The Economist

- The Democrats' dim prospects
- Fun with non-fungible tokens
- How to make vaccine passports work
- In praise of a pyjama revolution

OCTOBER 30TH–NOVEMBER 5TH 2021

COP-out

The world this week

The world this week

Politics

Oct 30th 2021

Sudan suffered its second coup in two years. Abdel-Fattah al-Burhan, a former general and the country's de facto president, seized control just months before he was supposed to step down. He also had the civilian prime minister arrested. Mr Burhan said he had acted to prevent a civil war. Thousands of protesters said no, it was a blatant power grab. Soldiers opened fire on them. At least seven people were killed and 140 wounded. Donors such as America suspended aid, but Mr Burhan hopes for backing from undemocratic foreign powers.

BioNTech, the company that developed the covid-19 vaccine marketed by Pfizer, said it would build factories in Senegal and Rwanda next year. It hopes to produce more doses for Africa, which has 17.5% of the world's population but has so far received only 2.5% of covid jabs.

President Abdel-Fattah al-Sisi of Egypt lifted a four-year state of emergency. In theory, it will now be less easy for his government to quash protests, arrest dissidents without warrants and limit various freedoms. Critics wondered how much less easy it will really be. America has threatened to withhold aid from Egypt unless it improves its human-rights record.

Israel moved ahead with a proposal to build 3,000 new homes for Jewish settlers in the occupied West Bank. The Biden administration has condemned the plan. It may also increase tension in Israel's governing coalition, which includes doveish parties that oppose settlements.

Israel held its biennial Blue Flag military exercise over the Negev desert. Aircraft from America, Britain, France, India and other countries joined the drill. The head of the United Arab Emirates' air force also watched. The exercise pitted Israel and its allies against the fictional "Dragonland", which has military capabilities remarkably similar to Iran's.

A different sort of tweeting

A cyber-attack in Iran disrupted the sale of subsidised fuel, resulting in long queues at petrol stations. A group calling itself "Predatory Sparrow" claimed responsibility, but the authorities blamed an unnamed "state actor". The hackers also took control of digital billboards, making them ask: "Khamenei, where is our fuel?" Ayatollah Ali Khamenei is Iran's supreme leader.

The UN said that more than half of Afghans would go hungry this winter without help, and that the proportion who subsist on less than $1.90 a day would rise from roughly half before the Taliban seized power in August to a shocking 97% by mid-2022. It said Afghanistan was about to become the world's worst humanitarian crisis. Residents of Kabul are selling possessions in the streets to buy food.

Members of the Association of South-East Asian Nations (ASEAN) convened virtually. Myanmar was excluded, since its military mounted a coup in February and has been slaughtering protesters since then. It was the first time the group has sanctioned a member state this way. Joe Biden promised to help South-East Asian countries stand up to Chinese aggression. It was the first time in four years that an American president had taken part in an ASEAN meeting.

Hong Kong's legislature passed a law banning films that the government thinks might threaten China's national security. Violators may face three years in prison.

China postponed the annual marathon in Beijing because of concerns about the spread of covid-19. It had been due to take place on October 31st. No new date has been set.

The chairman of America's joint chiefs of staff, General Mark Milley, confirmed that China had tested a hypersonic weapon. He called it a "significant technological event" and "very concerning".

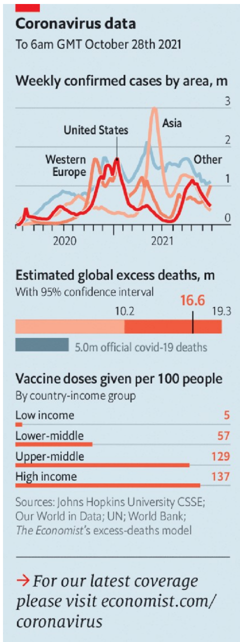
A committee advising America's Food and Drug Administration recommended that the Pfizer vaccine for covid-19 be given to children aged five to 11. If approved, the shots will be one-third the strength of the jab given to adults.

Not everyone is happy with having to take the vaccine. New York City's police union filed a lawsuit against a recentmandate imposed by the mayor on public-sector employees either to take the jab or to go on unpaid leave. Thousands of workers, mostly firefighters, marched across the Brooklyn Bridge to protest outside City Hall. Police in Chicago are also up in arms.

Turkey's president, Recep Tayyip Erdogan, ordered ten ambassadors, including those of America, France and Germany, to be declared personae non gratae, a prelude to expulsion. The envoys' sin was to have called for the release of a philanthropist, Osman Kavala, who has been locked up for the past four years on trumped-up charges. The Turkish lira fell to its lowest-ever level against the dollar. America's embassy said it didn't meddle in Turkey's domestic affairs, and Mr Erdogan backed down.

Roll over, Moldova

Gazprom, Russia's state-owned gas company, told Moldova that it would cut the price of its fuel to the cash-strapped former Soviet republic, if it was prepared to alter its tariff-free trade agreement with the EU. Vladimir Putin insists it is nonsense to say that Russia plays politics with its energy exports.



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Colombia said it would extradite Dairo Antonio Úsuga, aka Otoniel, to the United States, after he was captured in a big security operation. Mr Úsuga is said to be the country's most powerful druglord. His Gulf Clan in northern Colombia is suspected of killing rivals to gain control of cocaine-smuggling routes into Central America.

Pope Francis agreed to visit Canada to take part in the country's "process of reconciliation with indigenous peoples". Hundreds of unmarked graves were found earlier this year at sites of former residential schools for indigenous children, most of which were run by the Roman Catholic church. Justin Trudeau, Canada's prime minister, vowed to improve relations with indigenous Canadians. He is still taking flak for skipping the first national day for reconciliation on September 30th to go surfing.

The world this week

Business

Oct 30th 2021

Democrats in the American Senate tried to pin down proposed tax rises that will pay for a $1.5trn spending bill on welfare and the climate, legislation that is much reduced in scope from what its backers originally envisaged. But their plans were thrown into confusion when moderates pushed back against both radical ideas on taxing the super-wealthy and a levy on the profits of America's biggest companies based on their financial accounting for shareholders, and not what they declare to the taxman.

A blizzard of policies was announced in the British government's budget(or leaked to the press several days before). The national living wage is to rise to £9.50 ($13) an hour, a 6.6% increase. And with fuel prices surging, a planned tax increase on petrol was scrapped. That didn't go down well with greens, just days ahead of the British-hosted COP26 summit.

Masters of the metaverse

Facebook formalised its expansion into the "metaverse", a collection of online worlds where users' avatars buy clothes, attend concerts and socialise. The company announced more investment in its Reality Labs division, which from now on will report separately from the rest of the business. Part of the reason for Facebook's refocus is growing competition from TikTok and other apps for attention from younger customers, many of whom think the platform, which will turn 18 next year, is boring. It also faces claims that it cannot control hate speech.

The other highlight in Facebook's quarterly earnings was the impact on its growth prospects of Apple's new privacy policy, which allows iPhone users to say whether they want to be tracked for advertising purposes. Mark Zuckerberg said the policy was having a negative effect on Facebook. Snap, a photo and messaging platform, also blamed the change for weaker-than-expected revenues; its share price shed more than a quarter of its value.

Meanwhile Alphabet, the parent company of Google, said that the change in Apple's policy was having only a modest impact on its advertising business, most of which comes via its search engine. Sales from ads across its divisions, which include YouTube, surged in the third quarter by 43%, year on year, to $53bn.

The Economist

Tesla became the first carmaker to pass a stockmarket value of $1trn, after Hertz placed an order for 100,000 of its vehicles as part of its drive to electrify its rental fleet. Tesla joins Alphabet, Amazon, Apple and Microsoft in the club of American companies valued at over $1trn. Elon Musk's net fortune alone is now worth more than ExxonMobil's market value.

The bullish quarterly earnings season in [corporate America] pushed the S&P 500 to a new record. The index is up by a fifth since the start of the year.

Oil prices climbed, after Goldman Sachs estimated that global demand will soon reach pre-pandemic levels, just as the world faces an energy crunch in natural gas. Brent crude rose above $86 a barrel, up by a fifth since the start of September. Saudi Arabia, meanwhile, pledged to cut its carbon emissions to net zero by 2060. The promise was met with some scepticism; the target excluded the kingdom's fossil-fuel exports.

The Spanish government softened its proposed windfall tax on the profits of utility companies by allowing for exemptions. It announced the policy in September amid soaring electricity bills for consumers, prompting a backlash from utilities, which said investment would suffer.

Beyond Meat's share price struggled to recover from the hammering it took after the company warned that sales would be lower than expected because several factors have reduced demand. The maker of plant-based products had a hugely successful IPO in 2019, but has faced stiff competition in the market for fake meat since then.

Eurostar could face competition running passenger trains through the Channel Tunnel that links Britain and France. Renfe, Spain's state-owned railway company, reportedly thinks it can offer a viable alternative service and has gained the support of the tunnel's operator.

DraftKings, an American fantasy-sports and betting operator, abruptly abandoned its $22bn takeover approach for Entain, a British gambling firm and owner of the Ladbrokes brand. American gambling companies are looking to expand their global reach, but both sides reportedly couldn't agree on the terms of a deal.

Retail regeneration

Augmenting its expansion from suburban warehouses to city-centre locations, IKEA is buying the building in London's Oxford Street that used to house Topshop before it went bankrupt. That's good news for the city's busiest shopping thoroughfare, which lost some big high-street names during the pandemic.

KAL's cartoon

Oct 30th 2021

Dig deeper into the subject of this week's cartoon:

• What is the metaverse?
• Facebook is nearing a reputational point of no return
• Facebook's rumoured name-change reflects ambition—and weakness

Kal's cartoon appears weekly in The Economist. You can see last week's here.

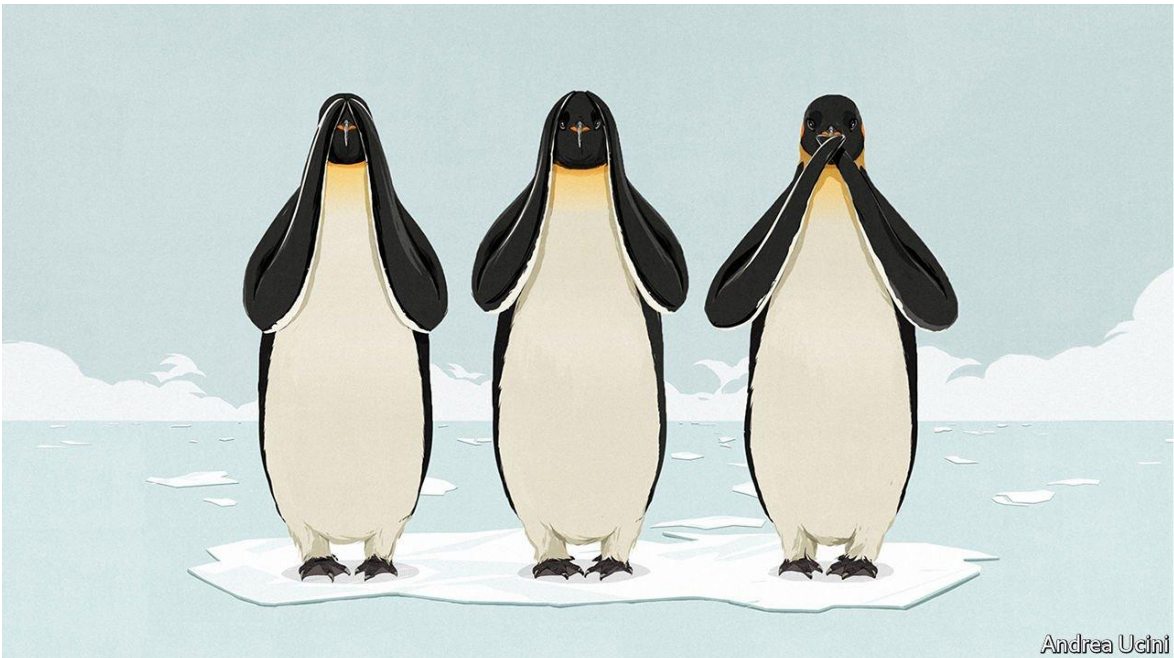
Leaders

Climate change

Why the COP26 climate summit will be both crucial and disappointing

Such global gatherings remain the best forum to force change

Oct 30th 2021



“THE RAIN it raineth every day,” Feste tells the audience at the end of “Twelfth Night”. And the COP it COPpeth every year. Since 1995 the countries bound by the UN Framework Convention on Climate Change (UNFCCC) have missed only one conference of the parties—when the pandemic struck in 2020. These COPs can produce action plans (Bali, 2007), mandates (Berlin, 1995), protocols (Kyoto, 1997), platforms (Durban, 2011), acrimonious breakdowns (Copenhagen, 2009) and agreements (Paris, 2015). But the rise in the atmosphere’s greenhouse-gas content and the associated warming of the climate continues in spite of them—even when, as so often, they are hyped as the world’s last chance.

As diplomats, scientists, lobbyists, activists, artists, the media, politicians and businesspeople gather in Glasgow for COP26, which begins on October 31st, it is therefore easy to dismiss the entire affair. That would be a mistake. The UNFCCC and its COPs, for all their flaws, play a crucial part in a process that is historic and vital: the removal of the fundamental limit on human flourishing imposed by dependence on fossil fuels.

One reason COPs matter is that some of them do in fact make a difference. Despite rules on consensus, meaning that the pace is set by the least willing, the agreement in Paris committed all parties, rich and poor, to keep the rise in Earth's temperature since the mid-19th century well below 2°C. Glasgow will bring fresh national pledges promising increased efforts towards the Paris temperature targets—though they will not be ambitious enough to make meeting those goals likely.

The main reason the UNFCCC and COP process matters is that the science, diplomacy, activism and public opinion that support it make up the best mechanism the world currently has to help it come to terms with a fundamental truth. The dream of a planet of almost 8bn people all living in material comfort will be unachievable if it is based on an economy powered by coal, oil and natural gas. The harms from the cumulative emissions of carbon dioxide would eventually pile up so rapidly that fossil-fuel-fired development would stall.

As our special report in this week's issue sets out, nowhere is this logic more pressing than in Asia. About 1.5bn Asians live in the tropics. Hundreds of millions of them live near the coasts. For their economies to continue to grow, they will need ever more energy. If this comes in the fossil-fuelled manner of past decades they will have to bear the mounting costs of adapting to and living with floods, storms, heatwaves and droughts long before they get rich. As the world heats up, they will have to run faster just to stay in the same place. Zero-emissions technology could free them from this dismal bind: in principle, they can tap into a supply of development-promoting energy that is, in effect, unlimited.

In the long run, therefore, the only way to keep growing is by leaving fossil fuels behind. That requires Asian countries, in most of which emissions are still surging, to forgo much more by way of future emissions than the countries of the developed world, where emissions are already declining. India is vocal in pointing to the unfairness of this, so far refusing to embrace carbon neutrality. Let others with more responsibility for historical emissions do more, it says.

However just that may be, the problem for India—and for everyone else—is that the daunting cost of limiting emissions is falling on a few generations, most of whose members live in developing countries. All of them live in a fractious world where there is a dearth of leadership. America's government is not suddenly a reliable partner just because it has now rejoined the Paris agreement. Nor is China, the world's largest emitter. Though its capacity for action is great, its pledges thus far are more about posturing than substance. The multilateral institutions created to spread the cost between countries equitably are weak and hostage to procedures based on consensus and unanimity.

For all their disappointments, the UNFCCC and its repeated COPs are the best forum to force change. But until the arguments sink in, the wisest response is bold, prompt action from willing countries in Europe and elsewhere that others cannot frustrate.

As so often in climate change, the task is not choosing between options so much as finding how to press ahead with all of them at once. A commitment to large, fast reductions in methane emissions is vital. More money for developing-country decarbonisation, in which government investment can lower risks for the private sector, must flow alongside increased aid for adaptation. Innovation should be encouraged in various ways. America's 45Q tax incentives for carbon capture could be expanded at home and copied by Europe.

Investment in fossil fuels has fallen faster than replacements have come on line, aggravating the dramatic recent price rises. In the long term it is necessary that fossil fuels become increasingly expensive, but peaks and volatility are destructive. Governments need to build more buffers into the current system as well as hasten alternatives. When prices fall, those still subsidising fossil fuels will have an excellent opportunity to stop.

Anyone who dreams of a reprieve for fossil fuels must be disabused. It suits Narendra Modi, prime minister of India, Scott Morrison, prime minister of Australia, and Joe Manchin, a senator from West Virginia, never to speak of an end to the fossil-fuels age. But for them to duck the responsibility of planning a transition is rank cowardice. True, oil and gas cannot vanish overnight, but their day is closing. And coal's day must be done.

Then there are the unanswered questions. Meeting the Paris targets will require carbon dioxide to be withdrawn from the atmosphere: who will do it? And who will pay? Some countries may one day seek to ward off disaster with solar geoengineering, which reduces the amount of incoming sunlight. Might that help? If not, could it be stopped?

Feste laments an unchanging world. The climate crisis stems from change which is out of control. Yet by responding to it, the world can become a place where long-run prosperity for all becomes possible. It is a noble future that the fossil-fuel age, despite its illusory plenty, could never have created. ■

For more coverage of climate change, register for The Climate Issue, our fortnightly newsletter, or visit our climate-change hub

With a putsch and a shove

The army's takeover in Sudan highlights a worrying trend

Jihadism and great-power competition are behind the rise in coups

Oct 28th 2021

SUDAN'S PATH to democracy has always been strewn with landmines. The country became independent in 1956. That year, and again in 1964 and 1986, there were brief attempts at democratic rule. All were scotched by men with guns. In 2019, after 30 years of genocidal military dictatorship under Omar al-Bashir, hope flowered once more. Peaceful protests toppled the tyrant. Many Sudanese longed for the army to retire to barracks.

The army had other ideas. In April 2019 it seized power again. Weeks later, security forces gunned down protesters, killing more than 100 and tossing their bodies into the Nile. Demonstrators kept coming out into the streets, however, braving bullets and beatings. To end the crisis, mediators pressed the protest leaders to let the army stay in charge for almost two years in exchange for a promise that it would hand power to civilians and allow elections in 2022. On October 25th, as the handover approached, officers staged another coup. Perhaps they were nervous of what future courts might say about their role in Sudan's civil wars. Perhaps they just like being in charge. Either way, Sudan is in trouble.

The power-sharing deal, though squalid, was not always doomed to fail. It gave Sudan's civilian politicians two years to build trust with the army by, say, offering amnesty for all but the most serious war crimes in exchange for full disclosure about them (an approach that worked in South Africa after apartheid). This opportunity was squandered.

Western donors could have smoothed Sudan's transition with aid more quickly. Instead the economy kept contracting, fuelling a sense of crisis that the army exploited. Days before the coup, Western diplomats warned the generals to back off. That they did not shows how lightly they now take Western threats.

African coups are making a comeback. The past year has seen successful ones in Chad, Guinea and Mali (its second in less than a year), and failed ones in Madagascar and the Central African Republic. It is as bad as the early decades of independence, when Africa endured roughly four coups a year. The "no-coups policy" of the African Union (AU), which seemed more or less to work after it was adopted in 2000, now counts for little.

Two trends are making putsches more likely. One is the spread of jihadism. In 2012, when soldiers seized power in Mali, the AU swiftly suspended it. The Economic Community of West African States (ECOWAS), a regional bloc, imposed sanctions and America halted aid. But then jihadists overran the north of the country. Now the AU and ECOWAS appear to have an unofficial policy of publicly ticking the generals off but leaving them in place rather than risking instability. Unfortunately, unaccountable governments tend to govern badly, feeding the very grievances upon which jihadism thrives. By putting short-term stability before democracy, you often end up enjoying neither.

A second trend is the jockeying for influence in Africa by foreign powers. China has won friends with its policy of "non-interference". Russia is gaining clout by hiring out mercenaries to guard presidents and to train their armies. If Western countries condemn a coup or a rigged election or threaten sanctions, they know that they will lose influence even as Chinese and

Russian ambassadors race to the presidential palace with offers of support, aid and loans.

Balancing values and realpolitik is hard, but two principles can help. The first is to draw red lines and stick to them, making it clear that genocide, war crimes and gross abuses of human rights are intolerable and will be met with sanctions, even if that leads to a break in relations.

The second is to remember that Africans themselves, by a wide margin, want more democracy than they have now. The West should respect that desire. So should the neighbours of countries where putsches occur. If coup leaders are tolerated, there will be more coups. ■

Capital pains

Why Democrats' tax plans are such a mess

It is not just a fragile majority. It is also a lack of vision and leadership

Oct 30th 2021

J0E BIDEN promised to pay for his big social-spending proposals by raising taxes on the rich and nobody else. Now Democrats are rushing to find a big pot of money without raising headline rates of tax at all. They are making a mess of it.

As we wrote this, they were predicting that they would soon reach a compromise on a social-spending bill that would pass in both the House of Representatives and the Senate, where they cannot afford a single dissenting vote in their ranks. Yet they were struggling to reach a deal that could satisfy two centrists: Kyrsten Sinema of Arizona, who has little appetite to raise tax rates, and Joe Manchin of West Virginia, who is willing to do so, but objects to the alternative designed to satisfy Ms Sinema.

The desire for higher tax revenues without higher tax rates has left Democrats scrambling to make deep changes to how some levies work. One is a new minimum tax on the biggest corporations' accounting profits, which can exceed those declared to the tax authorities. Another is a levy on firms that buy back their own stock, a longtime bugbear on the left. The most eye-catching idea is a reform to the federal capital-gains tax that is designed to ensnare the ultra-rich. It would tax them annually on the paper gains of their investment portfolios, rather than when assets are sold, as under the current system. It is this proposal that Mr Manchin rejects.

All these ideas are gimmicky and none is good. A tax on the book profits of companies would outsource tax rules to unaccountable accounting bodies, reduce the efficacy of desirable tax deductions for investment and, by interfering with the ability to carry forward losses, play havoc with firms whose profits are volatile. (Will they have to pay the minimum tax in the good years without recompense in the bad ones?)

There is no sound economic reason for penalising share buy-backs. In any case, firms could avoid the tax attached to them by paying dividends instead. The "mark-to-market" capital gains tax is a messy attempt to rapidly extract enormous amounts from a tiny number of the very rich—Elon Musk alone might owe $40bn-55bn. Because this tax would apply only to securities traded on public markets, with different rules for stakes in privately held firms, it would deter entrepreneurs from floating their companies on the stock exchange. That would ultimately be bad for investment and the incentive to innovate, and would get in the way of the widespread ownership of equities.

Democrats' predicament might seem like a straightforward result of their fragile control of Congress and the idiosyncrasies of two of their senators. But it also results from a lack of vision and leadership. They have failed to bring in straightforward reforms that raise revenue by enlarging the tax base, such as abolishing the egregious exemption that resets accrued capital gains to zero when owners die and pass on their estates.

Taxing capital gains at death, as Mr Biden first proposed, would raise more than $200bn over a decade—not far off the "several hundred billion" Democrats say the tax on investment portfolios would yield. Yet lobbyists defeated the idea, just as they also preserved the carried-interest loophole, which lets investment managers class their fees as lightly taxed capital gains, not income. Democrats continue to toy with the idea of lifting the cap on an exemption from federally taxable income of money used to pay state and local taxes. Doing that would benefit the wealthy, narrow the tax base and subsidise high-tax states.

In promising to pay for a big expansion of the welfare state by taxing only the rich, Mr Biden ignored the example of Europe. Its social spending is funded using broad-based and efficient taxes, most notably value-added tax, a levy on consumption. The president's plans, which included a big rise in corporate taxes, were by comparison unfriendly to economic growth to begin with. Narrowing the target further—the capital-gains reform would apply only to billionaires and those with more than $100m in annual income sustained over three years—led to a proposal which is even more poorly designed, and which Mr Manchin is right to oppose. All along, Democrats have pretended that raising taxes on businesses would have no negative effect on wages, contrary to the overwhelming consensus among economists.

The failure to agree on a tax plan carries echoes of doomed Republican attempts, under Donald Trump, to "repeal and replace" the Obamacare health-insurance system. That promise was also made without enough thought about the economic and political constraints it was up against.

Perhaps one of the two dissident senators will give ground, letting Mr Biden's proposals pass. But sooner or later, Democrats will have to confront the fact that permanently expanding the welfare state without damaging the economy means winning an argument for higher taxes, rather than always telling voters that some rich person will pay. ■

For more coverage of Joe Biden's presidency, visit our dedicated [hub]

Clouds over the sky

China says it defends women’s rights. So why attack feminists?

If women are not allowed to organise, they will struggle to achieve equality

Oct 28th 2021

“WE NEED TO strive for genuine gender equality.” So declared China’s leader, Xi Jinping, at the UN last year. It is a cause the Communist Party has long said it cares deeply about. Mao Zedong once proclaimed that “Women hold up half the sky.” And China’s women have indeed made progress. The World Economic Forum places their country below most of the rich world in terms of equality for women, but well above Japan and India.

However, since Mr Xi took power in 2012 China has fallen from 69th place on that list to 107th. He seems bent on making China more macho. In September his officials banned effeminate men from appearing on television. His Politburo Standing Committee is still all male. He stresses the role of women as wives and mothers. Most important, he has ruthlessly crushed feminist activism. To him, any organised movement is a potential catalyst for anti-party dissent.

There has been some progress. The party has taken steps to remedy a humdrum but non-trivial grievance: that there are not enough public toilets for women. In 2016 it decreed that, when building them, there should be at least three places where women can relieve themselves for every two for men. Mr Xi's censors quickly expunge references to #MeToo, but since that campaign took off in the West in 2017 China has introduced new rules aimed at curbing sexual harassment and domestic violence.

Even so, the party does not want debate about sexual harassment in the workplace. It might implicate too many important men on the state's payroll. The very term "sexual harassment" is often censored. The courts are hearing more cases, but they are often brought by the harassers, who accuse their victims of lying. The party gives free rein to online trolls vilifying women who have complained about their abuse.

