high. When most items' prices change by similar amounts, it is low.

In general, standard deviations are correlated with inflation: the higher the average increase in prices, the more specific items' price changes differ from each other. However, some eras were unusual, with inflation that was either low but concen-

trated, or high but broad. To identify such outliers, we measured the "excess" concentration of inflation in each time period: the gap between the actual standard deviation of price changes and what you would expect based on overall inflation.

This measure is now abnormally high. During the year to May inflation was more excessively concentrated than in 97% of rolling 12-month periods since 1961. It has dipped slightly as used-car prices have levelled off, but still sits in the 89th percentile.

What does this mean for future inflation? Historically, when excess concentration has been high, the present has been a poor guide to the future. When inflation is above its ten-year average, as it is now, high excess concentration makes it more likely to fall. This pattern should lead forecasters to reduce their predictions for inflation.

The notion that a few big price changes can lead forecasters astray is hardly new. In the 1970s economists devised "core" inflation, which excludes food and energy. More recently, "trimmed-mean" measures, which drop the items whose prices have swung the most, have come into vogue. The Dallas Fed has published papers showing that its version, which excludes the bottom 24% and top 31% of the PCE index, predicts inflation better than core does.

However, both of these methods have ➤

flaws. Changes in food and energy prices are not necessarily unusually large or short-lived. And trimmed means' weighting schemes are plagued by abrupt cliffs. In the Cleveland Fed's version, which lops off the top and bottom 8% of the index, an item in the 93rd percentile when sorted by price changes is removed entirely, whereas one in the 92nd gets its full weight.

With this in mind, we have devised an alternative inflation index. Like trimmed means, it adjusts items' weights based on their recent price changes. But its weights are shaped like a smooth hill rather than a box. Components with inflation near the median get the most emphasis, and those with the biggest price changes get the least.

Our hill looks a bit like Uluru in Australia: a broad central plateau, flanked by a steep slope on the left side and a gentler one on the right. (The Dallas Fed's trimmed mean is also asymmetric, counteracting bias caused by price-change distributions' lopsidedness.) Most items with negative or low inflation get a hefty weight; those whose prices are rising fastest count for 25% as much as those in the middle do.

When using the past year of data to predict PCE inflation during the following year, this method is more accurate than either using core inflation or expecting inflation to remain constant. Since 1959, its one-year forecasts have also outperformed those of the Dallas Fed's trimmed mean.

Some of this apparent advantage stems from the design of our study: the Dallas Fed sought to maximise accuracy for different time periods and forecast horizons than ours. However, its trimmed mean's errors in the 1970s illustrate the risks of such a deep trim. Amid two oil shocks, some of the fastest-rising prices—those of energy-related items—just kept rising. The less weight an index placed on such goods, the worse it predicted inflation one year out.

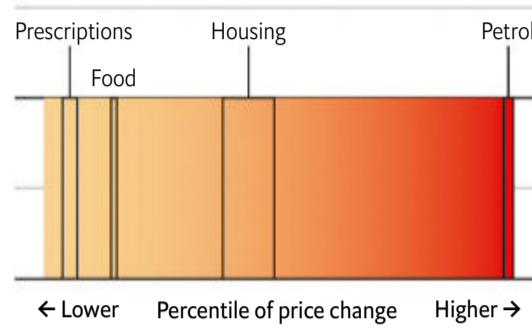
The current episode of concentrated inflation differs from the 1970s in many ways. Surging prices for goods like home appliances are unlikely to feed through to other costs, as oil prices do. And in general, treating outliers the same as more representative items has been a mistake. But in cases where such price changes foreshadow broader supply constraints, ignoring them entirely can be an even bigger error.