Mr Xi uses Mao's "half the sky" quotation, but—unlike Mao—praises Confucian values that emphasise women's roles as carers. It was a relief to many women when he announced in 2015 that he was relaxing the one-child-per-couple policy. It had been a gross violation of women's freedom to make their own reproductive choices, and often involved horrors such as forced abortions and sterilisations. But couples are not yet free to choose. Three children is the legal limit for most. Among ethnic-Uyghurs in Xinjiang, government efforts to curb population growth have grown even harsher.

As for women from China's ethnic-Han majority, the government now frets that they are not having enough babies. The number of children, on average, a woman is expected to have has fallen to an ultra-low 1.3. So it is urging them to have more. But it is not doing much to help them with child care.

And it usually turns a blind eye when employers, worried about women taking maternity leave, avoid hiring or promoting them. In rich countries women have been joining the workforce in large numbers since the 1990s. In China they have been leaving it, notes the Peterson Institute for International Economics.

It is not the government's business how many children a woman has. So it is fine if Chinese women ignore Mr Xi's nagging and opt for small families, or not to marry at all. But it would be better still if their choices were unconstrained. That means not only getting rid of all rules on family size, but also preventing employers from discriminating against women who get pregnant, or are thought by managers to be likely to do so.

A society does not have to be democratic to reduce inequality between the sexes. Over the past 20 years China has achieved greater reductions in maternal mortality than most other countries at or below its level of development. It says that nearly as many girls as boys enroll in Chinese schools, and that women have founded more than half the country's internet startups.

But the patriarchal values that authoritarian leaders foster make progress harder to achieve in areas where grassroots activism is needed. It took widespread participation by women in the #MeToo movement to shock the West out of its complacency about sexual harassment. It has required dogged campaigning, not least by women, to force governments and businesses to pay more attention to pay gaps between women and men.

For as long as civil society and a free press are seen as a threat to party rule, such pressure cannot play its proper part in China. That is a tragedy for Chinese women. ■

Our NFT auction

The fun in non-fungible

Our auction reveals the promise of decentralised finance—and some big problems

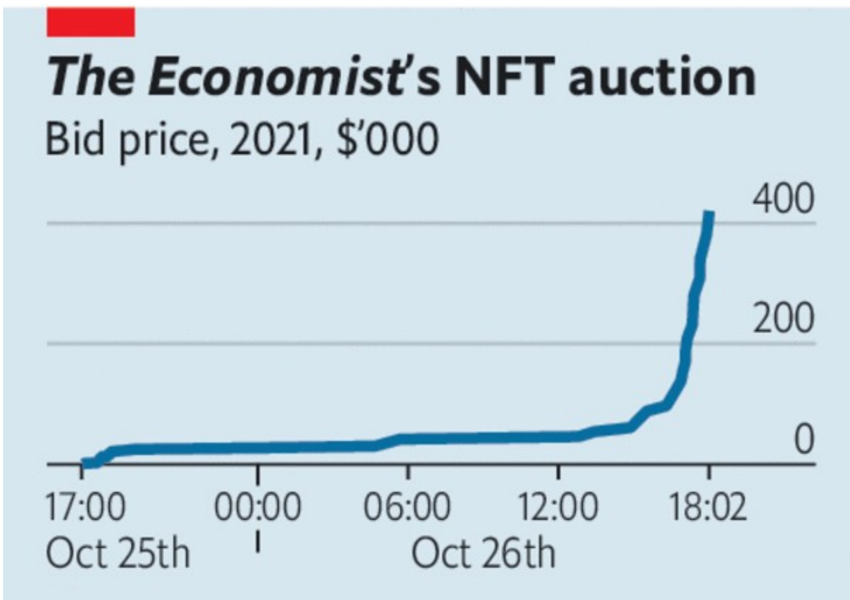
Oct 30th 2021

IF NOTHING ELSE, our auction of an NFT was entertaining—and lucrative. Starting on Monday October 25th *The Economist* invited bids for a non-fungible token of an image of our recent cover on decentralised finance. NFTs are a digital property deed that lives on a blockchain and can be bought on financial platforms using digital currencies. At one point, a club of would-be bidders formed a decentralised autonomous organisation, called "RabbitHoleDAO", to try to crowd-source enough funds to buy our token. A scramble of bids forced the winner, who went by the alias @9x9x9, to make an offer of 99.9 ether—around $420,000. The proceeds, net of fees, taxes and transaction costs, will be donated to The Economist Educational Foundation, an independent charity we support.

Plenty of others are having fun, too. Pokémon-style NFTs are being bred by a quarter of a million users of Axie Infinity, a video game. Armies of art fans trade digital collectables. NFTs on the Ethereum blockchain are today worth

$14bn, up from $340m in 2020. Jefferies, an investment bank, thinks the total will reach $80bn by 2025.

At this point you may well have a nagging doubt: what exactly do the owners of NFTs get? The best way of thinking about this is that NFTs are a way to unbundle property rights. Having legal title to a conventional asset typically confers a standard set of benefits. With a house, car or company stock, your title brings proof of ownership, the right to exclusive use, the ability to charge for its use by others and the right to receive the proceeds of a sale.



The Economist

In high finance it is common, with the help of pricey lawyers, to slice and dice elements of these rights, as with a derivatives contract. But this kind of flexibility is not cheaply available to consumers and small firms. NFTs have the potential to change that. In our auction we defined the property rights using the default conditions on the platform. So the new owner of our NFT has rights akin to a licence: they can display the image in certain ways, but cannot commercialise it (by, for instance, selling T-shirts with the image on them). On behalf of the charity we support, we also have the ability to take a 10% cut of any future sale of the token. In theory an NFT sale can embody any combination of property rights designed by the seller. There are other advantages. A public, irrevocable record of the transaction exists on a blockchain and works with other digital applications.

Yet for all their conceptual promise, NFTs have three big practical flaws, as our experiment showed. Despite the slick interface of NFT platforms, the process is a nightmare. It includes setting up a digital wallet, funding it to pay any fees associated with creating an NFT, creating the token and finding a way to convert the proceeds into conventional money in a bank account. For most legal and tax advisers this is all virgin territory. The process is expensive: we paid "gas", a fancy word for fees, and other levies. In order to become mainstream, applications in decentralised finance will have to be as easy to use as an iPhone and cheaper than dealing with conventional financial intermediaries.

The second problem is energy. Our modest experiment created as many emissions as a seat on a long-haul flight. Most platforms are exploring how to lower their energy use. If NFTs are to be the Next Big Thing, they must innovate their way towards a carbon-neutral footprint.

A third concern is contract enforcement. We hope that this will not be an issue for our token, because the asset—a unique digital representation of a cover image already in wide circulation—will be used within decentralised finance, and there is no obvious incentive to misuse it. But for NFTs that refer to assets outside this self-contained world, such as a patent or a building, the property rights conferred by the NFT may conflict with other contracts, and courts may not recognise the digital agreement.

This is starting to change. A flat in Kyiv changed hands this year, when an NFT representing it was sold in a deal recognised by Ukraine's authorities. But decentralised finance has a long way to go before it is integrated with the legal system. The to-do list is daunting, but if these problems are resolved, NFTs could yet become more than a token gesture. ■

Letters

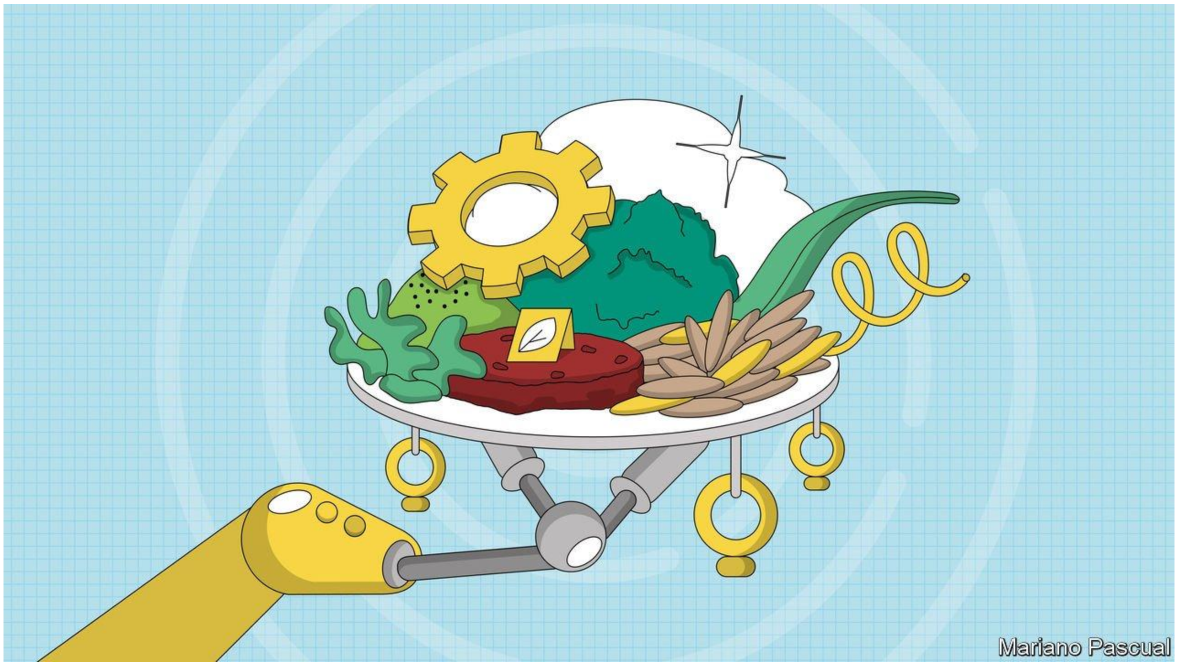
- **Letters to the editor: On food technologies, Top Glove, malarial bed nets, Poland, liberals, email**

On food technologies, Top Glove, malarial bed nets, Poland, liberals, email

Letters to the editor

A selection of correspondence

Oct 28th 2021



Letters are welcome via email to: letters@economist.com

The human cost of green food

The Technology Quarterly on the future of food (October 2nd) showcased technologies that produce cleaner and greener food more humanely, such as lab-grown meat. However, one major group of stakeholders was missing from your analysis: livestock farmers. At the subsistence level and on an industrial scale, livestock farmers around the world generate $1.3trn a year in output and support the livelihoods and food security of 1.3bn people. Out of these, the 500m pastoralists, whose main source of income, culture and entire life revolves around livestock, are particularly vulnerable to these new technologies.

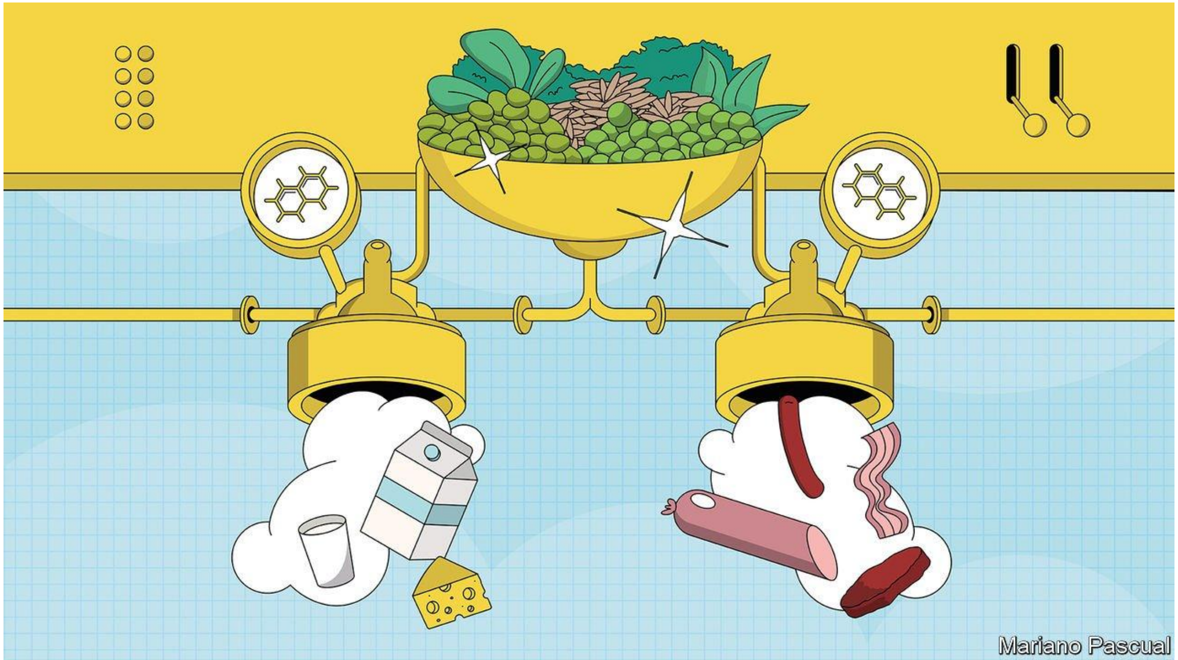
Food's future is in the hands of regulators and consumers and so is the fate of millions of livestock farmers. Growing meat in a lab may be disastrous for them. Engaging farmers in these new food futures is vital.

HARPINDER SANDHU
Professor of economics
Federation University
Australia
Ballarat, Australia

There is a widely held concept that plant-based food produces fewer greenhouse-gas emissions and causes less animal suffering than grass-fed beef. This is misguided. Belcampo Farms in California, for example, churns out carbon negative beef, with research to back it up. A growing number of ranchers worldwide operate under similar regenerative principles.

Reducing animal suffering by switching to meat substitutes is also debatable. Plant and crop farmers employ all manner of poisons, traps and deterrents against encroaching wildlife, which has an impact on surrounding ecosystems and watersheds. During harvest, field animals such as rodents, rabbits, fawns and nesting birds reliably meet a gruesome end in harvesting machinery.

DAVID DOSANJH
Vancouver



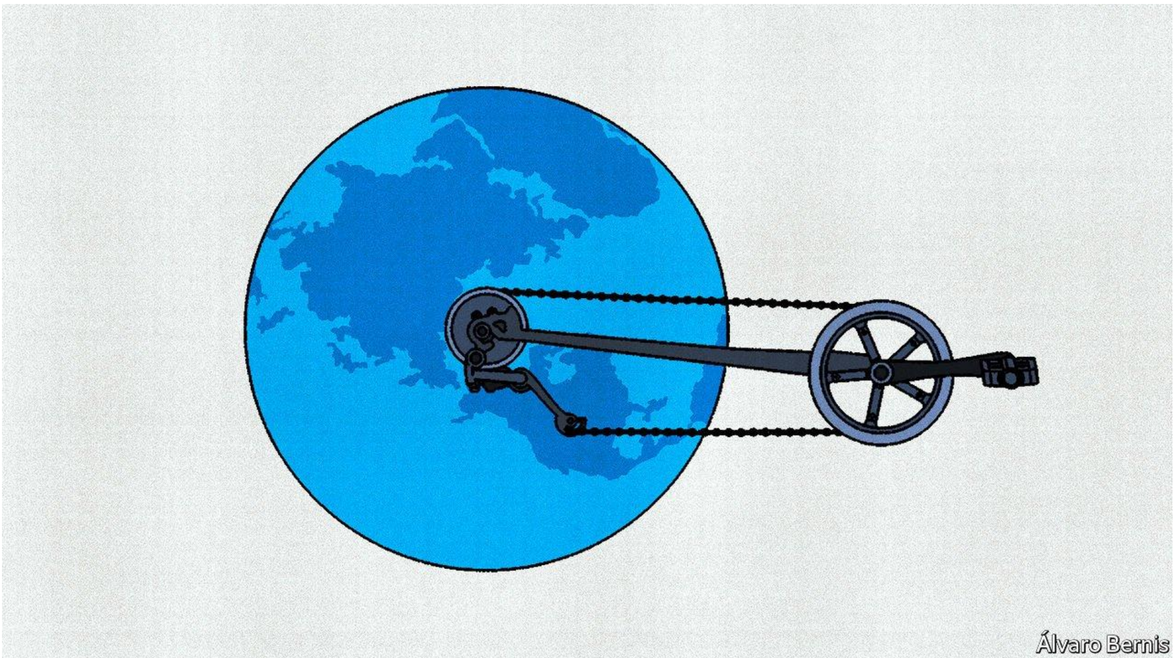
I question whether the morality of raising animals for food is settled. Were it not for the food industry, how many chickens, cows or pigs would there be in the world: thousands, none? Without a food industry, they would not exist. Dying in a slaughterhouse may be less painful than being torn apart by predators or a slow death by hunger or disease, which is how wild animals die.

PEDRO SERRADOR
Toronto

French fries were not the only thing that helped Europe adopt the potato ("Working up an appetite", October 2nd). Frederick the Great tried to order Prussians to cultivate potatoes but to no avail; people said they were so bad that not even dogs would eat them. Cleverly, he changed tack and declared the potato to be a royal vegetable, grown only in plots guarded by soldiers. Soon enough peasants started stealing the potatoes and growing them. A useful lesson in marketing for those trying to change eating habits in the West and persuade people to eat insects.

RICHARD MILBURN
Environmental Security

Research Group
King's College London



Top Glove

With regard to the “The urge to protect” in your special report on trade (October 9th), Top Glove would like to update *The Economist* about its ongoing efforts and successes in improving its environmental, social and good governance practices, including the resolution of the Withhold Release Order issued by the United States Customs and Border Protection agency.

The CBP issued Top Glove with one WRO on July 15th 2020. Subsequently, as part of the CBP process, the order was replaced with a Finding on March 29th 2021. However, after the CBP had thoroughly reviewed the evidence that Top Glove had addressed all indicators of forced labour at its Malaysian facilities, the CBP modified the Finding on September 10th, and immediately allowed the importation of the company’s disposable gloves made at its factories in Malaysia to America.

NURJEHAN MOHAMED
Senior consultant

MNAIR
Petaling Jaya, Malaysia

Malarial bed nets work

Alex Nicholls rightly warns against focusing on outputs rather than on outcomes in philanthropic programmes (Letters, October 16th). But his example, that antimalarial bed-net schemes “failed”, is incorrect. Contrary to some reporting, few bed nets get used for fishing. A four-country study of over 25,000 bed nets found less than 1% were being misused. A comprehensive analysis by Cochrane, an independent network of researchers, of 23 medical trials encompassing nearly 300,000 people showed that bed nets reduced deaths by a third. A study at Oxford concluded that they averted around 663m cases of malaria in Africa between 2000 and 2015. These important outcomes, by charities and others, should be applauded.

CAROLINE FIENNES
Director
Giving Evidence
London

PROFESSOR PAUL GARNER
Liverpool School of Tropical Medicine

Poland and the EU

Charlemagne’s toxic rhetoric on Poland was based on the false assumption that a Polish court ruled that the “country’s constitution trumped fundamental parts of EU law”, such as “ever closer union” (October 16th). The Polish Constitutional Tribunal did not terminate the controlled provisions of the treaty; they are not derogated from the Polish legal system. The judgment uses the formula “in so far”, which means that only certain interpretations of the treaty provisions are incompatible with the Polish constitution.

The judgment of the Constitutional Tribunal does not question the idea of the principle of the primacy of EU law, within the limits of conferral (Article

5 of the treaty), nor does it result in its blanket entitlement to question it by other authorities. The court is well versed and competent in reviewing EU law. It adjudged Poland's accession treaty in 2005 and the Lisbon treaty in 2010. Similar institutions exist in other member states.

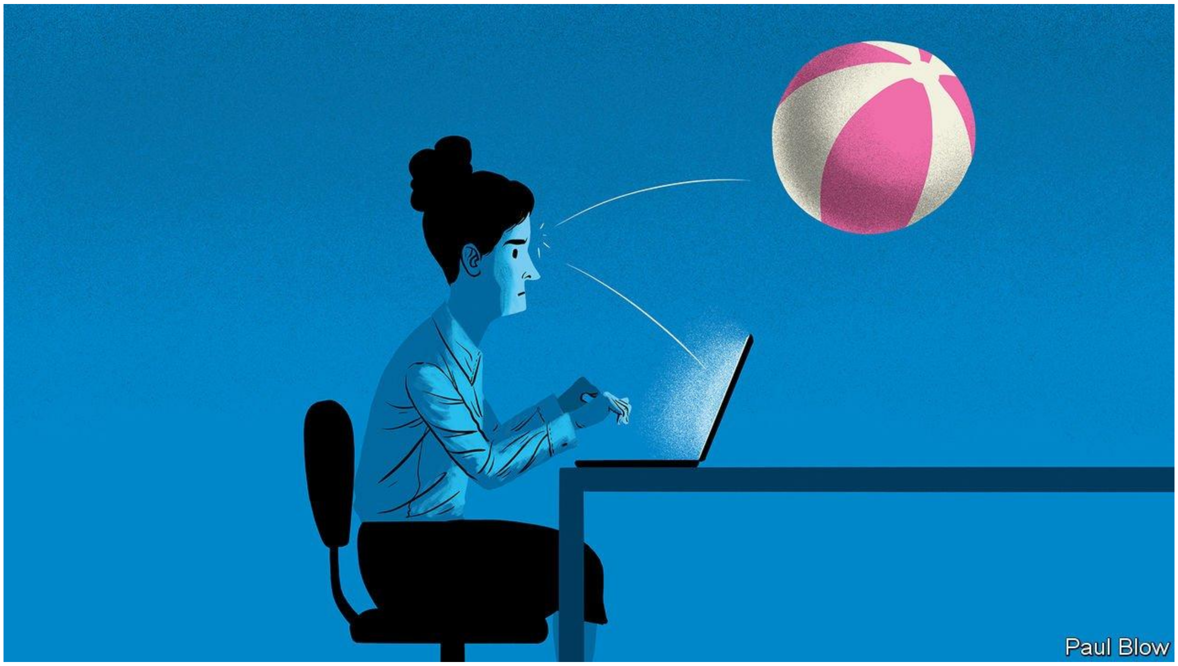
Poland will remain in the EU as a dedicated promoter of the open single market, free trade, industrial policy, enlargement policy, the Eastern Partnership, border control and an adequate budgetary response to a post-covid Europe. Turn your attention to other European capitals if you are looking for a gap between pro-EU declarations and deeds.

KONRAD SZYMANSKI
Minister for European Union affairs
Warsaw

Liberals can turn conservative

Your graphic detail algorithm on interstate political migration in America (October 16th) ignores the distinct possibility that latte-loving liberals will become gas-guzzling gun lovers when faced with frontier reality in Alaska, Montana and other red states.

DAVID MARTIN
Miami



Responding to email

Bartleby's column on how to write a great out-of-office reply (October 9th) brought to mind my favourite out-of-office message: "You're receiving this automated response because I am out of the office on vacation. Had I been in the office, you likely would have received no response at all."

RAHUL BAFNA
New York

Briefing

African odyssey

Many more Africans are migrating within Africa than to Europe

Some governments are trying to make moving easier

Oct 30th 2021 | CAPE TOWN, DAKAR, LAGOS AND NAIROBI

"MAN, NIGERIA has been a ride," laughs Mawuli Gavor, a 32-year-old star in Nollywood, Nigeria's booming film business. Mr Gavor does not fit the stereotype of an African migrant, struggling to cross the Mediterranean in a leaky boat. Born and raised in Ghana, he was working as an accountant when an admirer suggested he try for a modelling job. Soon, he was in Nigeria, making a fortune in films.

Many Africans are taking similar journeys, though most are less glamorous. In a market in Dakar, the capital of Senegal, Ibrahim Bary, a 25-year-old from Guinea, sells cows' livers hanging from hooks. Work is easier to find in Senegal than back home.He makes around $4.50 a day and plans to send four days' pay home to his family in Guinea this month. He previously worked as a taxi driver in Ivory Coast. "I will stay a while, earn some money, and then go home," he says.

In the decade to 2020 the number of sub-Saharans living abroad jumped from about 20m to 28m. This causes conniptions in Europe, where many voters fear a flood of immigrants. Europe is indeed attractive to Africans. Average incomes are 11 times higher and, though African migrants often do menial jobs, they earn on average three times what they did back home.

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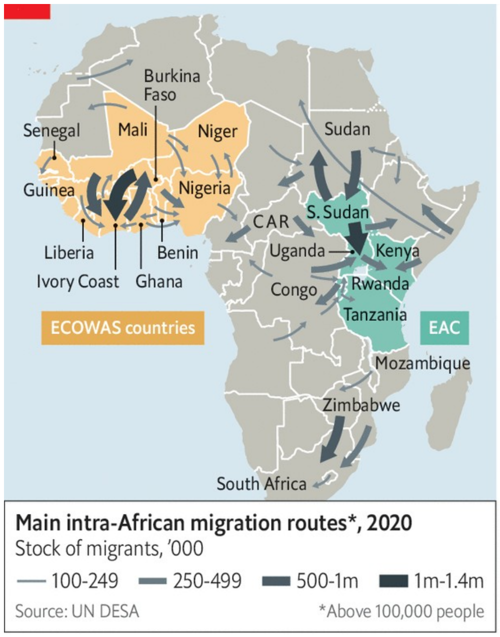
But it has become very hard for Africans to move to Europe unless they have rare skills, such as treating sick people or scoring goals (though ageing Europe will soon be short of ordinary workers, too). New permits for sub-Saharan Africans to work there plummeted from 33,000 in 2008 to about half that number in 2018. European governments have lavished cash on border controls and done deals with north African countries to stop migrant boats from setting sail. They sometimes do this brutally. Arrivals have plummeted (see chart 1). A migrant who heads for Europe without permission must pay a fat sum to smugglers and faces a high risk of failure or even death.

Sub-Saharans with get-up-and-go have long been migrating closer to home. Only 18% of those living abroad are in Europe. About 70% are in other African countries (see map). Between 2010 and 2020 the UN says the number of sub-Saharan migrants within Africa rose by more than 40% to 19m (a figure many experts call an underestimate). The Immigration Policy

Lab at Stanford University analysed a survey by the International Organisation for Migration (IOM) of 88,000 people on popular migration routes in west Africa. It found 90% planned to stay in Africa.



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Africans are likely to become more mobile. Today, the continent has fewer migrants as a share of population (2%) than the world average (3.5%). Moving costs money: a migrant needs enough to cover at least a bus fare and a few nights' accommodation while looking for a job. Many Africans cannot yet afford that, but one day they will be able to. Global research suggests that as poor countries grow richer, more of their people tend to emigrate, until average incomes reach around $10,000 a year. Income per head in sub-Saharan Africa is currently $3,800, so there is a lot of room for growth.

The population is increasing, too, at 2.7% per year, more than double the speed in South Asia. More people need not mean a higher rate of migration, but it obviously increases the absolute number of potential migrants. Estimates vary a lot, but there could be twice as many Africans by 2050, and many will be young men, the group most likely to move.

Climate change has not yet spurred large population movements, but it may do so. Large swathes of Africa will become harder to live in. A study in Burkina Faso finds that, because droughts make people poorer, they can reduce cross-border migration. Still, the World Bank says that by 2050 over 50m people in sub-Saharan Africa might move within their own countries because of climate. The authors do not focus on international migration but note that many parts of sub-Saharan Africa that are expected to be climate-migration hotspots are close to borders.

Some Africans are forced to flee their homes. There are 6m refugees on the continent who have crossed a border (and 18.5m displaced within their own countries). However, in most countries migrants are motivated largely by a desire to make a better living. Less than 1% of those in the Stanford analysis said conflict was their main reason for moving.

Migration presents an opportunity for Africa. Migrants' skills and hard work boost productivity. The taxes they pay fund public services. They send billions home in remittances. And when they return, as many do, they bring back new ideas and valuable contacts. The question for African governments is whether they will make it easier for Africans to move around, or throw up more barriers. There are some signs that they are choosing the former.

Standing at the crossroads

African governments can co-operate, as they showed with a continent-wide free-trade agreement that became operational this year. The African Union, a body that is much looser than the European Union but has ambitions to promote more integration, has put forward a protocol that would allow free movement across Africa. So far, however, few governments have ratified it.

Some still see migrants as a problem (much as European governments do). Barriers to movement are still high. Border guards often hassle migrants, delay them and demand pay-offs. Qualifications from one African country are often not recognised in others, leaving nurses selling fruit in markets. Few states consider migrants in their urban planning. And sending money home is absurdly expensive: to transfer $200 costs about $16, more than in any other region.

Nonetheless, there are reasons to think some of these barriers will fall. Africa has a long history of mobility. Before colonisation, nomads crossed what are now international borders, trade caravans strode the Sahara, and many Africans migrated during the dry season before returning with the rains.When colonies became independent, some of their leaders, such as Kwame Nkrumah of Ghana, pushed a pan-Africanist vision of a borderless continent. His ideals were neither universally shared nor consistently upheld by Nkrumah himself. In 1957 his government passed a deportation act and expelled Nigerians who were helping the Ghanaian opposition. Between 1958 and 1996 there were 23 mass expulsions of migrants by 16 African countries.

Still, the pan-African ideal helped create the Economic Community of West African States (ECOWAS), a group of former British, French and Portuguese colonies. In 1979 the bloc came to an agreement on visa-free movement and promised that, within 15 years, all its citizens would have the right to work and start a business in any member state. That right still exists, at least on paper. Mr Bary, the Guinean butcher in Senegal, did not need a visa. He just went. It has made "a huge difference", agrees Mr Gavor, the film star. "If we had more of these unions that actually worked, just imagine the things we could do."

The right to visa-free travel is mostly respected in all 15 ECOWAS states, but the right to do business is not. "Almost all member states are in violation," says Franz Celestin of the IOM. Some states still try to reserve industries for locals.

Other regional blocs also allow a measure of free movement. The six countries of the East African Community (EAC) mostly offer visa-free entry to each other's citizens. Half have eliminated fees for work permits, too. Regional blocs in southern and central Africa are trying to follow suit, but are further behind.

In South Africa many politicians are quick to blame migrants for problems at home. In 2019 mobs of armed men looted and torched shops owned by migrants. At least 18 foreigners were killed, says Human Rights Watch, an NGO."There is xenophobia every day in South Africa," says Timothy Sangweeni (not his real name), a Zimbabwean who moved in 2008. At police stations and clinics if "officials hear your voice and see your skin colour they are rude and unhelpful and tell you that you don't belong," he says. But, he concedes, "You are allowed to access services."He first came without papers, but now has a permit, lives in a better neighbourhood, and is married to a South African.

Others are fed up. Aganze Bulonza, a waiter in KwaZulu-Natal, says he wants to go back to Congo. “Even though it is not stable, it’s better than being in a place where you are not wanted.”

An old gripe

The complaint that immigrants take jobs from locals, or drag down wages, is especially loud in South Africa, where wages are high by African standards and unemployment is rife. Yet the evidence is mixed. Migrants sometimes compete with locals for jobs, but they also spend money, which creates other jobs. Costanza Biavaschi of the Norwegian University of Science and Technology and co-authors find that, at the local level, male migration reduces employment for native South Africans, but not their income (at the national level, it has a negative effect on South Africans’ total income, but not on employment rates). But a World Bank study, which includes female workers, finds that at the provincial level immigration increases both native employment and wages. And the OECD, a club of mostly rich countries, finds new immigrants boost employment and wages of South Africans at the regional level.

In most measurable ways, migration benefits locals. In Africa, it increases manufacturing in both sending and receiving countries, finds the UN Conference on Trade and Development (UNCTAD). It reckons that a 1% increase in the number of migrants to a country is associated with a 0.2-0.4% increase in manufacturing output, possibly because they bring skills and ideas. The better educated the migrants, the bigger the impact.

In Ivory Coast migrants contribute about 19% of GDP despite only being 10% of the population. Migrants are more productive than natives because they are more likely to be of working age. And they often bring complementary skills. Some are hired to fill niches; some move to places where their skills are in demand.

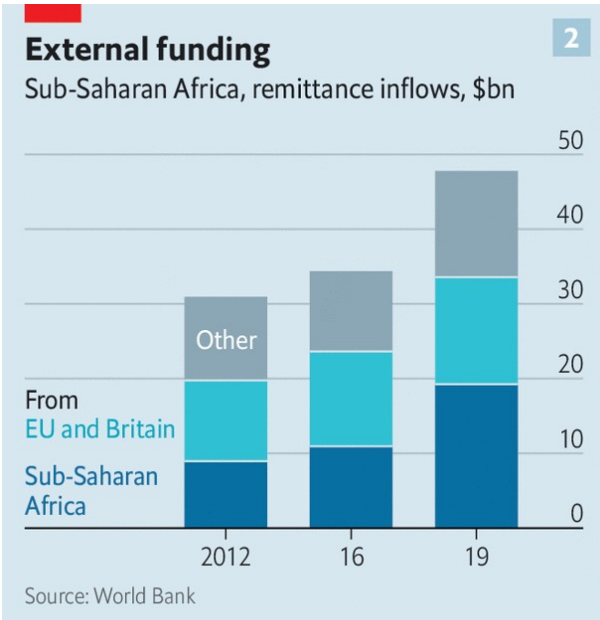
Many also have contacts with their home countries that boost trade.Since 2014, Rwanda, Kenya and Uganda have allowed movement across their borders with just an identity card. Within two years this had increased cross-border trade by 50%, says the Rwanda Development Board, a state agency. Free movement is “essential” for Africa’s new free-trade agreement to succeed, says Paul Akiwumi of UNCTAD.

In Rwanda migrants pay on average three times more tax than locals. An OECD study of Ghana, Ivory Coast, Rwanda and South Africa found that migrants contribute much more in taxes than the cost of the extra public services they use.

The biggest winners from migration are migrants themselves. If they did not think moving would make them better off, they would not go. For obvious reasons, they are more likely to want to move to countries where they can earn more, such as South Africa. Wages there are five times higher than in Zimbabwe or Mozambique, which is one reason why 700,000 Zimbabweans and 350,000 Mozambicans live there. Some 1.4m migrants from Burkina Faso are in Ivory Coast, where income per head ($5,500) is twice as high.

Cosme, a 37-year-old chef in Lagos, had been looking for work for three years in Benin before coming to Nigeria. He found a job in a restaurant in a posh part of town. In Benin “there are no job opportunities like that,” he explains. Today he laments Nigeria’s high inflation but still advises friends to come. He now has a small nest-egg and sends $120 a month to his family.

Such remittances are vital. The World Bank says that in 2019 almost $50bn flowed into sub-Saharan Africa, easily topping the $31bn of foreign direct investment that year. About 40% of remittances are from other parts of sub-Saharan Africa, up from 29% in 2012—a larger share than comes from Europe (see chart 2). Those sent within Africa tend to reduce poverty more, says Dilip Ratha of the World Bank, because intra-African migrants have poorer families than do migrants who cross oceans.



The Economist

Migrants who return provide another boost. Catia Batista of the University of Lisbon finds that those returning to Mozambique are 25 percentage points more likely to own a business than those who have not been abroad, even controlling for the possibility that more talented people may travel abroad.Ms Batista also found that people in Mozambique who live in the same village as families with a member who has gone abroad are almost 15 percentage points more likely to vote in elections.

Migration also spreads good ideas. Scientists and engineers who have worked abroad bring back cutting-edge techniques. They bring other things, too. “Any kind of African restaurant you want in Abidjan, you can find,” boasts Issiaka Konaté of the Ministry of African Integration and Diaspora in Ivory Coast. “It’s like London.”

Some African leaders have begun to push for freer movement. Benin, the Gambia and the Seychelles offer visa-free travel for all Africans. At least 34 countries have signed on to a plan to create a single air-transport market that would allow airlines to open up more direct routes. In 2018 the African Union drew up a “free-movement protocol”, which would allow visa-free entry across the continent and subsequently the right to work and to establish a business. By February this year, 33 African states had signed up, but just four had ratified it. Some fear it could bring insecurity or loss of sovereignty, though the protocol could bring some of the vast untaxed informal sector out of the shadows.

African leaders may find promoting migration more popular than they expect. In South Africa, one of the least welcoming places, 29% of people say they would dislike having foreigners as neighbours. Yet in Ivory Coast, just 4% hold that view. Of the 20 most accepting countries in the world for migrants, nine are in sub-Saharan Africa, says Gallup, a pollster. In west Africa 60% of people would like migrant flows to stay the same or increase. In Africa as a whole more people would like to increase or maintain immigration than reduce it.

One obstacle, says Mohammed Abdiker of the IOM, is that migration policy in Africa often reflects European priorities. “A lot of European money” tries to persuade African governments to halt migrant flows north, says Loren Landau of the University of Oxford. This “legitimises a whole lot of really nasty things that can be done to migrants” within Africa, he says. “It also works against any kind of sensible discussion about what countries could be doing.”

The EU funds and advises countries to add more border security and conduct more frequent checks. European-funded anti-migration campaigns tell

Africans harrowing stories of death and disaster; that if they move to Europe they will end up begging, and “everyone will hate you for it,” says Mr Landau. All this can stigmatise migration within Africa, increase the chances of police harassment, and make regional migration harder.

Give me your unskilled masses

Some countries, such as Ivory Coast, are trying to include migrants in their planning. “We must say it clearly: migration is an opportunity for Ivory Coast,” says Alcide Djédjé, the minister for African integration. “Ivory Coast applies the ECOWAS free-movement protocol better than anyone,” he boasts. Migrants have the same access to health care and education at the same cost, he adds. Indeed, surveys find they are more likely to go to health centres than locals (though, struggling to pay costs, they are less likely to use local schools).

Migration policy is hard to get right. African governments could start by punishing police who abuse migrants. West African governments should uphold the deal they made long ago: that any ECOWAS citizen can work and open a business in any ECOWAS country. Other regional groups could do likewise. And African governments should ratify the continent-wide free movement protocol, which is a remarkable step on the path to a more integrated and prosperous continent.

All this would make life easier for migrants, most of whom just want to earn a living. Peter Adoa (not his real name), a Ugandan, learnt Swahili on arriving in Kenya seven years ago, got a work permit, opened a nail salon and is engaged to a Kenyan.Yet he is constantly harassed by the police. Recently he was forced to pay $90 to a cop who was threatening him. Not even that can deter him. “That experience fatigues me, but nothing else does,” he smiles. “Everything else is great.” ■

Asia

ASEANgst

South-East Asia’s regional club faces its greatest tests yet

Credibility trumps consensus as ASEAN attempts to remain relevant

Oct 30th 2021

FOR A SECULAR grouping, the summitry of the ten-member Association of South-East Asian Nations (ASEAN), which this week it is Brunei’s turn to host, has a decidedly sacramental quality to it. For one, in non-pandemic years there is always a cathedral—some shiny convention centre, often freshly built. And there is a creed to which all bow, the “ASEAN way”.

Like most dogmas, this one gets ever squishier towards its core—but the ASEAN way is precisely about not poking it. One part of the dogma is all about order, civility and concord: ASEAN’s hallowed “consensus”. An obsession with appearing harmonious is perhaps unsurprising in a region whose modern story is replete with disharmony, and whose political systems run from absolute monarchy (Brunei itself) to flawed democracy (the Philippines). The story is flecked with wars (Indonesia’s undeclared war against Malaysia) and invasions (Vietnam’s, of Cambodia). There have been coups (Thailand), civil wars (Vietnam) and ethnic or religious pogroms

(Indonesia); Myanmar has had all three. It all puts a premium on at least outward shows of agreement in a fissiparous region. The flip side of consensus is a supposedly unbending commitment to "non-interference" in other members' affairs.

Unbending, at least, till now. For in mid-October, following intense behind-the-scenes discussions, ASEAN took the step of barring General Min Aung Hlaing, Myanmar's military ruler, whose coup in February ousted Aung San Suu Kyi and her civilian government, from taking his seat at this week's summits. In other parts of the world, this snub to a junta leader who has imprisoned an elected government, initiated an orgy of bloodletting and brought the economy to the point of collapse would be a bare minimum. Yet in South-East Asia it is "the most severe sanction that ASEAN has handed down to a fellow member state in over five decades of diplomacy," notes Aaron Connelly of the International Institute for Strategic Studies, a think-tank in Singapore.

Non-interference, one ASEAN ambassador explains, "doesn't mean turning a blind eye and holding your nose". The Burmese junta, badly in need of legitimacy abroad and respect at home, is appalled. The general's exclusion, it declared, was contrary to the group's "provisions, objectives and cherished principles".

As for ASEAN, the way its high priests explained their decision shows a masterly grasp of liturgical matters. The general's disbarring was no departure from the canon of consensus, they intoned, but rather a consequence of an earlier "five-point consensus" agreed on with Myanmar at a special summit in April. It included initiating dialogue with "all parties", ending violence and allowing an ASEAN special envoy access to the country. The junta has done none of these things—the envoy being refused even 15 minutes with Miss Suu Kyi. Until that consensus is carried through, a consensus on inviting the general will have to wait.

The Economist

The snub does not extend to inviting the government-in-exile that carries the mantle of the ousted, democratic one. It is not clear that even the countries in ASEAN most critical of the coup—namely Indonesia, Malaysia, the Philippines and Singapore—wanted to go that far. Yet doing nothing about Myanmar, as Teodoro Locsin, the Philippine foreign secretary, put it, would mean "our credibility as a real regional organisation disappears." It would only highlight how ASEAN is "a bunch of guys who always agree with each other on worthless things".

Though some critics of ASEAN insist the snub still has mainly symbolic effect, Mr Connelly argues otherwise. A failure to act would have "greatly diminished ASEAN in the eyes of diplomats around the world and, perhaps more importantly, its own people", he says. What is more, despite Myanmar's protestations a consensus was reached among the remaining members, one which pulled more authoritarian countries such as Thailand (itself run by a coup leader), Cambodia, Laos and Vietnam closer to the more critical position shared by the rest of the region. That, in turn, has helped narrow an alarming gap that had grown over Myanmar between an over-complaisant ASEAN and other countries around the world—in June only Belarus opposed a UN resolution containing much stronger language over Myanmar than ASEAN had managed. With the disbarring of General Min Aung Hlaing, ASEAN has averted international irrelevance.

Bland man's bluff

A desire for relevance has everything to do with the second hallowed plank of dogma, ASEAN "centrality". This is jargon for ASEAN being the first port of call for issues that affect South-East Asia.Though the word has mainly totemic value, getting outside powers constantly to recognise ASEAN's centrality obliges them to acknowledge its interests. Chief among these is keeping great powers at bay, either to prevent their meddling in the region or to avoid their rivalries playing out there. That was a founding tenet in 1967 of ASEAN's original members, who intended it as a bulwark against Soviet influence at the height of the Vietnam war.

Until recently, centrality seemed to work. It also helped confer convening power on ASEAN over a plethora of summits in which the group brings together world and regional leaders—this week President Joe Biden of America, plus Narendra Modi and Li Keqiang, prime ministers of India and China, joined ASEAN's annual East Asia Summit by video link. It is true that form often trumps substance at these talking-shops. But they are just about the only ones going in a region notably short of institutions. And they have helped ASEAN to punch above its weight.

Yet great-power rivalry is playing out in South-East Asia once again, this time between America and China. Centrality has not prevented China from expanding its presence deep into the South China Sea, encroaching on the waters of its ASEAN neighbours. Nor, more recently, has it held America back from seeking to balance against China's military build-up through "minilateral" alliances such as the Quad, a grouping with Australia, India and Japan, and AUKUS, which, with Britain, will supply Australia with nuclear-powered submarines with the range to patrol South-East Asian waters. Though they make token avowals of ASEAN centrality, neither China nor America seeks the group's permission in these matters. The limits of centrality, then, are being laid bare.

Some ASEAN diplomats, broadly approving of a robust American presence in South-East Asia, argue that the dogma of centrality no longer serves South-East Asian interests in an era when China's rising military power needs to be countered. The foreign-policy establishments of Singapore, the Philippines and Vietnam have generally welcomed AUKUS as helping to restore a regional balance of power. Thailand, a treaty ally of America's but close to China, is tongue-tied. Perhaps out of alarm that China might be offended by AUKUS, the new prime minister of Malaysia, Ismail Sabri Yaakob, reverted to shibboleths about South-East Asia being a "zone of peace, freedom and neutrality" or, in the region's pathological inclination for acronyms, ZOPFAN. More hard-nosed policymakers in Malaysia describe their political masters' back-to-the-past utterances on the subject as "clueless".

If ASEAN is to remain central in more than rhetorical terms, a Singaporean strategist argues, it has to be clearer about what it is prepared and not prepared to do with America—and with China. That will require a new consensus on centrality, one that will prove much harder to reach than the new one on Myanmar. ASEAN's existential moment is arriving.■

David 1, Goliath 0

Rebels fighting Myanmar’s junta are doing better than expected

Nine months after a coup, the country is facing a long civil war

Oct 30th 2021

THE BOYS from Pale should be dead by now. Armed with little more than homemade rifles, in June the group of some 2,000 fighters, most of them farmers unversed in war, began attacking soldiers in their rural township in Sagaing state, in north-west Myanmar. The army they were up against, known as the Tatmadaw, last seized power in a coup in February but has been fighting rebels for the past 70 years. It deployed its usual tactics to crush the uprising in Pale. Soldiers looted homes, raped women and set a village on fire, according to Bo Nagar, the rebels’ commander. Yet the militia claims to have ejected the army almost entirely from Pale, killing 400 troops in the process and losing just five of their own. Tatmadaw soldiers “are like walking dead”, says Mr Nagar. “I think they are not willing to fight this war.”

Such claims are surely exaggerated. But Mr Nagar’s swagger contains a kernel of truth. Fighters resisting the Burmese army have fared far better than many analysts predicted. Since the coup some 250 rebel groups have emerged, ranging from small urban underground cells to militias comprising thousands. Anthony Davis of Janes, a defence-intelligence firm, counts around 50 that conduct "sustained operations".

These forces clash with army units, assassinate low-level junta officials, and bomb strategic routes, army bases and infrastructure. At least 120 telecom towers partly owned by a military conglomerate have been destroyed over the past two months. Guerrillas are increasingly targeting bridges and railways, presumably to obstruct the flow of army troops and supplies around the country.

The resistance enjoys several advantages. "Revolutionary fervour", as Mr Davis puts it, has inspired thousands of Burmese to take up arms. Doing so during the rainy season, when the army cannot conduct big operations, has bought the militias time to forge informal alliances with experienced ethnic-minority rebels (some are even going into battle together). It also helps that the top brass did not expect widespread opposition, least of all in the Burmese heartlands. The region is home to the ethnic-majority Bamar, from which the Tatmadaw draws most recruits. The army has not fought there in decades, if ever. Soldiers do not know the terrain, and being told to kill their own saps morale. And their informants are being assassinated.

The Tatmadaw is struggling. Between February and September, "conflict incidents", from battles and bombings to defections, took place in 250 out of Myanmar's 330 townships, according to Matthew Arnold, an independent analyst. To put out these fires, the army has spread itself thin. More than 1,700 soldiers were killed by anti-coup forces in the three months to September, according to the National Unity Government, a shadow cabinet made up of deposed lawmakers. Some 1,500 troops have defected, and the army is struggling to recruit officers. That alone should not hurt the Tatmadaw, which may have as many as 300,000 troops. But many are poorly trained and equipped. Morale is low. Forced, in effect, to cede swathes of the country to rebels, the junta "is facing an existential crisis", says Mr Arnold.

Yet things may soon look up for the army. Since August, it has been sending reinforcements to the country's north-west, where resistance is fiercest, in anticipation of the dry season, which has just begun. The Tatmadaw is said to be preparing for a long campaign there. It may be planning to conduct “clearance operations”, a tactic used against the persecuted Rohingya minority in Rakhine state, in which soldiers raze villages, forcing civilians to flee, in order then to hit exposed rebels with overwhelming firepower. “The scale and geographical breadth of the impending campaign is…arguably unprecedented” in the Tatmadaw’s already bloodstained history, writes Mr Davis.

There is a strong chance resistance in this region will be crushed. But that still leaves all the guerrilla fighters in the rest of the country. A long and bloody civil war increasingly looks inevitable. ■

Banyan

What does India's government have against Bollywood?

The BJP is menacing the country's film industry

Oct 30th 2021

IF BOLLYWOOD IS India's secular religion, then the Khans—Aamir, Salman and Shah Rukh—are its holy trinity. The three actors, who are unrelated, have for three decades sat at the top of India's colossal Hindi-language film industry, their films, their characters and their personas wallpapering the country's imagination. They are, perhaps as much as the prime minister and the captain of the national cricket team, the most recognisable faces in India. They also happen to be Muslim.

For most Indians, to the extent they think about it at all, that is a source of pride: the Khans' pre-eminence a sign of the country's tolerant secularism. But it sticks in the craw of Hindu chauvinists, who are well represented by the government of Narendra Modi, the prime minister, and his Bharatiya Janata Party (BJP). All three Khans have faced criticism from BJP figures in recent years, along with the usual gibes that they should "go to Pakistan". By the debased standards of Indian political discourse, where even the use of the indigenous Urdu language is seen as "Abrahamisation", that is not surprising.

What is odd, however, is that the government's assault on Bollywood has—after a drumbeat of harassment against smaller figures and lesser-known producer-types—reached the very top of the industry. On October 3rd, the Narcotics Control Bureau (NCB), a national law-enforcement agency, arrested several people in a drug bust on a cruise ship off the coast of Mumbai, where the industry is based. Among them was Aryan Khan, the 23-year-old son of Shah Rukh Khan, arguably the best-loved of the trinity. The NCB claimed to have seized lots of drugs, though it has since admitted that none were found on Aryan. He was nonetheless remanded in custodyand denied bail until October 28th, even as it was granted to others. News channels have been running blanket coverage. Politicians from across the country have weighed in.

The whole stink has a familiar tang to it. Last year, as cases of covid-19 were rising in India's first wave and the BJP was preparing for elections in the poor eastern state of Bihar, a young actor called Sushant Singh Rajput—a Bihari—committed suicide in Mumbai. Pro-government news channels—ie, most of them—ran hysterical items about Bollywood's drug culture, and accused Rhea Chakraborty, the dead man's grieving girlfriend, of ensnaring him with the demon weed. The NCB arrested Ms Chakraborty, who spent a month in prison before being granted bail.

This time it is in Uttar Pradesh that elections are looming. The BJP's campaign has spun its own version of a preposterous Bollywood plot, casting the state, one of India's most backward, as a shining beacon for the rest of the country. Since that is hardly guaranteed to work, it is also relying on its old strategy of stoking tensions. The circus around Aryan's arrest is a sequel of last year's drama.

That the target this time is Muslim is only an added bonus. Harassing Bollywood carries more important benefits for the BJP, including annoying the government of Maharashtra, a rich western state of which Mumbai is the capital. That antipathy dates from 2019, when the local Shiv Sena, itself a pro-Hindu party, broke its long-standing alliance with the BJP. Mr Modi and his cronies have never forgiven their erstwhile allies.

Yet there is a more fundamental reason for the BJP's assault on Bollywood than electioneering, political point-scoring or the sheer joy of bashing Muslims. Since coming to power in 2014, the BJP has demolished the national opposition, co-opted independent institutions, tamed India's once-vibrant press and obstructed free speech. It is building a cartoonish personality cult around Mr Modi, printing his picture on everything from sacks of government-subsidised rice to covid vaccination certificates.

Bollywood may well be the last independent source of influence in India. It is inherently patriotic, its superstars mostly apolitical and, after the past year, most of its members terrified of speaking in any manner that might attract Delhi's attention. But that is not enough. The fact that its movies show Hindus and Muslims—and all sorts of Indians—getting along, that it tackles issues of social injustice, and that its characters and the real-life people behind them espouse liberal values, is simply too great a threat to Mr Modi's narrow vision of a Hindu nation. If ensuring that Indians can imagine themselves only on the BJP's terms means destroying one of country's great cultural and commercial successes, that is a price the party and its prime minister seem willing to pay.