As a sense-check of our "Uluru" method, we also built a model that forecasts PCE inflation using only excess concentration and the one- and ten-year trailing inflation rates. Both this approach and the Uluru index yield a 4.1% prediction for inflation during the next 12 months. That is below the current level of 4.4%, but above the Fed's target of 2% and the 2.3% value of the Dallas Fed's trimmed mean for the past 12 months. If this forecast comes true, interest-rate rises will almost surely follow. ■

► Four ways to weight an inflation index

Headline inflation*

Weights items at their share of consumer spending



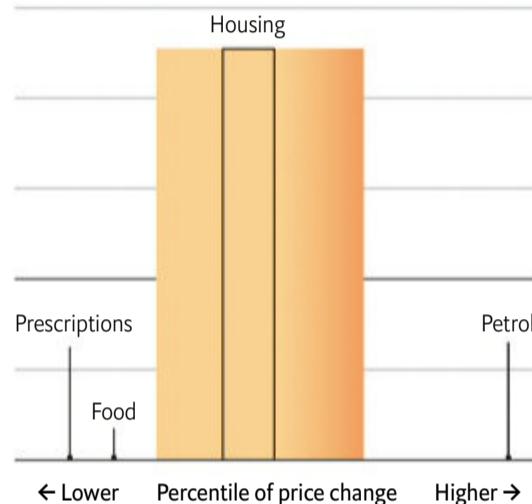
Core inflation

Excludes food and energy prices



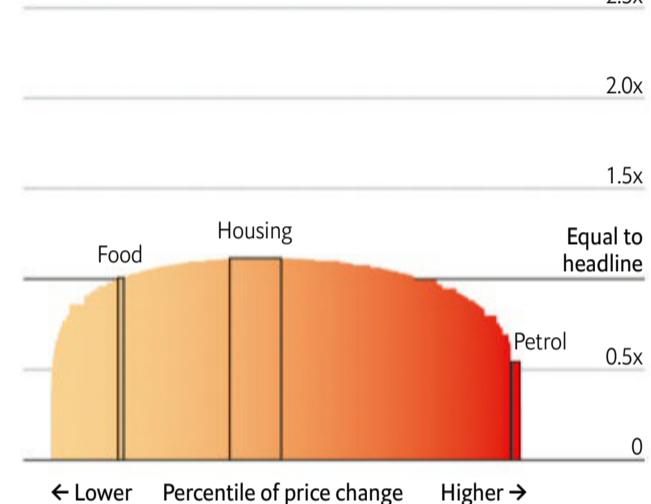
Trimmed-mean inflation

Excludes products with big price swings



"Uluru" inflation

Smoothly reweights items



► "Uluru" inflation is less volatile than headline, and a better predictor

Headline v "Uluru" inflation indices, % change on a year earlier



*Weighted average of each item's year-on-year change in personal consumption expenditures index
†Difference in root-mean-square error predicting headline PCE inflation during the subsequent 12 months



Music, not words

Bernard Haitink, conductor, died on October 21st, aged 92

THE WORDS “great conductor” and “humility” are not often found together. Almost inevitably, given the podium, the magic baton, the formal dress and the commanding drama of the job, conductors abound with ego. Bernard Haitink had no time for that. He was a man of few gestures and even fewer words, humbly performing the mysterious task that had become his life.

On the podium he did nothing showy: a lift of a finger, a meaningful glance, a vestige of a smile. His musical personality, he thought, said everything necessary, and orchestras round Europe and America—especially the Amsterdam Royal Concertgebouw, where he was chief conductor for 27 years, and the London Philharmonic (LPO), where he stayed for 12—learned to read it perfectly, mood for mood. In rehearsals and offstage he said as little as possible, not wanting words to get in the way, and equally afraid of saying some stupid thing. For the same reason he kept out of music politics, unless seriously provoked.

When he did speak, it was often to put himself down. He played the violin as a child, but “badly”. At school he was a “lazy pig”, just not interested. He did not impress the Amsterdam conservatoire and scraped into the Radio Philharmonic Orchestra, in the back desk of the second violins. Sheer luck got him into conducting, when he was asked to fill in for the Cherubini Requiem, but he had no tools for that work at all. When he went to the Concertgebouw in 1961 he was “totally chaotic”, far too young, at 34, to conduct it. His first attempts at opera were “near-disasters”. And so on.