Zero effort

Australia’s climate policy is all talk and no trousers

It relies too much on future technology and not enough on present action

Oct 30th 2021

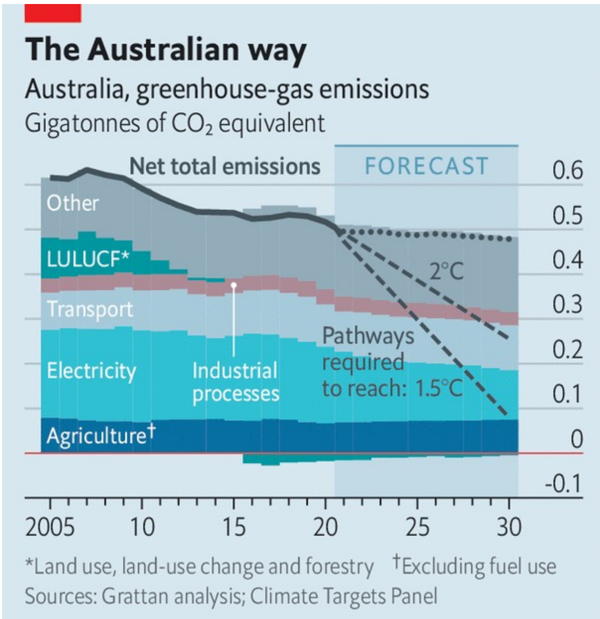
THERE IS A “uniquely Australian” way to tackle rising temperatures, believes Scott Morrison, the country’s prime minister. After weeks of being hassled to beef up his climate commitments, his conservative coalition government on October 26th at last pledged to reduce its emissions to “net zero” by 2050—but without addressing the tricky matter of fossil fuels. The country can both deliver “action on climate change” and “protect the Australian way of life”, the prime minister argues.

Australia has long danced around climate change. It is the world’s biggest exporter of coal by both energy and value. Mining of all sorts accounts for 11% of GDP and supports some 270,000 jobs. Over the past 11 years, three of Mr Morrison’s predecessors have lost their jobs for trying to cut greenhouse-gas emissions.

That Mr Morrison still leads the country, even while uttering words like “net zero”, is progress of a sort. Yet his government had to concede something to its international allies before the UN’s climate talks start in Glasgow on October 31st. Alas, its plan has “all the strength of a wet paper bag”, as Joe Fontaine, an ecologist, put it.

Mr Morrison’s government will not pass a law to enforce any cuts. Nor will it put a price on carbon, as a Labor government did between 2012 and 2014, before the scheme was ripped up by the conservatives. Instead, Mr Morrison’s vision rests on five principles, which boil down to hoping and praying. Apart from “technology not taxes” and “drive down the cost” of technology, the principles include keeping energy cheap, not insisting anybody do anything, and promising to be accountable for its progress.

There is “no new money, no new policy and no credible plan”, says Tim Baxter of the Climate Council, an NGO. His organisation calculates that Australia is doing less to cut emissions than any other rich country. The government’s proposal, dating from Paris in 2015, aims to reduce greenhouse-gas emissions by 26-28% by 2030 from 2005 levels, compared with the 50-52% that America promises. No matter, says Mr Morrison. Australia will surpass its goal, with reductions of about 30-35%. Yet for it to do its part to keep global temperatures below 2°C as it promised in Paris, it too would have to raise its target to at least 50%, according to the Climate Targets Panel, a group of scientists. Hitting 1.5°C would involve cutting by 74%.



The Economist

Australia's intransigence matters for the rest of the world. Coal is still the source of most of the country's electricity, accounting for a big chunk of its domestic emissions (see chart). Factoring in the vast quantities it exports, the country of just 25m people rises from the world's 15th-biggest emitter of CO{-2} to its fifth. It is lobbying alongside other energy giants such as Saudi Arabia to weaken the UN's recommendations for phasing out fossil fuels.

Neither of Australia's major parties has any plans to do so. Its coal exports are booming, and the federal and various state governments are waving through new mines as prices rise. Mr Morrison's has approved the expansion of three in the past two months. It also wants to open five new natural-gas fields as part of a "gas-fired recovery" from the pandemic. Mr Morrison plans to limit the damage by pumping A$20bn ($15bn) into "low-emissions" technologies. Green pressure groups complain that it is prioritising projects in nascent fields such as carbon capture and storage, which give it an excuse to keep burning fossil fuels.

Still, Mr Morrison may calculate that he has done enough to placate voters in a coming election. More than 60% of Australians think that climate change is a "serious and pressing problem", compared with 36% in 2012, according to the Lowy Institute, a think-tank in Sydney. Yet fewer want to make changes that would lighten their wallets. Less than half of people surveyed in another poll want coal-fired power to be phased out within a decade, and 44% would prefer to keep exporting the stuff until overseas demand dries up.

The lack of alarm is all the stranger given that the continent feels the effects of climate change more acutely than many rich countries. It suffers crippling droughts and increasingly ferocious bushfires. Half its most prized natural treasure, the Great Barrier Reef, has been killed by warming waters. Islands in the Torres Strait, off its northern coast, are slipping into the sea. “Time is ticking,” says Yessie Mosby, a Torres Strait Islander who is part of a group trying to force the government into more urgent action by lodging a human-rights claim with UN. Three decades, he says, is too long for Australia to wait to cut emissions. By then, his people “will be refugees in our own country”.■

For more coverage of climate change, register for The Climate Issue, our fortnightly newsletter, or visit our climate-change hub

The next crisis

Afghanistan’s economy is collapsing

More than half its people may go hungry this winter

Oct 30th 2021 | ISLAMABAD

FIRST THE children lost their bedridden father. Then they lost their grief-stricken mother. Then they were left to fend for themselves in west Kabul. In normal times their plight would have been tragic. In today’s Afghanistan, where more than half the population is running short of food, it was deadly. Neighbours said they helped out with bread and water where they could, but it was not enough. Earlier this month the eight children starved to death. The youngest was less than two years old.

Afghanistan is on the brink of the world’s worst humanitarian crisis, the UN said on October 25th, exceeding even the misery in Syria and Yemen. A new report from UN agencies estimates that some 23m of the country’s 38m people will not have enough food to get through the winter unless aid is rapidly scaled up.

The crisis has been a long time coming. Drought and war had already left many destitute. The fallout from covid-19 lockdowns squeezed household finances further. Since the Taliban took over the country in August, the economy has collapsed. The UN estimates that half the country was living on less than $1.90 a day when Kabul fell. By the middle of 2022, that may rise to 97%. "We've not seen this level of near universal poverty in any country in recent history," said Kanni Wignaraja of the UN Development Programme on October 21st.

The immediate reason for the crisis is the loss of foreign aid, on which the Afghan economy previously depended. Before the Taliban took over the country received around $8.5bn a year, which was two-fifths of its GDP. Three-quarters of the government's budget was paid for by foreign donors, including almost all of health and education. The central bank also relied on regular cash injections from abroad.

All that ended on August 15th, when the previous government fled the country. Aid payments were suspended and the country's $9bn in foreign reserves was frozen to prevent the Taliban from getting their hands on it. The government's hefty wage bill, which included salaries for 220,000 teachers, has since gone unpaid.

With no dollars being shipped in, the hard currency needed to purchase foreign goods has dried up. Fear of sanctions has largely halted transactions related to foreign trade in any case. Foreign correspondent banks, which provide currency exchange and help with money transfers, are cutting their links to Afghan banks. They worry that they will be punished for dealing with the new regime, many members of which are under UN sanctions. The currency is in free fall; basic necessities are scarce; inflation is rising.

Because much of the economy is informal, it is hard to know precisely how bad things are. Informal money transfers and the black market may be taking some of the strain. Yet many people are apparently unable to afford even bare necessities. Kabul residents have taken to selling their possessions by the roadside to buy food. The IMF estimates GDP may contract by 30% in the coming months.

There is little hope that things will get better soon. The Taliban, who this month somehow found the money to hold a reception celebrating their suicide-bombers, seem to have no plan to tackle the disaster other than to blame it on foreigners. Afghanistan's former backers, meanwhile, are turning their attentions elsewhere. Despite pledges made at a recent donor conference in Geneva, aid plans are only one-third funded. Moreover, says Robert Mardini, the boss of the Red Cross, “no humanitarian organisation can...replace the economy of a country.”

Attitudes towards the regime, which shows little sign of keeping its promises to form an inclusive government or respect women’s rights, are hardening. Having allowed the Taliban to take over the country, Western leaders look set to observe its economic collapse from afar.■

The sun, the moon and the ponytail

A long-delayed royal wedding reveals awkward truths about Japan

Women are still badly treated, politics is out of sync with the people and the monarchy is dwindling

Oct 27th 2021 | TOKYO

PRINCESS MAKO and Komuro Kei were undergraduates when they first met in Tokyo back in 2012. Mako was drawn to Kei's "smile that is like the sun". Kei saw Mako as "the moon watching over me tranquilly". The couple began dating and kept in touch while Mako studied abroad; in 2017, they got engaged.

The problems began when Japanese tabloids dug into Mr Komuro, and discovered that his mother had reportedly taken a loan of ¥4m ($35,000) from her ex-fiancé that she did not return. Commentators called Mr Komuro, a commoner, a gold-digger. They questioned whether his love for Mako was real. The couple delayed the marriage and Mr Komuro went to study law in America, but the furore did not die down. On his return earlier this year, Japanese media seized upon his ponytail as further evidence of his unsuitability for their beloved princess.

On October 26th the couple married at last, but without the typical formal ceremony and despite a small street protest held the same day. By most measures, the accusations are not scandal-worthy. But they reflect broader anxieties around the challenges confronting a changing Japanese society and institutions that have been slow to catch up.

One challenge is to the royal family itself, which is the world's oldest surviving hereditary monarchy. It has been slow to adapt to modern media. The Imperial Household Agency is masterful at managing archives and fussing over rituals, but struggles with public relations. It did little to correct misinformation that spread about the couple online.

Another is the harsh treatment of royal women, a magnified version of the sexism that many Japanese women face on a daily basis. Mako was diagnosed with post-traumatic stress disorder during her ordeal. Empress Masako, the wife of the current emperor, Naruhito, has also suffered from stress-related illness amid intense pressure to produce a male heir. Empress Michiko, her predecessor, lost her voice for months in the 1960s and 1990s as a result of stress.

The affair has also brought the family's tenuous future to the fore. By marrying a commoner, Mako has ceased to be royal (this rule would not apply if she were male). Her departure leaves just 17 royals, and only men can inherit the Chrysanthemum throne. Merely three potential heirs remain. Japan's ruling Liberal Democratic Party has blocked moves to allow future female monarchs.

The episode highlights how Japan's politics, especially on social issues, are hostage to a vocal, conservative minority. Recent polls show that most Japanese in fact support the partnership of Mako and Kei. Some 85% favour allowing female succession. A similar dynamic—where the public is far more liberal than legislators—exists around gay marriage and the question of whether to allow couples to keep separate surnames, which Japanese law does not allow.

Like a certain British duo, the Japanese royal couple have decided to make their future outside the stodgy confines of their homeland. Mako and Kei will soon join Harry and Meghan in America.

China

The long wait

A row about toilets reveals a lot about women's place in China

Progress is possible, but activism is discouraged

Oct 30th 2021

IN 2012 A GROUP of feminists protested against a shortage of public toilets for women by using men's lavatories instead (see picture). State-security police responded by harassing and threatening them. But the government took up their cause. Cities started building more toilets for women. Last year, at the UN, China cited this as a big achievement of its efforts in the past five years to improve the lot of women. It did not mention the people who had pushed for such change.

Most of the toilet-reform activists have been forced to give up their campaigning. Some are subject to intense surveillance by the state. Several have become fitness fanatics, going to gyms to run and lift weights. "Many of us suffer from depression and anxiety," says one. "Exercise is a way for us to prepare for whatever comes next, good or bad."

Feminist causes are not dead. The country's media are not allowed to report on the #MeToo movement, an online campaign against sexual harassment that took off globally in 2017. But the same grievances have bubbled up in China. A growing number of women are suing powerful men for sexual assault. #MeToo has fuelled an "unprecedented interest" in women's rights, says Lu Pin, a Chinese feminist who went into self-exile in America in 2015.

Officials are making some effort to show they care. In 2019 China's highest court added sexual harassment as grounds for filing a lawsuit. The Ministry of Education now works with universities and schools to curb it on campuses. An anti-sexual-harassment clause was included in China's first civil code, which took effect this year. Darius Longarino of Yale Law School says the Communist Party often represses activists while trying to show that it is fixing the problems they raise.

But the party has used its control of the media and internet to turn #MeToo-related debate into something more suited to its own needs. Censors have suppressed use of the #MeToo hashtag and its Chinese equivalent, but have allowed selective discussion of a handful of cases that reflect badly on people or institutions that are in the party's sights.

The entertainment industry and its celebrities are among the party's targets. It fears that they are undermining moral rectitude in China by mimicking the worst excesses of Hollywood. In August police arrested Kris Wu, a pop star, after he was accused by a university student of pressing women to have sex with him. The government banned many online groups that drooled over him and other male celebrities. Some of these also happened to be forums for debate about women's rights.

This year state media have also highlighted an alleged sexual crime involving a manager of Alibaba, a technology giant. The man was accused by a female employee of forcing her, while on a business trip, to drink until she blacked out, and then of raping her. The company fired the man, who then was cleared by police of any crime. The scandal happened to coincide with a sweeping regulatory clampdown on Alibaba and other large non-state tech companies, seemingly motivated in part by the party's desire to curtail their enormous economic clout.

Despite its efforts to appear woke, the party is reluctant to up-end a patriarchal social order in which women are routinely treated as sex objects, subservient to men. The legal system still favours harassers. The burden of proof is very high for women who make accusations of sexual assault. An analysis of civil cases between 2018 and 2020 by scholars at Yale Law School found that more than 90% of those involving sexual harassment had been brought by alleged perpetrators against their accusers (for slandering them) or their employers (for disciplining them).

In September a court in Beijing rejected a woman's petition for redress, which had become the country's most famous case relating to sexual harassment. The plaintiff had accused a well-known television anchor of groping and forcibly kissing her when she was an intern. The judge said she had insufficient evidence. The plaintiff, known as Xianzi, plans to appeal. The verdict, she says, has made it "very easy for the public to assume I was lying".

In contrast to the case involving Alibaba's employee, journalists at state media were banned from reporting on Xianzi's plea. In the week leading up to the verdict, anyone who posted information about the case had their social-media accounts frozen. Xianzi's own such accounts were partially or fully blocked.

Such experiences are common among outspoken feminists in China. By shutting them out of social media, while tolerating the rantings of their critics, censors fan the flames of bigotry. Women who try to share their experiences of being sexually harassed in the office or being required to drink large quantities of alcohol at work banquets, are often "slut-shamed or labelled as anti-government or as hostile foreign forces", says Xianzi.

Anti-feminist sentiment is fuelled by the party's conservatism. Xi Jinping tries to project an aura of masculinity (his attacks on showbiz have also included a ban on effeminate men appearing on television). He is fawningly known in China as "Xi Dada", literally meaning "Uncle Xi". He promotes traditional Confucian values, which emphasise the role of women as obedient wives and mothers.

Online trolls who attack #MeToo use the same authoritarian, jingoistic language that the party delights in, notes Ms Lu, the feminist in America. They also engage in a kind of grassroots activism, with their numerous social-media accounts and independent websites that spice up the party’s message with extra dashes of anti-liberal vitriol. That is the only sort of advocacy allowed. ■

All the news that’s fit to reprint

China’s state-controlled media are put on an even shorter leash

All the news sources that may be republished sound similar

Oct 30th 2021 | BEIJING

THE COMMUNIST PARTY’S leadership, with “Comrade Xi Jinping at the core”, attaches “great importance” to managing internet content. So declared the government on October 20th when unveiling new instructions about what news could be republished online. This was an understatement. Under the party’s rule, China’s press has never enjoyed more than a small modicum of freedom. Mr Xi has relentlessly tightened controls. Reporters and editors deemed politically wayward have been disciplined, fired or jailed.

The new directive, issued by the Cyberspace Administration of China (CAC), updates a list, first published in 2016, of news sources that other websites may republish. CAC said the revision was aimed at “resolutely closing the ‘back door’ on illegal newsgathering and redistribution”.

The list names 1,358 approved outlets. That is nearly four times as many as were named in the previous one. It is not a sign of relaxation. The larger number merely reflects the proliferation of news websites run by state-owned media. More important to note are sources that are no longer listed. The most conspicuous is Caixin Online, a popular and trusted website.

Since its launch in 2009, Caixin Online has been an outlier in China’s drab media landscape. It often goes far beyond other outlets with investigative reporting and coverage of topics such as corruption, environmental problems and touchy policy debates. In the early stages of the pandemic it called into question the official death toll in Wuhan, pointing to an unusual workload at crematoria. Its founder, Hu Shuli, previously ran a magazine called *Caijing*, which once occupied a similar niche. Ms Hu is politically well-connected and has a keen sense of how to skate close to—but rarely over—the party’s red lines.

She and her colleagues may feel the effects of another recent tightening of the party’s grip. On October 8th China’s planning agency, the National Development and Reform Commission (NDRC), released a draft regulation reiterating a ban on private investment in most news operations. Such restrictions have been in place since at least 2005, but have not been rigorously enforced. State media suggest that this time, change is afoot. According to one widely quoted Chinese expert, previously non-compliant arrangements will be ”cleaned up”. It will be a big job. Like Caixin, many Chinese media, though fully operated and controlled by the state, have complex ownership structures that include big holdings by private investors.

Pro-government commentators have praised the party’s resolve. Sima Nan, a blogger in Beijing with more than 2.4m followers on Sina Weibo, a Twitter-like platform, opined that a loosening of media controls in the Soviet Union had hastened its collapse in 1991. “This is an ideological struggle,” he said, comparing the NDRC‘s ban to “removing firewood from under a cauldron”—a common way in Chinese of describing drastic action taken to deal with an emergency.

Sina Weibo is owned by Sina Corporation, a non-state tech giant. But it is clear that the NDRC does not have news analysts such as Mr Sima in its sights. ■

United States

America’s entrenched political divide

The Democrats’ disadvantage

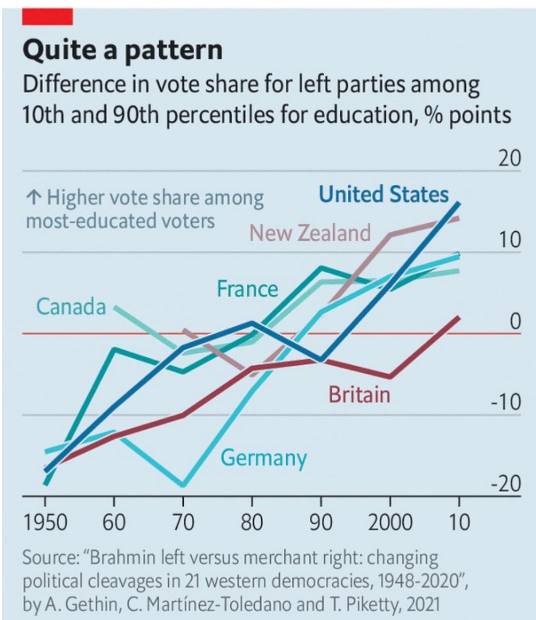
The party faces long-term hurdles that will be hard to overcome

Oct 27th 2021 | WASHINGTON, DC

FOR WEEKS, Democrats in Congress have been trying to pull off a delicate legislative two-step with President Joe Biden’s agenda. House progressives refuse to vote for an infrastructure bill, which passed the Senate with bipartisan support, until the Senate passes a social-spending bill. That measure has to be slender enough—negotiations have whittled it down to around half of its initial $3.5trn size—to satisfy moderate Democrats, but not so meagre that it loses progressives’ support. And Mr Biden would love it done before he arrives at the COP26 climate conference in Glasgow on November 1st. His legacy hangs in the balance, and the tactics surrounding this legislative *pas de deux* are intensifying an argument over the party’s direction.

Democrats won unified control of the federal government in 2020, defeating an incumbent president for the first time since Bill Clinton beat George H.W. Bush in 1992. Joe Biden ran on an agenda that was farther left than either Hillary Clinton’s or Barack Obama’s. Now the debate over that agenda is highlighting a rift in party strategy. Conservative Democrats such as Joe Manchin, a senator from West Virginia, contend the party must not throw fiscal caution to the winds. But progressives such as Bernie Sanders, a senator from Vermont, argue that the party must be bold, proving it can honour its promises.

Even if the rival factions compromise and pass Mr Biden's legislation, Democrats will still probably lose their congressional majority next year. Mid-term elections since 1934 have typically produced a backlash against parties occupying the White House; they have lost an average of 28 seats in the House and four in the Senate in those contests. The Democrats' current advantage will vanish if they lose four seats in the House and one in the Senate.



The Economist

Longer-term trends also paint a dire picture for the Democrats, especially in the Senate. For half a century they have been losing support among rural voters and gaining in the cities. This has packed their voters into metropolises in coastal strongholds, such as California and New York, as well as smaller cities in states where Republicans outnumber them, such as Florida, North Carolina and Texas. Less-populated conservative states like Idaho and Wyoming remain reliably Republican. Because each state has the same number of senators, the chamber gives Republican voters a disproportionate number of seats.

According to calculations by Daily Kos, a liberal website, Republicans have not won the cumulative popular vote for the Senate since the three election cycles leading up to 1998 (the chamber is divided into thirds, with one-third elected every two years). Yet they have won the majority of its seats in seven of those 12 cycles.

How can Democrats combat these trends? One group of strategists sees the answer in population growth among some of America's most left-leaning voters—young people and Hispanics. But that theory fell apart in the last election, when non-college-educated Hispanics swung hard towards Mr Trump and turnout among young voters, though up, remained below the overall average.

Many Democrats have instead come round to the views of David Shor, a data analyst who worked for Mr Obama. Mr Shor's proposed strategy is to decrease "education polarisation"—the gap between the votes Democrats get from college-educated Americans and those they get from people with no college education—to the level of 2012. That was the most recent year in which whites without college degrees gave Democrats 40% of their votes or more, according to Catalist, a political-data firm. Last year just 37% voted for Mr Biden. Since only 36% of Americans over the age of 25 have a college degree, relying on them to fill the gap is not viable. Whites without degrees make up the largest share of the population in rural states.

Mr Shor's solution is "popularism": the idea that Democrats need to emphasise their most popular policies, such as economic redistribution and lower health-care costs, and avoid topics such as immigration and defunding the police that alienate working-class white voters. Though "don't do unpopular stuff" sounds a glaringly obvious strategy, the debate over the theory has taken hold of the party.

How Democrats should carry out Mr Shor's plan is unclear. Education polarisation is not a new trend. A study of survey data stretching back to 1948 by Amory Gethin, Clara Martínez-Toledano and Thomas Piketty, all economists, illustrated parallel trends in many Western democracies. The authors write that it will be hard to reverse unless Democrats become the champions of conservative positions on "sociocultural" issues, such as law and order, the environment and immigration.

Persuading someone to change their vote grows harder as political identities deepen.In 2020 the link between a voter's partisan identity and self-described ideology was the strongest on record. According to an analysis of survey data by Charles Franklin, a political scientist and pollster in Wisconsin, a person's stated ideology explained roughly 57% of their partisanship in 2020, up from 49% in 2016 and 20% three decades ago. This rise in social sorting helps to explain the decrease from 10% to under 5% in the share of Americans who regularly switch parties, according to *The Economist*'s analysis of survey data from the American National Election Studies, a poll conducted in election years since 1952.

Much of Mr Trump's success in 2016 stemmed from his understanding that policy preferences are fickle: identity-loyalty and group conflict are more powerful levers to earn a person's vote. Democrats cling to the theory that their popular policy agenda will eventually secure them a permanent majority. But before support for a wealth tax, say, can win over non-college whites, they will first need to feel that Democratic candidates understand them and share their cultural outlook.

There Democrats face a further hurdle: their increasingly nationalised brand. According to Jonathan Rodden, a political scientist, one reason left-leaning parties worldwide have been doing poorly with rural working-class whites is that their candidates struggle to differentiate themselves from the party's ultra-progressive elected officials from the big cities. This imposes the otherworldliness of very left-leaning Democratic politicians elsewhere onto the party's candidates in the heartland. Recent losses for conservative Democrats in Montana and North Dakota show how vulnerable they are to this.

When the Republicans were in a similar position in the 1960s, locked out of power by the union of progressive northern Democrats and conservative southern ones, they mustered a realignment. They used the backlash against the civil-rights and feminist movements to woo conservative non-college whites. But entrenched identities now make such a feat harder. It appears nearly impossible for Democrats to win back a substantial share—say, 5%—of the blue-collar northern whites they once relied on for power, especially in the Senate. They are likely to be disadvantaged by America's geography-based electoral system for many years to come. ■

For more coverage of Joe Biden's presidency, visit our dedicated hub

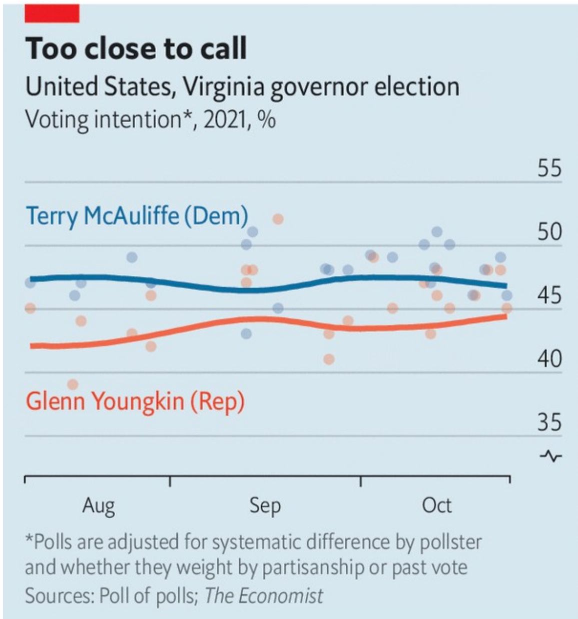
Predicting America’s elections

The message from our model for Virginia’s gubernatorial race

Bad news for Democrats

Oct 30th 2021 | Arlington, Virginia

THE RESULT of Virginia’s race for governor on November 2nd will “set the tone” for next year’s mid-term elections. So said Terry McAuliffe, the former Democratic governor of the state, as he launched a get-out-the-vote campaign last Friday. If so, the party is in trouble. President Joe Biden won the state by ten percentage points last year, but Mr McAuliffe is now polling just two points ahead of his Republican opponent, Glenn Youngkin, according to a statistical model built by *The Economist*. That gap is small enough for Mr Youngkin to close at the last minute.



The Economist

Our model aggregates publicly released polls and attempts several modest corrections to the underlying data. First, we remove any uniform biases from each polling firm. These may arise from methods of collecting or processing data—or, in rarer cases, from the ideological bent of the polling house. We then subtract any systematic differences between pollsters who try to ensure they have representative shares of Democrats, Republicans and independents and those who do no such weighting. This helps control for the tendency for non-party-weighted data to bounce around more than party-weighted polls; in some cases it also removes an extra layer of bias. Lastly, we use the model to fit a trend line through all the adjusted points. This method yielded a closer prediction for the recent recall election in California than most other public averages of polling data.

If the election were held today, our model suggests Mr McAuliffe would defeat Mr Youngkin by about two percentage points. That should not comfort the Democrats. Our model also finds plenty of uncertainty in the polling data: it gives the former governor only a roughly two-in-three (67%) chance of winning the race. Even a modest polling error could blow the aggregate off course. In 2017, when the state's current Democratic governor, Ralph Northam, won the office, the polling average in Virginia underestimated his margin by six percentage points.

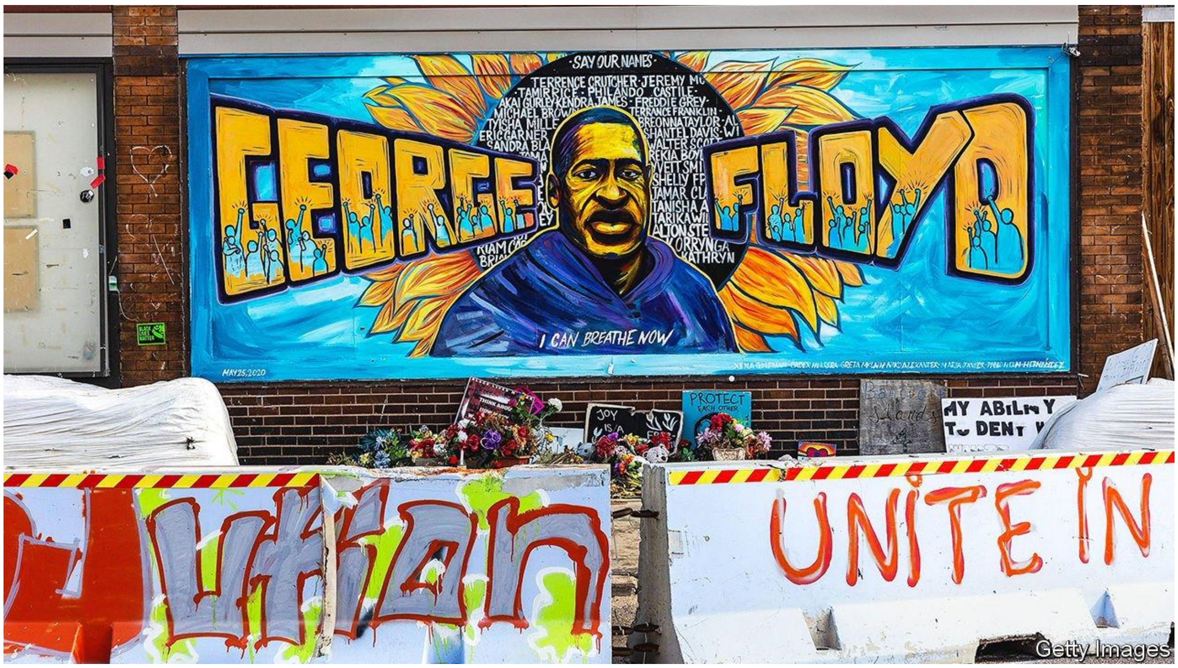
Win or lose, the tone the election sets for the mid-terms is likely to be bad for the Democrats. The party in the White House usually loses both the subsequent election for Virginia's governor and seats in the national House and Senate elections the year after. And a close relationship exists between the swing against the incumbent party in those gubernatorial contests and in the House vote nationally. With Mr Biden's net approval rating underwater and a trend against the Democrats in congressional generic-ballot polling, even a five- or six-point margin for Mr McAuliffe on November 2nd would portend defeat in the mid-terms.

Police reform

George Floyd’s city votes on the future of its police department

Crunch time for the defunding debate

Oct 30th 2021 | Minneapolis



YOU CANNOT avoid his face anywhere you go. More than a year after the murder of George Floyd, and a few months after the conviction of Derek Chauvin, the police officer who knelt on his neck, the memory of Floyd remains almost hauntingly imposed upon Minneapolis. The street where he was killed is demarcated by two enormous constructions of black fists raised in the air; the site of his death is a makeshift memorial with fresh flowers in spite of the stiff October chill; murals of him and of protests envelop the city.

Despite the upheaval that his death and its ensuing protests caused in the city and the country, precious little about policing in America seems to have changed. Cities that hastily cut police budgets are now reversing course in the face of resurgent violence. After months of negotiation, a vaunted bipartisan police-reform deal in Congress has collapsed.

On November 2nd, however, voters in Minneapolis will have the chance to do something drastic. As well as passing judgment on Jacob Frey, the incumbent mayor seeking re-election, they are also voting on whether to replace the Minneapolis Police Department with a new Department of Public Safety that "employs a comprehensive public-health approach", and to eliminate a mandatory minimum of police officers established in the city's charter.

In a city where there were as many as nine Biden voters for every Trump supporter in the last presidential election, such a referendum would pass easily if Democrats were united. They are not. Mr Frey is running against the measure. The state's governor and senators, all Democrats, are opposed to the idea of repealing and replacing the police department. But Keith Ellison, the state attorney-general who won a murder trial against Mr Chauvin, is for it. "If we don't make changes to the circumstances that brought us to George Floyd and the aftermath, we're going to get more of it…And I want to do something different," he says.

Rhetoric and reality

The critical division is over whether or not the plan is a pretext to "defund the police". Opponents insist it is sloganeering masquerading as policy. "I have never supported defunding or abolishing the police," wrote Mr Frey when defending his stance. Shortly after Floyd's murder, a majority of the city council appeared at a rally at Powderhorn Park on a stage in front of which "DEFUND POLICE" appeared in gigantic block letters.

Advocates for reform have adjusted their language. As with the civil-rights movement, "those farthest on the left are what pushed the movement…we shifted the narrative from reform to defund," says Sheila Nezhad, a community organiser running for mayor who is posing a stiff challenge to Mr Frey. Having contributed to a report on policing that argued that "abolition is the only way forward", Ms Nezhad now avoids such rhetoric on the campaign trail, preferring words like "reinvest". Kate Knuth, another candidate for mayor who supports the reform, says: "My vision of a department of public safety absolutely includes police," funded at the same levels as today.

Reform campaigners in Minneapolis favour a less provocative slogan, “Expand public safety”, for their yard signs. The established minimum size of the force—17 officers per 10,000 residents—is not particularly high for a large city, though it is unusual in being so explicit. The argument for abolishing it is that it is an impediment to reform. “It’s not revolutionary or radical, it is literally a common-sense step to keeping people safe, and quite frankly benefits police officers”, who are overstretched, argues JaNaé Bates, a church minister and leading campaigner. Law-enforcement officers would remain, she says, but some funding would be reallocated towards other means of emergency response, such as mental-health professionals.

Advocates hope that the proposed rebranding and the rerouting of funding towards unarmed social services will restore trust among minority communities, without risking a backlash among white residents. Such an approach is necessary to win. Public opinion in favour of “defunding” police departments was never high. The increase in violent crime has made it even less so.

In June 2020, 41% of Democrats told survey-takers for the Pew Research Centre that they wished to reduce local police budgets. By September 2021 that had shrunk to 25%. Among the general public, support declined from 25% to 15%. Official data recorded a 30% jump in homicides nationwide between 2019 and 2020, the largest single-year rise on record. The preliminary evidence for 2021 suggests that the rate may continue to grow. Minneapolis is on pace to have 88 murders this year—the most in the city in the past 25 years.

The energy for police reform is often inversely related to crime. That puts reformers in a difficult position. In August 2020 the city council in Austin, Texas, voted to trim its annual policing budget by one-third. Its most recent budget reversed that entirely. There is now a referendum in that city to institute a minimum staffing requirement for policing—exactly the kind that Minneapolis is currently trying to undo. Other Democrat-led cities, like Atlanta and New York, have had to reverse earlier pronouncements on reduced police funding in the face of increased crime. If Minneapolis votes differently, it would buck an emerging trend.■

Police v vaccine mandates

Cops hate vaccine mandates, and the city leaders imposing them

Hands up, no shots

Oct 30th 2021 | Chicago

JOHN CATANZARA, president of Chicago's police union, says he is no anti-vaxxer. He got his jabs some time ago. Yet the fiery union leader, who likes to post long monologues on YouTube to rally his troops, insists that his vaccination status is none of the city of Chicago's business. On October 15th, under a mandate announced in August by Lori Lightfoot, the mayor, all city workers were meant to fill in an online form with their vaccination status. Those who are not vaccinated have to submit to twice-weekly testing for covid-19, at their own expense. If they do not supply their status, they will be put on unpaid leave. Mr Catanzara calls this "tyranny".

In August, in an interview with the *Chicago Sun-Times*, he described it as being the sort of thing Nazi Germany would have imposed, comparing getting a vaccine to being told to shower in Auschwitz. He apologised for those remarks, but he has kept up the basic thrust, saying on October 25th that Chicago is "literally a dictatorship", for forcing city workers to get vaccinated. Worried that he has, in effect, been encouraging the police to strike—which would be illegal—a judge ordered him to shut up. He only barely complied. By the deadline 4,500 officers, almost a third of Chicago's police force, had not provided their vaccination status. A few dozen have been put on unpaid leave. Yet their refusal to co-operate is about more than just vaccines. It reflects police anger more broadly with liberal city governments.

In New York on October 25th, the largest police union also sued to oppose a vaccine mandate there, which comes into effect on November 1st. In Los Angeles Alex Villanueva, the county sheriff, said on October 7th that he will refuse to enforce a vaccine mandate imposed by Los Angeles County. Portland, Oregon, and Seattle are also facing police revolts. By contrast Florida's Republican governor, Ron DeSantis, a vocal supporter of vaccine holdouts, this week promised a $5,000 sign-up bonus to those who move to his state rather than accept their jabs. "If you're not being treated well, we will treat you better here," he said.

Mr Catanzara, like many police officers, insists his objections are about collective-bargaining agreements, not vaccines themselves. The police are not alone. In New York hundreds of municipal workers marched across Brooklyn Bridge on October 25th to protest against the mandate there. In Illinois a few teachers have resigned rather than get jabbed. But the police seem especially irked. This may reflect officers' politics. Last year the national Fraternal Order of Police endorsed Donald Trump. City leaders, by contrast, tend to be on the left of the Democratic Party. Ms Lightfoot has been an enthusiastic proponent of Chicago's consent decree, through which the federal government monitors its police force. Bill de Blasio, the mayor of New York, has curbed stop-and-search and is unpopular in the NYPD.

So far, vaccine mandates have largely survived legal challenges. Politics is a bigger risk. On October 25th, at an emergency meeting, Mr Catanzara demanded that Chicago's aldermen, or councillors, put their hands up to vote for a resolution to take the power to impose these rules away from the mayor. To those that didn't, he threatened: "We are coming for every one of your damned seats." In Los Angeles Mr Villanueva has suggested that cops will quit rather than be forced to get jabbed.

Such threats may not come to much. But murder rates are rising again in many American cities, and police officers are in demand. Ms Lightfoot has already watered down her original proposal (initially, getting tested was not an option). It is a risky business, upsetting the boys in blue. ■

Dig deeper

All our stories relating to the pandemic can be found on our coronavirus hub. You can also find trackers showing the global roll-out of vaccines, excess deaths by country and the virus's spread across Europe.

Animal rights

Pablo Escobar's hippos lead a charge for animal rights

They can wallow on a while longer

Oct 30th 2021 | New York

CORPORATIONS HAVE enjoyed legal personhood since the 19th century. Now, it seems, they have company. A dispute over the fate of hippos in Colombia has given rise to a federal court ruling in Ohio that, for the first time in American law, recognises animals as people.

This should come as welcome news to the 100-plus hippos of Colombia's Magdalena river. They are the offspring of four hippos smuggled into the country by Pablo Escobar, a drug lord. After Escobar died in a shoot-out with police in 1993, other specimens from his exotic menagerie—ostriches, zebras, flamingos—found new homes in zoos. But the hippos took up residence in the mud of the Magdalena and got to reproducing.

The surfeit of hippos has coated lakes with algae and could displace otters, manatees and endangered turtles. Hippos have begun wandering into villages, too—a potential peril for human persons. Last year the government considered a cull, prompting a Colombian lawyer to take up the cause. The hippos, his lawsuit says, enjoy protection under Colombian law and must not be killed.

Judge Karen Litkovitz, the federal judge in Ohio, does not get to decide the hippos' fate. But on October 15th she agreed with the Animal Legal Defence Fund that the hippos are "interested persons" under a law permitting foreign litigants to gather evidence in America that may buttress their claims. Experts in non-surgical sterilisation will be deposed for their insights on PZP, a contraceptive that could spare the hippos while dampening their growth.

America is not the first country to regard animals as legal persons. An Indian court cited the constitution in banning a bullfighting festival in 2014. A judge in Argentina ruled that Sandra, an orangutan, was a non-human person eligible for better environs than her concrete enclosure in a Buenos Aires zoo; she now luxuriates in a sanctuary in Florida. In 2020 a court in Islamabad, faced with cases involving stray dogs, an elephant and a bear, recognised the "right of each animal…to live in an environment that meets the latter's behavioural, social and physiological needs".

Judge Litkovitz's decision is not couched in such sweeping terms. It remains to be seen whether other American courts take her cue in cases such as that of Happy, an elephant at the Bronx Zoo who has shown signs of self-awareness and misery. In 2022 New York's highest court will consider whether the writ of habeas corpus—protection from unjust imprisonment—applies to Happy.

Prostitution in America

How to bring sex work out of the shadows

The debate over different approaches to decriminalisation

Oct 30th 2021 | Washington, DC

LIFE FOR women who sell sex in Manhattan may be a little easier these days. In April the district attorney's office said it would stop prosecuting those who offered or agreed to engage in a sex act for payment. Buyers of sex, though, can still be charged with "patronising a prostitute in the third degree".

The language sounds archaic because the law is. Whereas many rich countries have decriminalised the buying or selling of sex (or both), prostitution remains illegal across America, apart from in a few counties in Nevada. But the change in Manhattan—and similar moves in other New York boroughs and Baltimore—is part of a growing movement to reform the criminal-justice system's treatment of such transactions. A handful of states have introduced bills that would partially or fully legalise them.

This reflects a growing belief that prosecuting prostitutes is cruel and counterproductive. Criminal records can make it hard to find housing and alternative employment. The mere threat of them can prevent some from seeking health care.

What is the best way to reform? There are two broad approaches: allowing the selling of sex but retaining penalties for buying it, in the hope this will lower demand (this is known as the Nordic model, after a law passed in Sweden in 1999); and decriminalising both sides of the transaction, in the hope that it will result in better working conditions.

In America, where polarisation on many social issues is growing, divisions between the proponents of these different approaches can be stark. This is especially apparent in New York, where two bills have been introduced in the state legislature. In September Kathy Hochul, the governor, said she was considering decriminalisation. She did not say whether she favoured the Stop Violence in the Sex Trades Act, a full decriminalisation bill, or the Sex Trade Survivors Justice and Equality Act, which would punish only buyers.

Proponents of full decriminalisation argue that bringing sex work into the light makes it easier for prostitutes to get access to health services and report violence to the police. They often cite the example of New Zealand, which fully decriminalised in 2003. Four years later a study found that most prostitutes still did not report violence, but a majority said police attitudes towards them had improved. Barbara Brents, a sociology professor at the University of Nevada, says that although the state's tightly regulated brothels take a big slice of sex workers' earnings, some women choose to work in them because they feel safer. (Even so, most prostitutes in Nevada work outside the legal brothels.)

Cecilia Gentili, a former sex worker and trans woman who helped found Decrim NY, which was involved in drawing up the Stop Violence bill, says she never considered telling police when she was forced to sell sex, for fear of being arrested. Sex work, she believes, should be regarded much like any other employment. Laws aimed at reducing demand are "patronising", she says, promoting the idea that "women are not able to make decisions".

Whether such activists speak for most sex workers is impossible to know, because there have been no large-scale surveys of sex workers in America. Yet strong anecdotal evidence suggests selling sex is different from other forms of manual labour in important ways. Drug addiction and homelessness often lead people into sex work and keep them in it. Many prostitutes have sold sex since they were minors; other forms of employment are not connected with abuse in this way.

Nor are they typically connected with trafficking. Some people in organisations that work with prostitutes say the spectre of sex trafficking—defined by the federal government as a commercial sex act "induced by force, fraud, or coercion" or in which the seller is under 18—is a distraction from other problems. Reliable data are hard to come by, so no one really knows how prevalent trafficking is. But it is almost certainly underreported.

Proponents of full decriminalisation say it would make it easier to prosecute traffickers. But champions of the Nordic model say breaking the law acts as a deterrent to some would-be buyers, so full decriminalisation boosts demand, creating opportunities for exploitation on the supply side. Since most women with alternatives choose not to sell sex, less fortunate ones fill the gap. Some will be trafficked.

The New Zealand study found that the number of sex workers there had not increased after decriminalisation. But an analysis of data from 150 countries in 2013 found that legalising prostitution led to its expansion and increased trafficking. Alexi Meyers, a former assistant district attorney in Brooklyn, says prosecutions against sex-work "promoters" can lead to the prosecution of traffickers; full decriminalisation could prevent that happening.

Nordic or nothing?

In states that are mulling decriminalisation, decisions are likely to come down to practical factors such as this. Another consideration is how changes in one state will play out in a country where sex work mostly remains illegal (and in conservative states any reform is a distant prospect). If New York became the first to fully decriminalise, it could well attract sex tourists in large numbers.

In June, when Maine's governor vetoed a bill decriminalising sex work, she expressed concerns about becoming the first state to do so (she also worried, she said, that it would push up demand). Though the rejected legislation was for the Nordic-style approach, this may emerge as the most palatable and practical way for America to begin to reform its sex-work laws. ■

No one loves Joe Biden

Americans elected the president to get rid of his predecessor. They're not sure what else he can do

Oct 30th 2021

ARLINGTON, HOME of Robert E. Lee and a cemetery dug vengefully on his front lawn, is barely in Virginia these days. The city's tony apartments and IT firms have long made it feel like an extension of Washington. That, in turn, made it relatively safe for Joe Biden, one cold and blowy evening this week, to flit across the Potomac and dip his toes into Virginia's gubernatorial race.

It would have been awkward had he not, given how many Democratic big-hitters have flooded the state as the contest between Terry McAuliffe and Glenn Youngkin has tightened. But no one expected the increasingly troubled president to move many votes. Even the irrepressible Mr McAuliffe, a force field of positivity and Mr Biden's friend for 40 years, admits that he is unpopular in the commonwealth. This was implicit in the arrangements made for the presidential visit. Only a tiny corner of a large Arlington park had been fenced off and floodlit for it—to create the safest possible space in the most reliably Democratic city of a state that Mr Biden won last year by ten points.

Only a modest Democratic crowd duly showed up. And its members seemed ambivalent about the president. Asked for their opinion of him, some said they were “indifferent”, others claimed to have “no view”. Several of those quizzed by Lexington said they knew nobody who was enthusiastic about him. “That’s not really what he’s about,” said one woman, jiggling a “Terry for Virginia” sign. Just one person, an India-born woman huddled in the gloom, richly praised the administration. She worked for a hospital lobby and loved its increased health-care spending.

As Mr Biden’s approval ratings have dived in recent months, solid arguments have been offered in his defence. Most presidents lose support in their first year, as the thermostatic nature of public opinion asserts itself. And indeed his descent from 56% approval after his inauguration to the low 40s today is similar to the slides Barack Obama and Donald Trump suffered. Mr Biden has also faced daunting headwinds, in the resurgence of covid-19, the economic havoc it has wreaked and the fact that half of Americans have not heard a good word said about him, so polarised have the media become. History is against him in Virginia, too. As one of the first states to vote after a general election, it often bloodies the nose of whichever party occupies the White House. Yet such rationalisations cannot lessen the gravity of his predicament.

Mr Obama fell from such a high level after his first election that he remained in positive territory. Mr Trump was never popular outside his base—yet the more unpopular he got, the more its members loved him. Taking the fight to the liberal mainstream was his shtick. Neither ameliorating factor applies to Mr Biden. He won by a much narrower margin than Mr Obama’s, which in itself called the Biden shtick (his promise to unite the country against Trumpism) into question. And that tension has increased as his numbers have worsened.

In Arlington Mr Biden again focused, in his shouty way, on his predecessor. “Remember this: I ran against Donald Trump and Terry is running against an acolyte of Donald Trump!” The limits of that message were exposed in the general election, not only by Mr Trump’s robust losing performance, but also by how little damage other Republican candidates suffered by association. And the former president is even less of a bogie today. Most voters—especially independents, among whom Mr Biden's slide has been steepest—appear to have put him from their minds. Moreover, it becomes increasingly hard to present yourself as a uniter, not a divider, when more than half the country thinks you're doing badly.

If Mr Biden cannot reverse that impression, the outcome for his party will be grim. Mid-terms are a referendum on the president, not his predecessor. His dire ratings are therefore setting Democrats up for a hiding. History suggests they are consistent with their losing control of both chambers. It also shows how hard it will be for Mr Biden to claw his way back.

Among his recent predecessors, only Bill Clinton has staged a major public-opinion comeback in peacetime, and he had the advantages of an excellent economy and quicksilver political skills. Mr Biden has neither. He is above all tied to covid-19, the sort of fundamental that is far more determinative of political success or failure than most coverage suggests. Political performance tends to be less of a factor; but there too Mr Biden is in trouble.

By recent standards, his administration has performed creditably. It is led by serious people, unlike its predecessor. And he appears on track, despite Democrats' slim congressional majority, to sign more major legislation in his first year than Mr Obama. The debacle in Afghanistan, which hit Mr Biden's ratings hard, was a blot, yet one that received blanket coverage in part because of how uncharacteristic of the administration it was. Such incompetence, which was expected of the Trump administration, is atypical of Mr Biden's—save in one respect, its ability to sell its aims and accomplishments, at which he and his party are abject.

Hardly any non-lobbyist in the Arlington crowd could name a significant thing the administration had done. Most knew congressional Democrats were haggling over the cost of a spending package, but struggled to recall almost any of the climate and social policies it contained. And this was in arguably the most educated, switched-on, centre-left place in the country. The chances of independent voters in Milwaukee or El Paso having half a clue as to what Mr Biden is attempting would appear to be close to zero.

In his labyrinth

Mr Trump was always selling his record, even when it didn't exist. By contrast Mr Biden and his party are not making a case for what they are actually doing. Mr Clinton's guru, James Carville, suggests they dislike salesmanship. Or perhaps Mr Biden is no good at it. Either way, he is falling short. If elections are about the future, as Mr Clinton liked to say, they cannot only be about Mr Trump. ■

For more coverage of Joe Biden's presidency, visit our dedicated hub

The Americas

Fuelling the flames

Chile, once considered Latin America's Finland, is in trouble

A constitutional convention, formed to battle populism, looks unlikely to help

Oct 28th 2021 | Santiago

AFP/Getty Images

"WE WANT TO see the end of capitalism and neoliberalism," says Catalina (not her real name), a 37-year-old protester surrounded by a group of hooded men wielding sticks. She is one of many hundreds who, since Chile eased its covid-related curfew in October, have gone out on the streets to rail against the government. Some protesters have looted supermarkets and pharmacies. Others, wearing black balaclavas, have thrown Molotov cocktails at "*pacos*", or the police. For a week the main thoroughfare of the capital was full of piles of rubbish that had been set on fire. The downtown area is covered with graffiti. "Death to the government, long live anarchy," reads one scrawl.

Chile used to be one of Latin America's success stories. GDP per person almost tripled between 1990 and 2015; it is now the highest in Latin America. The number of university students quintupled over the same period. Income inequality fell and is now below the regional average (though far above that of the OECD, a club mostly of rich countries). Yet ever since huge protests took place in October 2019, in which at least 30 people died and metro stations and churches were razed, violence has become far more common. In the past few weeks three people have died during the protests and hundreds have been arrested.