Terribly, cripplingly shy as he was, this was a way of closing down a subject. It also helped keep his feet on the ground, as critics increasingly marvelled at the beauty, pace and clarity of his work. There was no better guide, they said, to the architecture of a Mahler symphony or the spiritual complexities of Bruckner, no better painter of the sea-and-sky colours of Debussy; some of his interpretations approached the supernatural. How was it done?

He did not know. As he saw it, he could always be better.

With orchestras he was a team-player; he had been a lowly back-desker, after all. The orchestra and himself were a community, a family, and he took ideas from them as much as vice versa. He gave them freedom to perform the music as they felt it, with only the smallest nudges: “I hope you agree,” he would say, or “If you don’t mind.” As in any family, there were rows; eventually he resigned from both his long-term orchestras and (until he quickly relented) from the Royal Opera House at Covent Garden, where he worked from 1987 to 2002. But the rows were usually with management or government, over funding and cuts, and every time he stood with his players as one of them. At a desperate point in 1998 he appealed to the audience at “Götterdämmerung” to save Covent Garden, and it was saved. Just a few words, but from him they seemed to work. Or maybe the music did it.

When it came to programmes, he did not impose himself. His favourite symphonic repertoire was heavy on Mozart, Beethoven and 19th-century romantics, but also on Stravinsky and Britten, and he championed contemporaries. Opera productions often struck him as odd, but he raised objections only once, when Wagner’s “Ring” at Covent Garden featured Rhine maidens in latex fat-suits and Wotan and Fricka in a battered limousine. He endured it by closing his eyes to live in the music. About opera, too, he had plenty of doubts when in 1978, with limited experience, he was hired for Glyndebourne with the LPO. But in the end it did wonders for him. He learned to be more dramatic, just a little, and could lose his ego even more when he was in the pit, almost unseen, collaborating with sopranos and set-designers and all the rest.

He could focus entirely on the music then, at the service of the genius who had produced it. Both were impenetrable mysteries. Wagner could be horrible, Beethoven irascible, Mozart loved filthy jokes; and then they wrote these sublime works, inexplicably. He was their simple conduit to the world, channelling each composer’s dream like a beautiful flower that unfolded itself. The shape of the piece was the most important thing, the onward drive and flow, knowing just where he was going. Yet the delicate inner discoveries were endless. No matter how often he had performed a piece he would buy a fresh score for each season, and start again.

When he talked about music, fear frequently came into it. This was not just stage-fright, which everyone had. He feared he might be inadequate to the task he had taken on. Almost to the end he shied away from Bach, too great for him, with so much counterpoint and with such religious fervour, when he had none. How was it then that he had been drawn from the age of nine to Bruckner, with his intensely Catholic mysticism? He could not say.

Mysteries of this sort explained much of his humility. But he also lived with another strange and disturbing thought. In his first years of conducting he had been such a lucky young man, seeming to sleep-walk into international fame, not planning anything. There was a dark reason, however, for that. Growing up in Holland in the German occupation, he had seen his Jewish friends gradually disappear from class and Jewish players vanish from the Concertgebouw, where he already spent his leisure time. One day he went to see a young Jewish violinist play Beethoven’s “Kreutzer Sonata” at his house. It was wonderfully done. Then he was gone.

His own family had suffered, too: his father sent for three months to a concentration camp, everyone eating tulips in the Hongerwinter of 1944-45. Yet he was ashamed both of Dutch indifference to the Jews and of the post-liberation outbreaks of violent vengeance, a shame that fed his later conviction that he was not Dutch any more. And he felt that his life had prospered largely because more talented people had lost theirs.

On the podium he was ever-aware of hundreds of eyes on his back. It was the last place, you would think, for someone so shy. But he was there not simply to channel the music, though that was the main point. He was also bound to do his humble best to fill in for an assembly of ghosts. ■

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