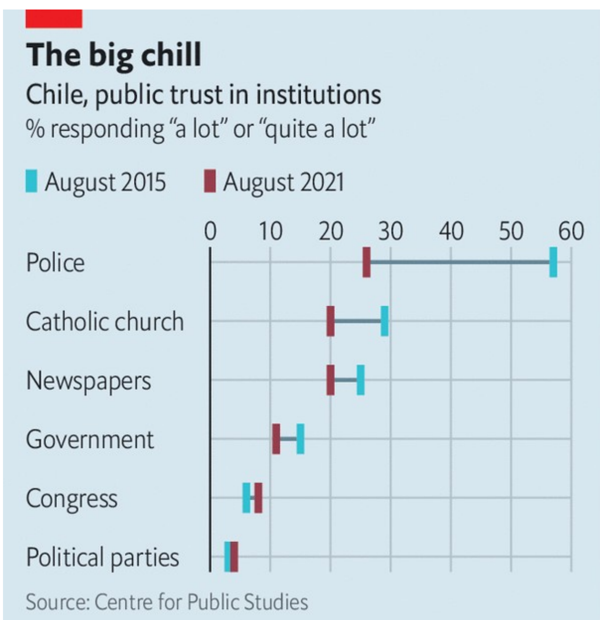
After the protests in 2019 the government agreed to create a constitutional convention—the idea being that, by electing a body broadly representative of Chile's citizens in order to rewrite the constitution from the era of the dictator Augusto Pinochet, discontent could be channelled into better responses than populism and anarchy. But two years on, as that democratic experiment gets under way (with just 43% of citizens voting for the 155 members of the convention in May), Chile looks in worse shape than at any point since the return of democracy three decades ago.

For a start, extremist politicians are gaining ground. In November, a general election will take place in which the centre-right president, Sebastián Piñera, cannot stand again because of term limits (separately, he is also dealing with potential impeachment proceedings). The two politicians leading the polls to replace him are Gabriel Boric, a 35-year-old allied with the Communist Party, and José Antonio Kast, a hard-right candidate who once claimed that if Pinochet were alive, "he would vote for me." Mr Kast wants to build "a ditch" on the country's northern border to keep out immigrants who arrive illegally. Mr Boric's team argue that their policies are no more extreme than, say, those of Bernie Sanders, a former presidential candidate in the United States. Even so, they seem beholden to radical leftists.

Another problem is that many of the underlying issues which brought people out onto the streets two years ago have not gone away. In the early 2000s, during a commodities boom, a new middle class emerged but inequality remained severe. According to a study published in 2019 in the *Lancet*, a medical journal, life expectancy at birth for a woman born in the poorest neighbourhood of Santiago is nearly 18 years lower than for a woman born in the richest neighbourhood, a much larger gap than in the other five Latin American cities surveyed, including Mexico City and Buenos Aires. (Although overall life expectancy remains high.)

University tuition fees are high, but the quality of degrees is often shoddy. More than 80% of pensioners receive pensions that are below the minimum wage of 337,000 pesos ($418) a month. There were large protests in 2006, 2011 and 2016 calling for reforms to these areas, but many feel little has changed. Those who can afford to seek private schools and health care. This year Cristóbal Rovira Kaltwasser, a political scientist, published a survey of 137 managers and board members from the country's largest 500 companies. Just under half said their parents were educated in private schools, but 96% said their children were.

Those in power often seem unconcerned by the gulf between the rich and the poor. After raising metro fares at peak hours in October 2019, Juan Andrés Fontaine, the economy minister, said Chileans could "wake up earlier" if they wanted to avoid paying the higher costs. Few Chileans set much store by the political system. Trust in institutions is low (see chart); electoral participation is exceptionally so.



The Economist

The Pinochet-era constitution, adopted in 1980, was designed to give a disproportionate role to the right, argues Claudia Heiss of the University of Chile. Seats were reserved for the army in the Senate (which remained the case until 2005), while unusually high thresholds were put in place to change laws that would give the state a bigger role in the provision of certain services, such as education. Despite the fact that centre-left presidents have mostly been in power, they had to negotiate extensively with the opposition. This made politics seem like “a cartel”, says Steven Levitksy of Harvard University.

Initially, it seemed that writing a new constitution could help bring more legitimacy to a discredited system. Last year the turnout for the referendum over whether or not a new constitution should be written was, at 51%, among the highest since voting became voluntary in 2012 (78% voted yes). Young and poor people’s participation grew the most. Though Chileans’ trust in the convention has recently dipped, it is still far above that in Congress and political parties. Juan Pablo Luna, a political scientist at Chile’s Catholic University, claims that the convention has led to a “revindication of politics” among young people.

But liberals are increasingly alarmed by the direction that the convention, stuffed full of political newbies, is taking. In early October, the assembly finished approving its rules of procedure. One of these imposes penalties for “denial or omission” of human-rights violations committed by the dictatorship and by the state in the context of the 2019 uprising. The vagueness of the rule is worrying, thinks Sergio Verdugo, a constitutional expert. His concern is that the convention’s indifferent approach to freedom of speech could be reflected in the final constitution.

Similarly a group led by the Communist Party is trying to circumvent rules that mean every part of the charter is approved by a two-thirds majority. Indeed, leftists have the most sway in the assembly. “This will be the world’s first woke constitution,” thinks Robert Funk, a political scientist at the University of Chile.

All this will affect the economy, which has been scarred by a long lockdown. Stricter environmental rules—almost certainly included in the new constitution—may hinder copper exports, on which the economy depends. Senators are close to approving a bill to let Chileans make an early withdrawal of 10% of their pension pots. This would be the fourth time such an emergency measure has passed since covid-19 started squeezing family budgets. It is likely to spur annual inflation, which hit a seven-year high of 5.3% last month.

Meanwhile the violence is likely to continue. On October 8th a leftist member of the convention was hounded by an angry mob in Santiago, who hurled stones at her and branded her a "sell-out" for contemplating working with centrist members. Chile's more aspirational politicians have often compared the country to Finland. But the events of recent weeks and years suggest that it actually resembles one of its dysfunctional neighbours.■

Red, white and blue tape

Cuba’s communist regime is trying to control crypto

Digital currencies are a lifeline for ordinary Cubans

Oct 30th 2021

SAILY DE AMARILLO is an entrepreneur in a system that discourages diversity. In Havana she runs a boutique hotel, a café and a co-working space. She also teaches people about social media on Slyk, a website that has taken off in Cuba. Slyk gives her an online presence without having to build a website. Even more important, she can be paid for her work in cryptocurrency.

Parts of Latin America and the Caribbean are experimenting with alternatives to cash. In September Nayib Bukele, the president of El Salvador, introduced a law which makes bitcoin, a cryptocurrency, legal tender. Mr Bukele, who is increasingly authoritarian, pushed through the law despite the fact few Salvadoreans actually want to use crypto. Nicolás Maduro, Venezuela’s autocrat, may have been hoping to catch some of the same headlines when he announced the country’s new “digital bolivar” in August. Digital in name only, the new banknotes lop six zeros off a currency ravaged by years of hyperinflation. Locals, tired of carrying bundles of cash, use mobile payments and debit cards instead.

Cuba is part of this trend—but, as ever with the communist island, with a twist of its own. Interest in crypto had been bubbling for a while, but took off properly late last year, when President Donald Trump imposed sanctions on organisations affiliated with the Cuban armed forces. That included the banks which process much-needed remittances from family members abroad. Almost overnight, firms such as Western Union could no longer operate. This cut off a lifeline in a country in which payment firms such as Visa, Mastercard, Paypal and Stripe were already off-limits.

Accustomed to finding creative workarounds in desperate situations, Cubans abroad began offering to sell cryptocurrency, such as bitcoin, to people on the island with mobile phones and the technological know-how. The buyers would then deliver the purchase price in pesos to the seller's family or friends.

Initially many of these transactions happened informally over social-messaging apps. As crypto became more common, people turned to specialist platforms, such as BitRemesas, founded in September 2020 by Erich García, a Cuban YouTube influencer who makes videos about the internet. BitRemesas matches crypto sellers outside the country with buyers on the island through auctions.

Now the Cuban government wants to muscle in. At the end of August, the central bank announced that it would recognise and regulate the use of crypto. As is so often true in Cuba, details of the new rules remain cryptic. But the government's desire to clamp down on a new technology comes at a worrying time. In July countrywide protests were met with police repression and house arrests. Activists had hoped to stage a peaceful march on November 15th, but the government has refused them permission to do so. Rather than deal with their discontent, it claims that they are agents for the United States.

Many of those who protested in July were calling for reforms to an unfair financial system that requires Cubans who are lucky enough to have dollars to exchange them at a lousy rate for other currencies, or for pre-paid cards to buy food and basic goods in state-run shops. Crypto might offer a lifeline to some. But it will take more than the world’s most decentralised currency to change one of the world’s most centrally-planned economies.■

Bello

Argentina's government has fixed the price of 1,432 products

But Peronism's penchant for controls is holding the country back

Oct 30th 2021

THE DEFINITION of insanity, Albert Einstein is alleged to have said, is to do the same thing over and over again and expect a different result. Argentina's Peronist government seems to find this simple rule as baffling as others find the general theory of relativity. On October 19th Roberto Feletti, the new secretary for internal trade, issued a decree fixing until January the prices of 1,432 products, ranging from cheese spread to shaving cream. Its 881-page appendix sets out to the last fraction of a peso the maximum price for each product in each of the country's 24 provinces. The reason? Prices rose by an unexpectedly high 3.5% in September, or 53% over 12 months. And the October figure is due to be published just three days before a crucial mid-term legislative election.

In September the ruling coalition was shocked to lose primaries that serve as a dry run for the election. The lesson drawn by Cristina Fernández de Kirchner, the powerful vice-president who held the top job from 2007 to

2015, was that the government had intervened too little in the economy. Mr Feletti's controls will allow the ruling coalition to blame price rises on grasping businesses.

"There's no economic logic, it's all communicational and political," says Federico Sturzenegger, a former president of the central bank. It is the government itself that is the reason why Argentina has the highest inflation of any of the world's bigger economies (barring Venezuela, whose government is even more addicted to controls). It had already capped utility tariffs and interest rates after it came into office in December 2019. But its failure to reach an agreement with the IMF denies it international sources of credit. So it is financing this year's fiscal deficit of around 4% of GDP mainly by printing money. "That money chases other goods," driving inflation up, points out Mr Sturzenegger.

The country has been here before. Peronism's penchant for protectionism, subsidies and holding down the exchange rate means that Argentina suffers chronic fiscal deficits and shortages of hard currency. In late 2013, as the commodity boom waned and dollars ran short again, Ms Fernández's government tightened its prior controls on prices, foreign exchange and capital movements. Recession and higher inflation duly followed, and the Peronists lost the presidential election in 2015 to Mauricio Macri of the centre-right.

So why repeat a failed recipe? The Kirchneristas' reading is that they only lost narrowly in 2015. They represent interests that benefit from protection (established industrialists), or are assuaged by subsidies (the poor). Controls assure a kind of stability, preventing hyperinflation.

This artificial stability comes at a cost: the economy has seen almost no growth since 2008. Wages have risen by less than inflation in eight of the past ten years. Argentines were getting steadily poorer even before the pandemic. Those who can afford to send their money abroad; in the recent Pandora papers leak Argentina ranks third in terms of the number of beneficiaries of offshore companies, behind Russia and Britain.

Can the government keep control until the next presidential election in 2023? As inflation has edged up, the price of the dollar in the (tolerated) black market has widened to double the official rate. Alberto Fernández, the proxy president installed by Ms Fernández, has been diminished by his mishandling of the pandemic (he lost credibility after breaking his own draconian lockdown to host a birthday party for his partner). Losing next month's election would be a further blow.

Luis Secco, an economist, notes that past hyper-inflationary episodes came when the government was weak after losing a mid-term election. But there may still be scope for muddling through, especially if the government reaches an agreement with the IMF. Even if it doesn't, and it finances fully next year's expected deficit of 4% of GDP by printing money, inflation need not go much higher than this year.

The big question is whether Argentines have tired at last of the Kirchneristas' failed policies. Mr Macri lifted controls, spurring short-term growth, but he was too slow to reform the state, prompting a run on the peso and a belated slashing of the deficit. "The people can't take more austerity," Máximo Kirchner, the vice-president's politician son, said this month. His policies offer slower but inexorable impoverishment without any hope of growth. Argentines may come to realise that.

Middle East & Africa

The men with guns strike back

Sudan’s democratic transition is upended by a second coup in two years

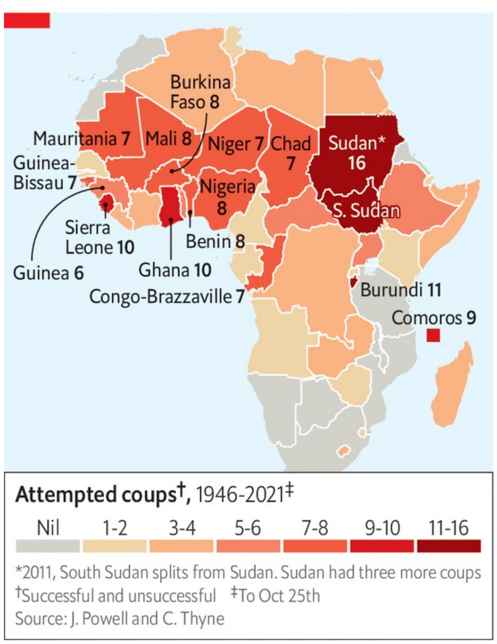
The generals acted just months before they were due to hand power to civilians

Oct 25th 2021 | Addis Ababa

THE SCRIPT was all too familiar. First, Sudan awoke to find that Abdalla Hamdok, the prime minister appointed by protest leaders two years ago, had been arrested by the army. Then the internet was switched off. Bridges into the capital, Khartoum, were closed, as was its airport. “What is happening now in Sudan is a military coup,” said Nasredeen Abdulbari, the justice minister. Soon protesters were on the streets, burning tyres and chanting slogans, such as “retreat is impossible.”

The scenes recall the heady days of Sudan’s revolution in 2019, when peaceful mass protests toppled Omar al-Bashir, a ruthless Islamist despot who had ruled Sudan for three decades. Then alas, the army seized power in a coup. To quiet further mass protests, the generals made a power-sharing pact with the protest leaders. Lieutenant-General Abdel-Fattah al-Burhan became Sudan’s de facto president and chairman of the sovereign council, a military and civilian body charged with overseeing Mr Hamdok’s mostly civilian cabinet. Mr Burhan was originally supposed to hand over to a civilian this year ahead of elections that were due to take place in 2022. Instead he has mounted a second coup, which may spell the end of yet another brief Sudanese attempt at democracy.

History has repeated itself often since independence in 1956. Previous democratic revolutions in 1964 and 1985 were also snuffed out by military takeovers. For months it had been obvious that divisions within the interim government were likely to spill over into violence or lay the ground for a coup. In an [interview with *The Economist*]() in July, the vice-chairman of the sovereign council, Muhammad Hamdan Dagalo (known as Hemedti), warned of a takeover by people tied to the old regime. This was almost certainly disingenuous. It was always more likely that Mr Dagalo would join forces with Mr Burhan to oust the civilians. Mr Dagalo does not have much form as a democrat. He is a desert warlord who heads a notorious paramilitary unit called the Rapid Support Forces (RSF), which grew out of the Janjaweed, an Arab militia responsible for genocide in the country’s Darfur region.



The Economist

The opening salvo was fired last month, when the army said it had foiled a coup attempted by Islamists loyal to Mr Bashir. Many suspect that it was in fact a ploy by the generals themselves to tighten their grip on the government. Mr Dagalo blamed civilian leaders, for their bickering and mismanagement of public services. On October 11th Mr Burhan called for the cabinet to be dissolved and warned against efforts to exclude the army from the transition. Days later protesters were bused in by the army to stage a rally calling for a military takeover. Many Sudanese suspect this was to make the coming coup seem popular.

Mr Burhan and Mr Dagalo have been preparing in other ways, too. An agreement signed last year with rebels from Darfur and southern Sudan brought more men with guns into the power-sharing government, apparently as their allies. The two have also been amassing economic power. Firms that once belonged to Mr Bashir's family have been swept up by the armed forces. Profits from military-owned companies, which were once channelled to the ruling party, now flow directly to the army's own coffers. Mr Dagalo's RSF has been expanding its business interests, too. Few doubted that Mr Hamdok's efforts to rein them in, and to launch investigations into the army's role in massacres under the previous regime, could spell trouble.

The timing of the coup has nonetheless raised eyebrows. In the week leading up to it, thousands demonstrated in Khartoum against the armed forces in the largest protest since 2019. The coup came less than two days after the visit of Jeffrey Feltman, America's special envoy to the Horn of Africa, during which he urged the generals not to stage one. Since Mr Bashir's downfall, the generals as well as civilian politicians have been anxious to repair ties with the West after decades of sanctions. Speaking to *The Economist* in July Mr Burhan crowed that Sudan's "international isolation…is now over". His government has mended ties with Israel and persuaded America to remove Sudan from its list of state sponsors of terrorism. Yet much of that progress may be undone by this coup.

America, Sudan's biggest bilateral donor, has already halted some $700m in aid. The World Bank, which in March said Sudan could access up to $2bn in grants, has also paused disbursements. Diplomatically the regime looks isolated, too. The African Union (AU) has suspended Sudan and the Arab League has called for a restoration of the transitional government.

That the generals were so brazen as to risk antagonising Sudan's biggest donor suggests they were confident of having the staunch backing of allies such as Saudi Arabia, the United Arab Emirates and Egypt. "Without regional cover Burhan would not do this," says Magdi el-Gizouli of the Rift Valley Institute, a think-tank based in London and Nairobi.

In grabbing power Mr Burhan has made an already combustible region even more so. The AU has its hands full with war-torn Ethiopia next door, where 400,000 people face famine. A border dispute between Ethiopia and Sudan has been aggravated by the internal tensions of both countries. Both sides have moved troops to the area and skirmishes have broken out. It may not take much to spark a full-blown war.

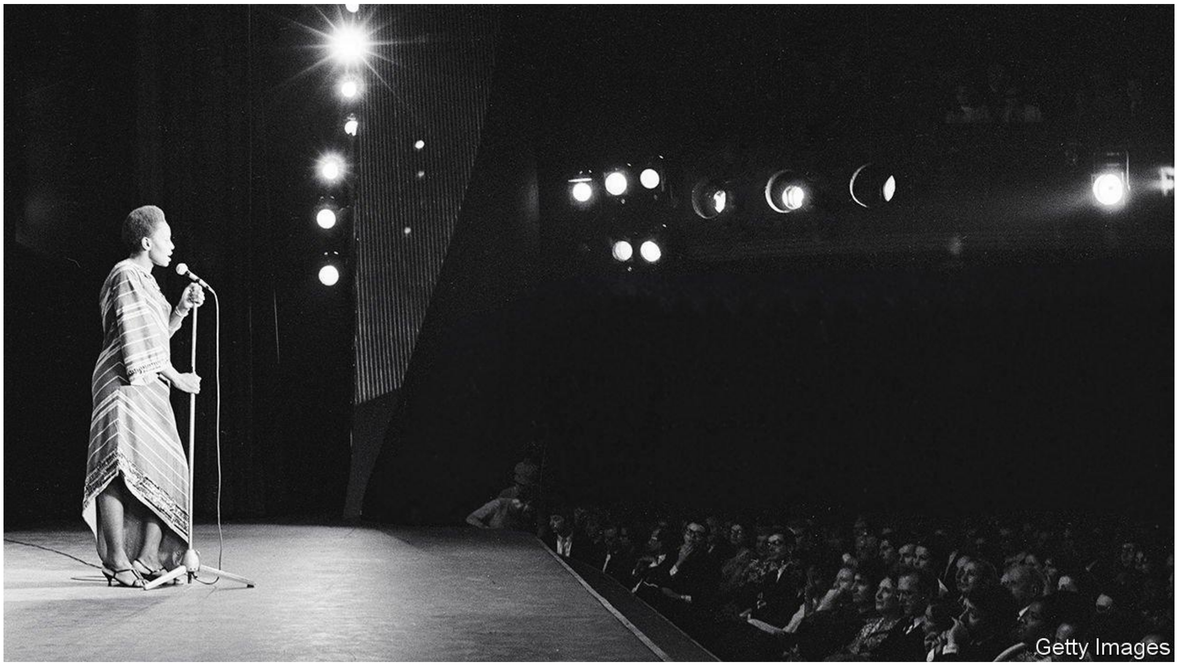
Meanwhile much of Sudan itself is ready to ignite. Some 430,000 people have been uprooted this year by various internal conflicts, such as fighting between farmers and cattle herders. In Khartoum itself, protests against the coup have already been met with force, with at least seven people killed and more than 140 injured. Then there is the risk that Sudan's potpourri of militias and security forces might turn their guns on one another. Mr Burhan and Mr Dagalo may be working together on this coup, as they did on the previous one, but there is little love, or trust, between them. The Sudanese spring, until recently a source of hope in a troubled region, is turning into a winter. ■

Free clicks

A language-teaching app tests tongues with Zulu and Xhosa

Learning clicking sounds is tough, especially online

Oct 28th 2021



IN 1991 AMERICAN audiences had an introduction to Xhosa, one of South Africa's most click-filled languages, when Miriam Makeba (pictured) appeared on "The Cosby Show". When the celebrated South African singer started flicking her tongue as she said her name, four-year-old Olivia asked, "Oh I'm sorry, do you have a cold?"

In most parts of the world the clicks of Zulu and Xhosa, the languages spoken most commonly at home in South Africa, sound completely foreign. Duolingo, the world's biggest language-learning platform, is hoping to make them more familiar. Next year it will offer lessons in both to its 40m active users.

This poses new challenges. For the first time its course designers will have to figure out how to teach clicks in an app. There are three types: c (a 'tsk tsk' sound), x (the sound you'd make to get a horse to speed up) and q (a bit like the sound of a champagne cork popping). Recording native speakers and using audio lessons will be much like teaching sounds in any other language, says Myra Awodey of Duolingo. But it will also have to explain how one should thrash one's tongue about to make the lateral (not to be confused with the alveolar or dental) click that so confounds people trying to say nothing more than "Xhosa".

The firm says the courses will have a large potential audience, but migrants and refugees living in South Africa are a group that could particularly benefit. Elsewhere Duolingo has stumbled upon some unexpected uses of its app, such as a large number of people learning Swedish in Sweden. The reason, it found, was that migrants were trying to integrate into their new country. In South Africa there are more than 2.9m of them, including 500,000-1.5m from Zimbabwe.

Learning Zulu or Xhosa can help migrants blend in. Those coming to South Africa from elsewhere in Africa often face abuse if they stand out by not speaking an indigenous language. There is even a derogatory term for black migrants who speak their own languages, *Makwerekwere*, which supposedly mimics the "kwere kwere" sounds they make that grate on the ears of locals.

Speaking one of these languages has other perks, too. The two have many similarities, so that people who speak Zulu, say, can easily understand and talk with someone who speaks Xhosa or any of the other tongues in the same family, which includes Swati (spoken in Eswatini) and Ndebele (which is common in parts of Zimbabwe). Those who pick up Zulu or Xhosa can thus chatter with at least 40% of South Africans.

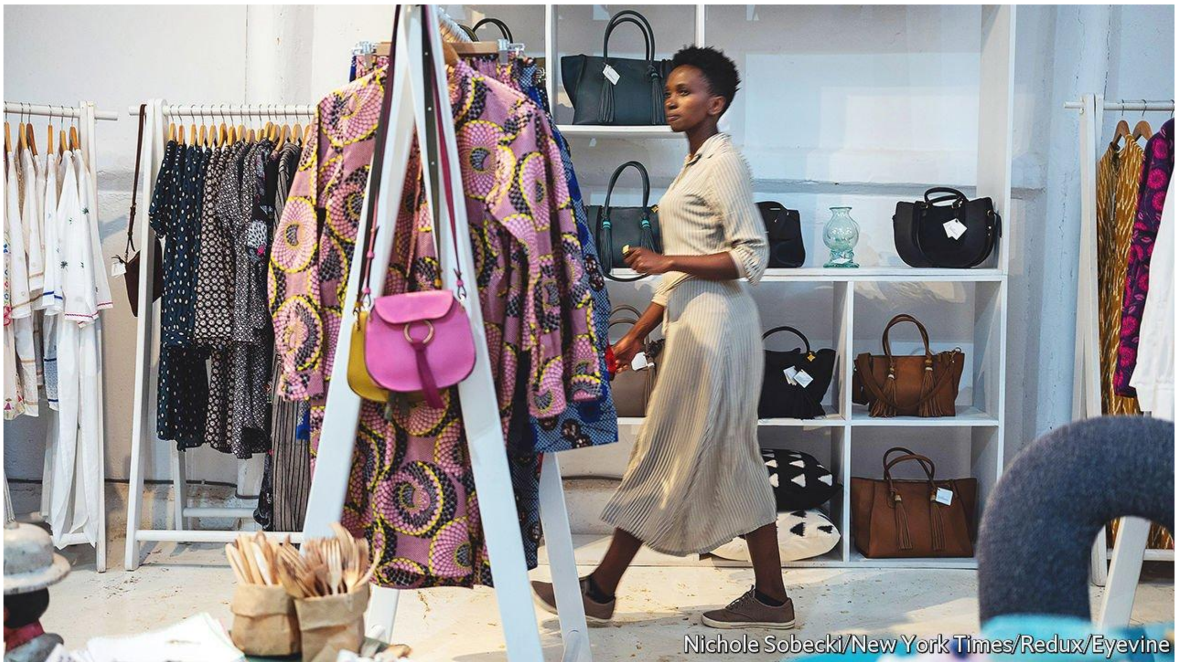
Ms Awodey says Duolingo has "a role to play in preserving and teaching endangered languages". It may be a stretch to call Zulu or Xhosa endangered. But local non-profits and Trevor Noah, South Africa's funniest export, have teamed up with the firm to bring them to its platform. The polyglottic Mr Noah has a particular interest in one. His Xhosa-speaking mother raised him using English, a fine language, but one that is exceedingly difficult to get a click out of.

Expatonomics

How UN staff are reshaping African cities

Expensive lunch menus, high-end car washes and imported nibbles are some of the signs

Oct 30th 2021 | NAIROBI AND DAKAR



Nichole Sobecki/New York Times/Redux/Eyevine

A SPECIAL ECONOMY emerges around any big UN office in the developing world. Other international bodies cluster around it. Expatriates move into the safe, pleasant neighbourhood where it is located. Local suppliers vie for contracts to sell fresh produce, stationery and other staples to all these organisations. Unskilled workers get jobs as cleaners, gardeners and security guards. And small businesses, such as posh cafés and dry cleaners, thrive serving the expats and well-paid local staff.

The reason there is so much economic activity around UN hubs is simple: the UN has a lot of staff with a lot of money to spend. The UN Secretariat has a $3.2bn budget this year, with additional pots for peacekeeping and other agencies. A fair bit of that goes into salaries. So-called "professional staff", who move around the globe, earn a base salary ranging from $46,000 a year for a fledgling policy wonk to $205,000 for an undersecretary-general (usually the head of a UN body such as the World Food Programme).

That would be more than enough to live on comfortably in any African capital. But there are additional allowances for expats with a family in tow. And jobs in cities like Nairobi and Addis Ababa come with extra pay because they count as "hardship" postings. (This is debatable. Street crime may be common in Nairobi, but the weather, bars, sports clubs and barbecued beef are extremely pleasant.)

An influx of well-paid workers provides an economic boost for any city. When the UN was established in 1945, American cities competed to host its headquarters. Since then places such as Copenhagen and Geneva have wooed UN agencies with shiny new buildings and tax incentives. Calculations from the mayor's office in New York City, which hosts the UN's headquarters, suggest that it adds almost $3.7bn to the city's annual output. The UN, its agencies and affiliates are together its 22nd-biggest employer, with 10,900 staff.

The benefits of hosting the UN are much greater in places that are not already brimming with Wall Street bankers, fashion glitterati and other big spenders. Member states have chosen Nairobi, Dakar and Addis Ababa as hubs in Africa. There are only a handful of cities on the continent that are safe and well-connected enough to host legions of foreign workers and their families. But it is crucial, says Stéphane Dujarric, the spokesperson for the secretary-general, to have teams on the ground. "If you're working on development policy, doing it from New York or doing it from Nairobi and Dakar gives you a different perspective," he says.

The economic impact is apparent in Gigiri, a leafy corner of Nairobi where the organisation's African headquarters are based. Street signs hint at how important the 5,000 UN staff who work there are to the local economy: United Nations Crescent leads to United Nations Avenue. The neighbourhood is filled with fancy restaurants, cafés and hotels that are unaffordable to most Kenyans. At Village Auto Bazaar, a car wash and service centre, Joshua Muhanji reckons that about 70% of his business comes from UN workers.

Yet there are costs to being a UN hub, too. New York spends about $54m on things like security for staff and public schools for their children. It forgoes almost $100m in tax thanks to exemptions for UN buildings and its diplomats. “The city makes quite an investment in hosting the UN, but it’s worth it,” says Penny Abeywardena, New York City's commissioner for international affairs.

There are other downsides in emerging markets. Cities can become dependent on UN spending. Businesses in Gigiri struggled during covid 19-lockdowns, as offices emptied out and expat staff fled. In Dakar, there are plans to relocate various UN offices from the seaside district of Les Almadies to a new city 30km outside the capital. That worries businesses in Les Almadies, from high-end coffee shops to informal car washes and the American Food Store.

A large UN presence can also distort the local job market. The organisation’s Flemming Principle dictates that the pay of local hires, who are employed on different terms and paid in the national currency, should be “among the best in the locality, without being the absolute best”. The UN conducts regular surveys on what private companies, governments and non-profit organisations pay in any given location. And it uses that information to set its alphabet-soup salary scales. In Nairobi, for example, a driver might make the equivalent of $9,000-14,000 a year, while a more skilled assistant could make $32,000-50,000. That is far less than expat staff. But in a country with an annual GDP per person of just $1,800, it is a princely sum. Joe Muturi, the head of Slum Dwellers International, a network of NGOs,puts it bluntly: “everyone wants to work for the UN.”

Martyn Davies, the managing director for emerging markets and Africa at Deloitte, a consulting firm, says that big international organisations reinforce a two-tier economy. UN employees mix in fancy bars and restaurants that most locals can’t afford, and price middle-class families out of pleasant neighbourhoods. “It’s monetary apartheid,” says Mr Davies.

That sort of inequality could spark resentment, but many locals are pragmatic. At Alkimia, a restaurant in Les Almadies serving $88 steaks and $45 seafood platters, Dimitri Vasnier, the chef, sees the irony in anti-poverty and environmental advisers arriving in four-wheel drives and leaving untouched plates piled high at buffets. But UN staff in the area are an important clientele for the restaurant. “There is so much waste,” he says. “But that is what gets the economy ticking.” ■

Diplomacy by other means

Israel again rattles its sabre at Iran

A military response is readied as hope for a nuclear deal fades

Oct 26th 2021 | OVDA AND WASHINGTON, DC

TWO BY TWO they roared into the sky over the Israeli desert—American F-16s, British Typhoons, French Rafales and more—to confront an unseen enemy called "Dragonland". The foes of war games are fictitious; Israeli officers were at pains to say the exercise was "generic".Yet Dragonland's force, with its drones and air-defence missiles, seemed a lot like Iran's. Such exercises "are needed to face Iran", noted one general.

The "Blue Flag" exercises at the Ovda air base in the Negev desert are a form of military diplomacy, and a signal that Israel, the host, has friends. Israel is becoming the hinge of two emerging military groupings: an eastern Mediterranean one to fend off Turkey, and a Middle Eastern one to deter Iran. The number of Blue Flag participants has grown—seven countries, including India, exercised with Israel this year. The United Arab Emirates' air-force chief watched as an honoured guest.

Whether any of these friends would help Israel in a war with Iran is unclear. But the proposition may be tested sooner than some expect. Sabre-rattling is growing louder as Iran's nuclear programme gathers pace and American diplomacy falters. America has warned that it would look at "other options" and this month it tested a new bunker-buster bomb. The Israeli air force has begun rehearsing attack plans; the government is allocating more money to the armed forces to confront Iran. In Manama, Bahrain's capital, on October 1st the Israeli and Bahraini foreign ministers posed for pictures in front of an American warship. Iran, for its part, has staged air-defence exercises and warned Israel of a "shocking response" to any attack.

Israel has entered what some call the "dilemma zone"—weighing up the danger of Iran going nuclear against the prospects for diplomacy, the complexity of mounting a military operation, Iran's likely retaliation, and the response of America and regional partners. Israel will not say what its "red lines" are, but Western diplomats think it may take a decision to act by the end of the year.

Israel has been here before, notably in 2009-12, when it threatened to bomb Iran but stayed its hand. Now, though, Iran is even closer to having the wherewithal to make atom bombs. That is in part because in 2018 Donald Trump abandoned a nuclear deal, known as the Joint Comprehensive Plan of Action (JCPOA), that limited Iran's nuclear programme and opened it up to enhanced inspections in return for the partial lifting of international sanctions. Iran says it wants nuclear technology only for civilian purposes, yet its uranium enrichment has advanced to the point that its "breakout time"—the time it would need to make a bomb's-worth of fissile material—has shrunk from a year to about a month. (Making a warhead to fit on a missile might take another 18-24 months.)

Iran seems uninterested in America's call for a return to "mutual compliance" with the JCPOA. The UN's International Atomic Energy Agency says its monitoring of Iran's activities is no longer "intact" because the regime is refusing to let it replace damaged cameras.

The Economist

Israel has twice bombed its enemies' nuclear facilities—striking an Iraqi nuclear reactor in 1981 and a Syrian one in 2007. But these were single air raids. Taking out Iran's nuclear facilities would be far more difficult because they are dispersed and some are buried underground (see map). Iran has also acquired Russian-made S-300 air-defence missiles. An attack plan is "not something you can prepare in just a month", says an Israeli general.

Israel's operational challenges range from identifying the location of Iranian facilities to their level of fortification and anti-aircraft defences. Israel would be operating some 1,500km (932 miles) away from its bases, requiring air-to-air refuelling for many aircraft over potentially hostile territory. Some analysts believe it is all beyond Israel's capabilities. Israeli military planners claim otherwise, saying they can do enough damage to set back Iran's nuclear programme by some years.

Israel's task would be easier if its new Gulf allies were willing to help by, say, allowing overflights or providing bases. But the more they get involved, the likelier they are to become targets of retaliation. Iran has threatened to close the Strait of Hormuz, through which much of the Gulf's oil passes, if attacked. Iran's conventional military capacity may be limited, but it has built up a force of ballistic and other missiles, and resorted to asymmetric tactics, such as sabotaging ships near its waters.

It also sponsors proxy militias—in Iraq, Syria, Yemen and Lebanon—that give it military reach across the region. Hizbullah in Lebanon has thousands of rockets that can be rained down on Israel's cities, as well as guided missiles and drones that can strike accurately. Israel, military officials note, has just a handful of power stations and desalination plants, and a single international airport. Hitting these would cause "strategic damage". Many Gulf states are even more vulnerable.

Much will depend on President Joe Biden, who says he will not allow Iran to go nuclear on his watch. Military action by America would be more powerful than an Israeli raid, not least because it has larger bunker-busting weapons. Even if it just gives Israel the green light to act alone, America might not be able to stay out of the fighting. If Iran responds by widening the conflict, as many expect, America would be called upon to keep the sea lanes open, defend allies and even protect itself. Its forces in Iraq and Syria are exposed to attack. Having withdrawn from Afghanistan, saying he wanted to end the "forever wars" in the Muslim world, Mr Biden will be loth to get sucked into another one.

Israel's best hope is that its threat of action, combined with Western diplomatic and economic pressure, will persuade Iran to agree to a diplomatic deal. "Iran can be deterred," insists one Israeli official, "It does not want to be North Korea." The danger is that the mullahs conclude that only nukes will keep their regime safe. ■

Bibi’s long bye-bye

Netanyahu’s shadow starts to recede in Israel

An unlikely coalition is surpassing expectations. But a crucial vote looms

Oct 30th 2021 | JERUSALEM

THE PARALLEL-UNIVERSE politics that played out in Jerusalem this month were unusual, even for a holy city full of surprises. In the real Jerusalem on October 10th, Naftali Bennett, Israel’s prime minister (pictured), was glad-handing Germany’s outgoing chancellor, Angela Merkel, by welcoming her to a special session of his cabinet. In the otherworldly Jerusalem, Mr Bennett’s predecessor, Binyamin Netanyahu, was holding court with Jared Kushner and Ivanka Trump, the son-in-law and daughter of America’s ex-president, Donald Trump, and Mike Pompeo, his last secretary of state. It was as if the video had been wound back to 2020, before voters evicted them all from power.

In office Mr Netanyahu and Mr Trump embraced each other. Out of power, they still cast shadows over the politics of their countries. Mr Trump rails against the supposedly “stolen” American election of 2020. Mr Netanyahu accepts the result of the Israeli vote this year, but regards Mr Bennett as illegitimate. The faithful still address Mr Netanyahu as “prime minister”.

His Likud party remains the largest in parliament, whereas Mr Bennett presides over a crazy-quilt coalition of eight parties, stretching from left to right and including an Arab Islamist faction, Ra'am. But, for all its oddness, the coalition has proven more solid than many expected when it took power in June, and has changed the tone of Israeli politics. "I tell Americans it's like post-Trump. It's decompression," says Merav Michaeli, the Labour Party leader and transport minister. "The craziness has gone. That in itself makes a huge difference. People are breathing again."

If Mr Netanyahu casts himself as the proto-Trump, then the new coalition may offer an antidote to his polarising populism. That it represents a wide spectrum of Israeli society may offer a new model of consensus politics.

But first it must survive. The coalition will soon face its sternest test, over the budget. Israel has not had one in three years. With a two-seat majority, the government is vulnerable to the whims of any of its members. If the budget is not adopted by November 14th an election will be called. So far there has been surprisingly little brinkmanship, though. It helps that Mr Bennett has money to distribute: the economy is growing and ultra-Orthodox parties are not in the coalition to demand big subsidies for religious institutions.

With a budget in hand, the coalition will be hard to unseat before the next budget deadline in 2023. Removing it would require 61 votes for a new prime minister or an election, but Mr Netanyahu can muster only 53. The balance is held by Arab parties that are unlikely to side with him. Under the coalition deal, Mr Bennett is supposed to make way in two years' time for Yair Lapid, leader of the centre-left Yesh Atid party and the architect of the government.

Mr Bennett has turned from right-wing gadfly to centrist problem-solver. He has gambled, seemingly successfully, on booster jabs to avoid another lockdown to contain the pandemic. On October 27th the government adopted a law to break the monopoly of the ultra-Orthodox rabbinate on issuing kosher certificates. Above all, it is seeking to improve the lot of Arab citizens after communal violence in May. It has passed legislation allowing thousands of illegally built homes (mainly of Bedouin families) to be connected to the electricity grid. The budget allocates more money for Arab neighbourhoods. Abroad, the government is working to patch up relations with European countries and America's Democratic Party that were frayed under Mr Netanyahu. It has opened embassies in the United Arab Emirates and Bahrain.

Nevertheless, Mr Netanyahu remains the country's most capable politician. He has dominated public life for much of the past quarter-century, not only as the country's longest-serving prime minister but also as a formidable opposition leader.

Mr Bennett's coalition survives through an act of amnesia: its parties set aside the most divisive issue, the question of Palestinians living under occupation. This has proven easier done than said. Years of bloodshed and disenchantment have created a consensus. The left concedes that there is little support for the creation of a Palestinian state; the right acknowledges that annexing the whole West Bank is beyond reach. So Palestinians are left in a patchwork of autonomous zones.

This pact might break. Another Gaza war could compel Ra'am to withdraw. The Biden administration's attempt to re-open an American consulate in Jerusalem to serve Palestinians may prompt the defection of right-wingers. Military conflict with Iran, which Israel is threatening, is fraught with risks.

On the day he was ousted in June, Mr Netanyahu confidently promised that "we will be back soon." But lately he seemed to concede that the government could last its full term, telling loyalists that Likud could be back in power "in two weeks or another three and a half years".

Can Mr Netanyahu wait that long? At the age of 72, being leader of the opposition holds little attraction. Well-paid speeches and directorships beckon. But as a member of the Knesset (Israel's parliament) he is forbidden from making money other than his parliamentary salary. He faces the hefty legal cost of defending himself from several charges of fraud and bribery, which he denies. Yet giving up his seat would remove his aura as a prime-minister-in-waiting, which may affect the dynamics of his trial. Already challengers are emerging within Likud.

By staying on, Mr Netanyahu provides the glue that holds the government together. “We’re not happy with a lot of the policies,” says one coalition member. “But as long as Netanyahu is on the scene, we’ll stick together. No one wants to be blamed for allowing him back.” ■

Europe

Autumn of the patriarch

As the lira tanks, so does the stock of Turkey's president

But it is too soon to write off Recep Tayyip Erdogan

Oct 28th 2021 | ISTANBUL

A GOOD DUST-UP with one Western ally or another is something that Turkey's president, Recep Tayyip Erdogan, always relishes. On October 23rd he took on ten of them at the same time, announcing that he had ordered the American, French, German, Dutch, Canadian, Swedish, Norwegian, Danish, Finnish, and New Zealand ambassadors to be declared personae non gratae, a prelude to having them kicked out of the country. Their offence was to have signed a letter urging Turkey to release Osman Kavala, a philanthropist locked up on farcical terror and coup charges. It took another couple of days, the exhortations of Turkish officials, who warned him of the dire potential consequences to the country's economy, and a carefully crafted statement by the American embassy, in which the mission said it did not meddle in Turkey's domestic affairs, before Mr Erdogan backed down. The envoys were allowed to remain in Ankara.

After nearly provoking, then averting, the biggest diplomatic crisis Turkey has seen in decades, Mr Erdogan proclaimed victory. The envoys "took a step back from the slander against our country", he said. "They will be more careful now."

The episode, and the gloating that followed, showed how badly Mr Erdogan needs something to celebrate. Turkey's leader is having one of the worst slumps of his long career. An alliance of the two main opposition parties, the secular Republican People's Party (CHP) and the nationalist Iyi ("Good") party is polling ahead of Mr Erdogan's governing coalition, composed of his own Justice and Development (AK) party and the Nationalist Movement Party. Were parliamentary elections to take place tomorrow (they are not due until 2023, together with the next presidential election), the ruling coalition would lose its majority. Mr Erdogan, meanwhile, trails behind each of the four most likely contenders for the presidency, in some cases by double digits in putative run-offs. The whispers are starting to grow louder: could the Erdogan era be drawing to a close?

The Economist

The economy, hobbled by high prices and a plummeting currency, is the main reason. The lira has lost over 20% of its dollar value since the start of the year, more than any other major currency. The latest rout came on October 21st, when the central bank slashed the main interest rate by two full percentage points. Days earlier, Mr Erdogan had sacked three members of the bank's monetary-policy committee. The surprise cut, the second in as many months, brought the rate to nearly four points below the rate of inflation, which reached 19.6% in September. Many governments have used negative real interest rates to revive growth, usually after undershooting their inflation targets. Turkey is overshooting its own target (5%) fourfold. Investors have run out of patience.

From Mr Erdogan's vast palace in Ankara, things do not look so bad. The economy grew by a record 21.7% in annual terms in the three months to July, thanks to large base effects and booming exports. But inflation and devaluation are ravaging the wages of ordinary Turks. In dollar terms, GDP per person, which grew steadily until 2013, is back to where it was in 2009. During Mr Erdogan's first decade in power (he first became prime minister in 2003) millions of Turks worked their way into the middle class. Over the past couple of years, according to the World Bank, 3.2m of them sank into poverty.

Mr Erdogan's opponents smell blood, calling (in vain) for early elections, in the knowledge that they would have a genuine chance to unseat him. Kemal Kilicdaroglu, the head of the CHP, recently urged officials to stop following "illegal orders" from Mr Erdogan and warned that those who continued to do so would be held accountable when the opposition took power.

Since 2016, when an abortive coup rocked Turkey, the main opposition has deferred to Mr Erdogan on almost every national-security issue, from the country's purchase of advanced weapons from Russia to its armed offensives in Syria and Libya. That changed on October 26th, when the CHP said it would oppose renewing the government's mandate to deploy troops to Syria and Iraq. Businesspeople have also begun to speak up. Turkey's largest business group, TUSIAD, recently called for a return to central-bank independence and the separation of powers.

Knives out?

There are even signs that officials and ruling-party backbenchers may be preparing for the end of the Erdogan era. Ankara is awash with allegations that a charity linked to one of the president's sons placed hundreds of sympathisers in government jobs. Leaked documents suggest the charity was allocated a number of properties the government seized from the Gulen community, the group involved in the 2016 coup. Meanwhile, Sedat Peker, a fugitive mobster, continues to regale his 2m Twitter followers with stories implicating officials in crimes ranging from corruption to drug trafficking. Analysts believe at least some of the leaks are coming from disaffected AK types or bureaucrats eager to distance themselves from the government.

But it is far too early to write off Mr Erdogan. Turkey's leader continues to tower over the country's politics and to command the loyalty of tens of millions of people, the media and state institutions, including the courts and the police. More troublingly, he and his entourage may be capable of desperate measures to cling on to power. Mr Erdogan's latest showdown with the West will not be his last. Another military offensive in Syria, and another wave of repression at home, may be around the corner as well. Mr Erdogan will surely not go quietly. ■

Wire transfer

The EU is being asked to pay for border fences to keep migrants out

It is reluctant, but may have to comply

Oct 30th 2021

THE EUROPEAN UNION has a firm stance on paying for border walls: it won't. Even after Europe's migration crisis in 2015-16, when 1.4m people arrived, many fleeing Syria's civil war, the European Commission sent Hungary away with a flea in its national ear when it asked for reimbursement for fencing off its border with Serbia, one of the main entry points.

Nothing in the Schengen Borders Code, which governs border management, a shared responsibility between the EU and its member states, stops the commission from paying for fences. But the view in Brussels is that they are costly and ineffective. They can be climbed. They divert rather than deter migrants. And they get in the way of genuine refugees with the right to asylum. The EU sends border guards and pays for higher-tech solutions instead.

But the commission is now being urged to change its mind. This comes as the number of first-time asylum-seekers this spring has almost doubled compared with 2020 (when covid-19 made moving hard). Meanwhile, Belarus is mischievously trying to herd Iraqi asylum-seekers into Lithuania, Latvia and Poland, perhaps in retaliation for EU sanctions on its election-rigging government. And many Europeans expect a lot of Afghans to arrive soon. This month 12 member states wrote to the commission requesting changes in how the EU tackles border security. Among other things, they want Brussels to pay for fences. A physical barrier "serves the interest of [the] whole EU, not just member states of first arrival", it argues. Such things, it says, should be "adequately funded from the EU budget as a matter of priority".

The group, which includes Hungary, Latvia, Austria, Poland and Greece, was led by Lithuania, which wants EU taxpayers to cover 75% of the €152m ($176m) it will spend on a three-metre-high fence on its border with Belarus. The project is scheduled for completion next September. This summer *Politico* reported that both Lithuania and Greece had asked for funding for their own barriers. Greece wanted help to pay for a €60m extension of its fence along its north-eastern border with Turkey. This is a pre-emptive move, in case those Afghans arrive, and a "necessity" for border protection, said a Greek spokesman.

The commission has not formally responded. But last week its president, Ursula von der Leyen, seemingly rebuffed the request at a summit of EU leaders in Brussels. "There will be no funding for barbed wire and walls," she reportedly told the leaders. But some observers think that could change if enough member states continue to push hard.

The commission is already taking a tougher approach to migration. The EU's joint border force, Frontex, is getting more money and people; and the commission has also proposed creating a union-wide deportation co-ordinator, though squabbling over which EU countries should take how many asylum-seekers has held this up. The EU's commissioner for home affairs, Ylva Johansson of Sweden, has praised fencing as a tactic to slow migration. On a recent visit to Lithuania, she called the country's fence a "good idea". EU Commissioners have learned from the migrant crisis of 2015-16 that taking in lots of asylum-seekers comes with a political cost, says Roderick Parkes, of the German Council on Foreign Relations, a Berlin-based think tank. Building a wall doesn't.

European countries have built about 1,000km (600 miles) of border fencing over the past 30 years, the bulk of it since 2015. Today, more than half of all EU states have some physical barrier at an external border. As fencing becomes more normal, it will be harder for the commission to refuse to fund it, Mr Parkes says. Member states will argue that physical barriers are now part of the routine border protection that the EU shares a responsibility to fund. And even if the EU won't pay up, some states have found ways to build fences without springing all the costs on their own taxpayers. Lithuania, for example, won't be paying for its barrier alone. The Czech Republic has already committed to send the country €530,000 to speed up the work. ■

A Balkans arms race

Serbia is on a shopping spree for weapons

And its neighbours don’t like it

Oct 30th 2021 | BELGRADE

“COME WITH me,” says Aleksandar Vucic, Serbia’s president. “Now you are going to see a smile on my face!” From the terrace of Belgrade’s presidency building he points at skyscrapers shooting up and declares triumphantly: “Like a phoenix rising from the ashes!”

Other former Yugoslav states worry that Serbia’s army is also rising from the ashes. During a petty dispute with Kosovo about car number-plates in September, Serbia flew warplanes close to the border and deployed armoured vehicles to cow its smaller neighbour.

Between 2015 and 2021 Serbia’s defence spending jumped by some 70% to $1.4bn a year. Russia and Belarus have given it ten MiG-29 jets. Russia has given it 30 tanks and armoured personnel-carriers and sold it an air-defence system. It has bought Chinese armoured drones, Russian helicopters and a French surface-to-air missile system. This month the defence minister announced that Serbia was negotiating to buy transport planes and helicopters from Airbus. Last month came news that it was talking to Israel about anti-tank missiles. Turkish drones, which were used to devastating effect in last year's defeat of Armenian forces in Nagorno-Karabakh by Azerbaijan, may be on the shopping list. Serbia's own defence industry is also producing new kit, as opposed to just churning out more Yugoslav-era stuff.

After the Yugoslav wars of the 1990s Serbia's military capacity decayed. But in 2014 the government decided to rearm. Russia's intervention in Ukraine showed that the era of conventional warfare in Europe was not over; and floods in Serbia that year were a "wake-up call", says Daniel Sunter of the Balkan Security Network, a think-tank. They revealed that the country had barely any helicopters for search-and-rescue missions. In 2015 Croatia, also restoring its armed forces, asked America to supply it with rockets which, if fired at Serbia, could reach deep inside the country.

A modern state needs a modern army, says Mr Vucic. Serbia spends more in absolute terms than before, but its defence spending as a share of GDP has hovered around 2% since 2005. Compared with Bulgaria, Hungary or Romania, that is "peanuts", says Mr Vucic. But Serbs were not at war with Bulgaria, Hungary or Romania in the 1990s. They were at war with neighbours that now have smaller military budgets. Serbia outspends Albania, Bosnia, Montenegro, Kosovo and North Macedonia combined. It also outspends Croatia, which is buying French jets to restore its almost non-existent air capacity.

If Serbia were merely modernising its armed forces no one would mind. It is the context that sets off alarms. Bosnia is in political turmoil again, and Milorad Dodik, the Bosnian Serb leader, suggested on October 14th that if his part of Bosnia seceded and violence were to follow, Russia would step in to defend it. Serbia's government-controlled tabloids constantly proclaim that war with the Kosovo Albanians or the Croats is imminent. In October, following a clash between Kosovo Serbs and the Kosovo police, Serbia's imaginative tabloids linked the presence of British Gurkha troops to the violence.

At the same time nationalists, including Serbia's minister of the interior, talk about the creation of a "Serbian World", which many in Kosovo, Montenegro and Bosnia fear is code for a Greater Serbia that might swallow them up. Mr Vucic dismisses that as “propaganda”. He says that all the neighbours know that rearmament is “not against them”.

The Economist

Vuk Vuksanovic, a researcher at the Belgrade Centre for Security Policy, says that the real significance of the country’s rearming is political rather than military. Showy arms deals impress Mr Vucic’s supporters, who tend to hold the armed forces in high esteem.

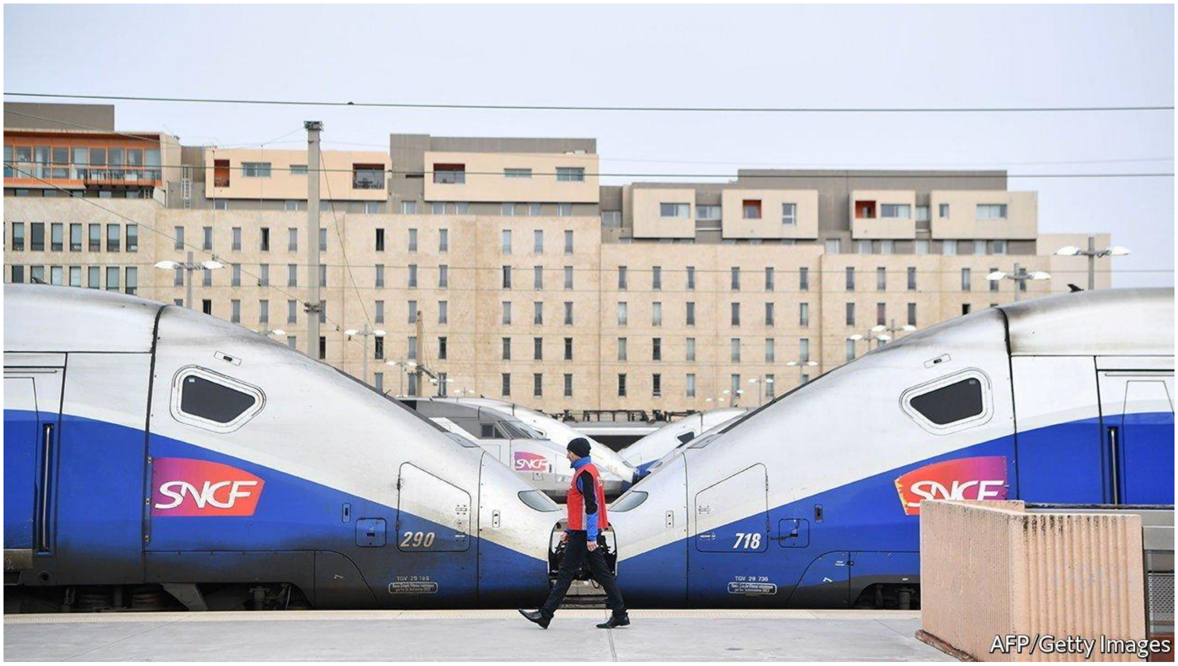
But Serbia is effectively surrounded by NATO (see map). With a big alliance shielding its small neighbours, Serbia is highly unlikely to send its soldiers into action in the forseeable future. Indeed, Serbia has excellent (if discreet) relations with NATO, and America trains Serbian troops. Having a strong army means that big powers treat you with respect, says Mr Vuksanovic. And if, “God forbid”, the regional status quo were to break down, then “if we can inflict damage on our hypothetical opponents, they will perhaps be more accommodating with us at the negotiating table.” ■

PFUE? LOL

The strange French addiction to acronyms

Why make things simple when they can be complicated, then shortened?

Oct 30th 2021 | PARIS



AFP/Getty Images

FRENCH OFFICIALDOM is abuzz with preparations for the PFUE, which the MEAE and SGAE are organising for the PR in 2022. Lost? Spare a thought for the outsider who must daily navigate the French passion for acronyms and initialisms. All countries use them, but France has a particular penchant. The latest (PFUE) refers to the French Presidency of the European Union, which starts in January 2022 (and is in fact the presidency of the European Council). No matter. The abbreviation is already everywhere, and, as the opening sentence says, officials from the foreign ministry and a secretariat in the prime minister's office are preparing this occasion for the president.

The preference of the French for abbreviations is so ingrained that they scarcely notice it. Britain may have its NHS, or America NASA. France has them for every part of life: transport (TGV, RER, SNCF), politics (PS, EELV, LREM, LFI, RN (formerly the FN) and LR), unions (CGT, CFDT), work (SMIC, CDD, CDI, CSE, RTT), the police (BRI, RAID), taxes (CSG, URSSAF, IFI). The principle seems simple: why use a word like budget when an abbreviation like PLF (*projet de loi de finances*) will do?

What is behind this zeal? Some date it to the organisation of the modern state in the late 19th century, when bodies such as unions (CGT) or the political movements that later joined together as the SFIO, the precursor to the Socialist Party (PS), emerged, and with them the complex names that deserved shortening. Perhaps it is also the result of the state's tendency to bureaucratic complication; an acronym can simplify rather than confuse. So the Société Nationale des Chemins de fer Français (the national railway) becomes the less indigestible SNCF.

The fact that practitioners of such an elegant language infect it with such abominations has not gone unnoticed. The Académie Française, which polices such matters, recommends that when it comes to acronyms "moderation is a good thing and abuse dangerous." Curiously, one of the few spheres in which the French leave prolix descriptions alone is food. No CDC for *confit de canard*, nor BDV for *blanquette de veau*.Organisational or bureaucratic life, it seems, is to be tolerated and shortened. Gastronomy can take its time.

Lenin would be baffled

Russia’s once-tame Communist Party is becoming an opposition force

The Kremlin and the party’s own leader are worried

Oct 30th 2021 | MOSCOW

EKATERINA ENGALYCHEVA never got her badge showing Lenin as a child. The week she was supposed to join the *Oktiabriata* (“little Octobrists”, a reference to the revolution of 1917), as all Soviet children did at the age of seven, the Soviet Union fell apart. But 30 years later Ms Engalycheva is a member of the Communist Party and a Moscow city councillor. She campaigns against Vladimir Putin’s crony capitalism; Lenin would no doubt have approved. But he would have been horrified by her other demands: for fair elections and impartial justice. She has been detained and fined for protesting against the jailing of Alexei Navalny, Russia’s opposition leader, and recently had to barricade herself in her office while police waited outside to arrest her.

She is far from the stereotype of a Communist. She is not a red-flag-waving pensioner, and does not care about Stalin. Nor does she feel any attachment to the Soviet-era Communists who “betrayed our country and our people, switched sides and settled in United Russia" (the vehicle through which Mr Putin now controls the Russian parliament). She is not bothered that the Communist Party today is led by Gennady Zyuganov, a Stalin-praising former Soviet ideologue. What matters more to her is that the party is showing signs of becoming a genuine opposition. And this is making the Kremlin, and indeed Mr Zyuganov himself, nervous.

Mr Zyuganov founded his post-Soviet Communist Party in 1993, aiming to benefit from some of the resentment and nostalgia brought on by the Soviet Union's collapse. It was in fact a nationalist and imperialist party, which that year was involved in an unsuccessful armed revolt against Boris Yeltsin's democratic government. In 1996, when Mr Zyuganov challenged Yeltsin in presidential elections, Russian liberals and businessmen, fearful of a Communist revanche, threw all their resources behind the ailing president. "I would rather elect a dead Yeltsin than a live Zyuganov," one TV executive said at the time.

Mr Zyuganov lost, but for the next two decades his presence allowed the Kremlin to frame politics as a binary choice between democracy and Soviet-style communism. Today many Russian democrats, desperate to get Yeltsin's successor out of the Kremlin, find themselves voting for the Communists.

They are well aware of the irony. But, as Yevgenia Albats, a firebrand of Russia's opposition media, says, "this bitch of a government has left us no choice." With nearly all forms of politics banned and Mr Navalny behind bars, the Communist Party has become the main beneficiary of his "smart voting" strategy. He urged Russians to vote for whichever candidate was best placed to beat United Russia's. Had the votes been counted honestly in parliamentary elections in September, the Communists would have got roughly the same number as United Russia. Even after all the rigging it won 19% of the vote, up from 13% in 2016.

This success has discombobulated Mr Zyuganov. Financed and controlled by the Kremlin, he has enrolled his party in Mr Putin's system of "managed democracy", which presents an illusion of choice while reinforcing the Kremlin's control. "Smart voting" has spoiled that game. Not only did it boost the Communist vote, it gave its younger deputies a sense of power.

It is not only protest votes that are buoying the Communist Party. Several young politicians running on the party's ticket are using it as a platform from which to launch their own left-wing agenda. Many of them would fit comfortably into a European-style social democratic party.

Consider Mikhail Lobanov, a 37-year-old maths lecturer at Moscow State University. He ran a Western-style campaign, crowdfunding and canvassing door-to-door, in a relatively affluent part of Moscow. He ditched ideological clichés to focus on urban activism and social welfare. "I believe in the left idea as a way of restraining the excesses of capitalism through equal opportunities and access to universal health care and education," he says. The Kremlin's blatant rigging robbed him of victory, but not of his appeal.

With leftism advancing in much of the rest of the world, it is striking how long it has taken to come into vogue in Russia, particularly given the inequality that Mr Putin's rule has entrenched. An obvious explanation is that it takes time for people to forget the Soviet attempt to enforce equality, the millions who were murdered in its pursuit, and how catastrophically it failed. Now, however, six years of falling incomes have prompted many Russians to reconsider the politics of the left.

The Communists' current shift is largely a reaction to Mr Putin's policies. By annexing Crimea in 2014 he stole the party's previous nationalist agenda, leaving it to make a choice, explains Gregory Yudin, a sociologist. "They could either move further to the right and become extinct, or they could step out of their ghetto and shift to the left."

Valery Rashkin, a Communist MP and head of the party's Moscow branch, decided to experiment. At the September election he backed a number of young candidates such as Evgeny Stupin, a 38-year-old former police investigator who had served in the Urals but quit his badly paid job (along with the obligatory membership of United Russia) and moved to Moscow to look for work. The injustice and corruption that he encountered there led Mr Stupin to the Communists.

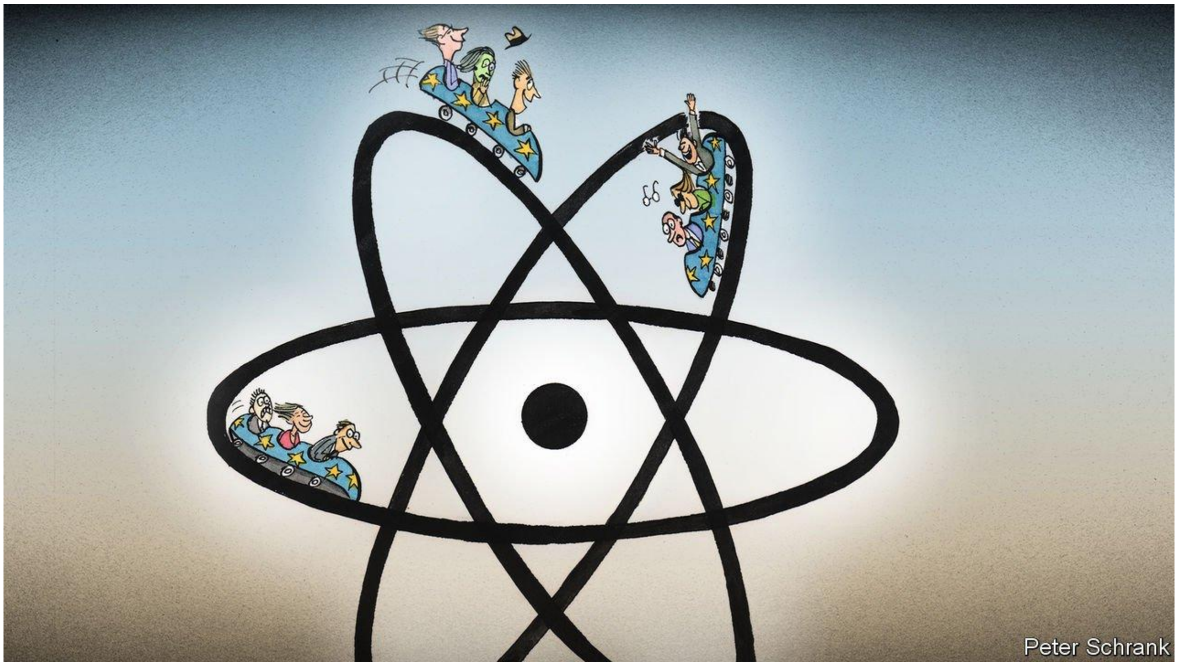
The Kremlin is now directing Soviet-style repression against young Communists, and trying to paint them as Stalinists. Meanwhile, the Communists are standing up for human rights, for example by demanding investigations into reported torture in Russia’s prisons. Mr Putin’s Russia is indeed a looking-glass world. ■

Charlemagne

Nuclear energy united Europe. Now it is dividing the club

France says it is green. Germany says it isn't. France will win

Oct 28th 2021



BEFORE THE euro, Schengen, "Ode to Joy", butter mountains and the Maastricht treaty, there was the atom. "The peaceful atom", wrote Jean Monnet, the cognac salesman turned founding father of the EU, was to be "the spearhead for the unification of Europe". Europe was a nuclear project before it was much else. In 1957 the EU's founding members signed the Treaty of Rome to form the European Economic Community, the club's forebear. At the same time they put their names to a less well-known organisation: Euratom, which would oversee nuclear power on the continent. The idea of the common market was nebulous; the potential of nuclear energy was clear.

Where nuclear power was once a source of unity for Europe, today it is a source of discord. The common market morphed into the EU of today, while Euratom became a backwater. Of the EU's 27 countries, only 13 produce nuclear power. Some ban it. France and Germany, the two countries that dominate EU policymaking, find themselves directly opposed. France generates over 70% of its power from nuclear reactors. Germany has pledged to close all its nuclear power plants by 2022. For France and its atomic allies, nuclear energy has a bright future. For Germany and its sceptic kin, the technology is an unhealthy past.

It is against this backdrop that the EU has to answer a question. Is nuclear power green (since it emits very little carbon dioxide) or not (because nuclear accidents, though extremely rare, are dangerous)? Green industries face a life of subsidies and cheap capital as governments tighten investment rules elsewhere. Their dirty counterparts face a tougher life. How the EU is managing the decision reveals a lot about the club.

Take the politics of it. With the Franco-German engine sputtering on nuclear policy, unlikely alliances have formed. France and the likes of Poland and the Czech Republic are usually sparring partners. French politicians generally see the region as an expensive appendage and a source of labour that undercuts French workers. Countries in eastern Europe see the French as protectionists who suck up to Russia. Yet when it comes to nuclear power the two are firm pals. It is tempting to carve the EU into simple blocs, whether Club Med or the Frugals. The reality of European politics is kaleidoscopic. Nuclear power is no exception.

In this debate, Germany is likely to be on the losing side. It gave up on nuclear power after the Fukushima disaster in 2011, when an earthquake and tsunami caused a meltdown in Japan. Angela Merkel vowed to ban it in barely a decade. Countries from Belgium to Bulgaria followed, scrapping plans to build nuclear power stations and pledging to switch others off. However, opinions have shifted. Germany knows it does not have the votes to stop nuclear power being rated as green. Austria and Luxembourg would probably join it on the barricades, but few others will. For a supposed hegemon, Germany is not especially hegemonic.

At the same time France is increasingly influential. Europe falling back in love with nuclear power is just one example of the many policy debates heading in a French direction. On everything from industrial policy, where the club is now enthusiastically *dirigiste*, to expansive rhetoric on foreign policy, the EU is speaking French. (Although France's quest to get the club to make more use of the French language is failing.) Nuclear power is another debate in which Paris gets its way.

Whatever the topic, the EU is a dealmaking machine, with consensus forged via a mix of bribery, blackmail and back-scratching. Gas power is undergoing the same kinds of debate as nuclear power. While gas generates carbon emissions, it is cleaner than coal, argue its supporters. Some countries are pro-nuclear and anti-gas; others are the reverse. Some oppose both, while some demand both. Ostensibly the topics are separate. In reality, they are wedded in the minds of national governments and MEPs who have final approval. Overlapping interests are played off against each other in a compromise that will, at best, leave almost everyone equally unhappy.

If the politics are linked, so are the policy consequences. Take another neuralgic debate: reform of the EU's spending rules. A likely compromise is that while stiff rules could remain for day-to-day spending, countries could be able to spend more freely in the name of the green transition. If nuclear power is labelled green in the private sector, it becomes harder to avoid a similar designation when it comes to public money. German voters may end up looking across the Rhine and seeing their French neighbours splashing cash on energy they see as dangerous.

Politics permeates every EU institution. On paper the European Commission, which makes the initial decision on how to treat nuclear power, is full of civil servants who offer technocratic answers. In practice, they know the question of nuclear power is political. They also know that life will be easier if they answer it quickly, preferably before a new German government containing a virulently anti-nuclear Green party is formed. Mrs Merkel can leave office with another compromise to her name; the incoming Greens can come to power and blame the previous government for a *fait accompli*. Machiavelli was a civil servant, after all.

Clean energy requires dirty deals

Nuclear policy is a reminder that fates in the EU are bound together, whether the topic is energy, the environment or the economy. As the EU's energy market integrates, those countries that pride themselves on only using the cleanest energy will benefit from those that rely on more debatable sources.

The EU is an increasingly homogenous beast, with fewer carve-outs for those who want to do things differently. Collective decisions have collective outcomes. “To approach our atomic future separately…would have been insane,” wrote Monnet. The EU will approach its atomic future together, whether some countries like it or not. ■

Britain

Farewell to austerity

Rishi Sunak's budget marks a turn to big-state Conservatism

British tax rates will rise to levels last seen in the 1950s

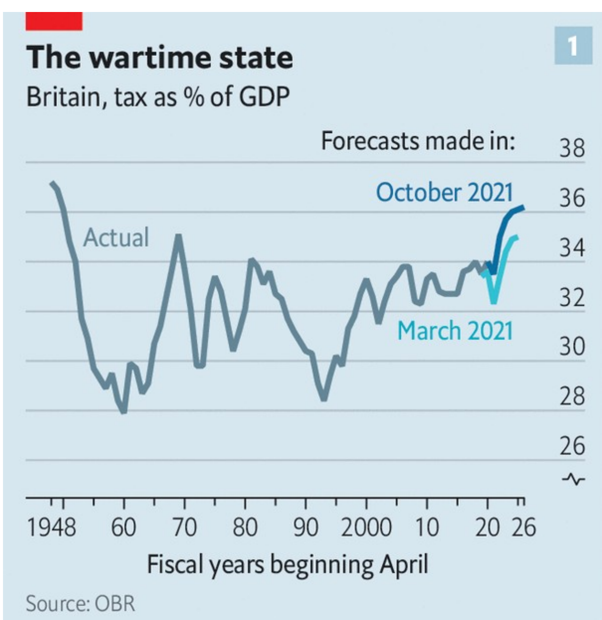
Oct 27th 2021

WHO IS RISHI SUNAK? Listen to the chancellor's recent rhetoric, and you could be forgiven for thinking he was cast in the mould of a predecessor, George Osborne, who slashed the state in response to the global financial crisis. In a speech to the Conservative Party faithful on October 4th Mr Sunak described borrowing as "immoral", and emphasised his eagerness to restore order to the public finances. But the budget he delivered on October 27th confused the picture. Reeling off spending measures, he refused to apologise for raising taxes and lauded the spending they supported. "The Conservatives are the real party of public services," he trilled.

Mr Sunak displayed rare munificence. Government departments will get real increases in their budget of 3% a year on average until 2024-25, an increase reminiscent of largesse last seen consistently in the 2000s. Even more eye-popping are the chancellor's plans for the size of the post-pandemic state. According to forecasts by the Office for Budget Responsibility (OBR), a watchdog, spending will grow from 39.8% of GDP before the pandemic to 41.6% by 2026-27, the highest sustained share since the 1970s. Tax will rise from 33.5% of GDP to 36.2%, a level not seen since the early 1950s. The announcements recalled not Mr Osborne, but a very different predecessor: Labour's Gordon Brown.

The Brownite giveaway was prompted by a surprisingly perky economy. In March the OBR projected GDP growth of 4.1% this year. Now, thanks to rosier employment figures, it predicts 6.5%. In the same period, medium-term damage expected from covid-19 has gone from a gloomy 3% of GDP to a cautious 2%. Part of this is simply the passage of time revealing that investment has performed better than expected. But Mr Sunak is also benefiting from his adroit handling of the pandemic, which limited the hit to corporate balance-sheets.

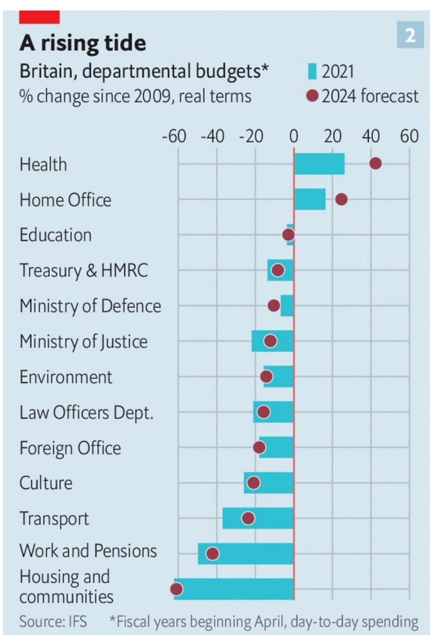
All of this means Britain is borrowing less than expected. People are earning more, which increases the tax take. And Mr Sunak has raised taxes. In September he announced a health and social care levy, which will bring in a net sum of £12bn ($16bn) by 2024-25, and increased dividend tax rates. This year has seen the biggest overall tax rise since 1993—which is not a message the Tories will put on leaflets at the next general election.



The Economist

Mr Sunak did offer some red meat to Conservative members. There was relief for payers of business rates, a cut to corporate-tax rates for banks and the now traditional fuel-duty freeze (as has happened without fail for the past decade). But none of these will cost more than £2bn a year by 2024-25. Mr Sunak also announced new fiscal rules: there will be no borrowing for day-to-day spending in three years' time and debt will fall as a share of GDP. On current plans, he will meet these targets, but he has left less margin for error than his predecessors did with their rules, which all went unmet.

By the next election, Mr Sunak plans to be using most of the windfall delivered by better economic growth to lower borrowing (or, perhaps, as a slush fund for tax cuts). But now, he is spending—and in particular to ease the pressure on public services brought about by the pandemic. The health department will see the biggest increase, because hospitals must deal with both covid and an enormous backlog, but most will have at least some sort of rise. This will begin to reverse the cuts applied by Mr Osborne (see chart).



The Economist

Given how much of the budget was trailed before, some wondered whether anything would be left for the main event. But the chancellor managed a few surprises. Half the planned increase in departmental spending in 2024-25 will restore foreign aid to 0.7% of GDP, a target abandoned during the pandemic. A welcome simplification to the mess of alcohol taxation was seized on by Mr Sunak, a Brexiteer, as a benefit of leaving the EU (it would not have been possible as part of the bloc). Firms running retail, hospitality and leisure properties will enjoy a temporary cut to business rates, to help their post-pandemic recovery.

The most impressive rabbit Mr Sunak pulled out of his hat was an increase in the generosity of Universal Credit, a benefit for working-age people. He faced criticism in September for allowing a pandemic-related uplift to expire, which cost recipients £1,000 a year. Rather than reverse the cut, Mr Sunak reduced the rate at which the benefit is withdrawn as people earn more. The Resolution Foundation, a think-tank, was quick to point out that together with higher minimum-wage rates, the change would still leave the poorest fifth of households £280 a year worse off.But it does at least cushion the blow.

Critics complain that the outlook for households' disposable income is still pretty dismal. Mr Sunak's cursory treatment of climate change smacked of complacency—and the trove of documents released alongside his speech revealed little that would fulfil Britain's bold climate-change ambitions. Given the number of global leaders about to descend on Glasgow to discuss the matter, it was slightly odd to announce a cut on short-haul flights taxes (and not to raise fuel duty).

Before the budget, there was lots of noise about the growing distance between Mr Sunak and the prime minister, Boris Johnson. There were even rumours that Mr Johnson would move the chancellor to a different, less prominent job, so perturbed was he by his rival's star power. But the fiscal event revealed them to be aligned, at least as far as governing the country is concerned. Both are happy to spend big if circumstances call for it. Neither is a small-state ideologue. ■

Britain’s budget

Ministers roll out the red carpet for entrepreneurs and their investors

Lobbyists have been given everything on their wish-list

Oct 30th 2021

A CHANCELLOR EXTOLLING the virtues of innovation and entrepreneurship is about as surprising as a defence minister praising the army. Entrepreneurs can thus be forgiven for taking budget-day dispatches with a pinch of salt. But Rishi Sunak’s address on October 27th matched the warm words with action.

A panoply of programmes will funnel taxpayer money to the private sector. The government-backed British Business Bank will receive £1.6bn ($2.2bn) to allocate to its regional funds, which provide debt and equity capital for fledgling businesses. The Global Britain Investment Fund—which invests in life sciences, offshore wind and car manufacturing—gets a £1.4bn boost. A further £150m goes to a fund that aims to rebalance geographical inequalities in access to early-stage equity capital.

All of this is dwarfed by a pledge to raise government spending on research and development (R&D) to £20bn a year by the end of the parliamentary term, in 2024. After adjusting for inflation, that represents an increase of around a quarter from current levels. It is sorely needed. Britain's gross R&D expenditure was 1.8% in 2019, compared with an average of 2.5% in the OECD, a club of mostly rich countries. Most of the difference is due to lacklustre R&D spending from Britain's private sector compared with its international peers. But the Treasury hopes that more public funds will spur greater private investment as well.

Accompanying the extra money was an early warning of an attempt to muscle firms into spending more of it at home. Of the £47.5bn of R&D for which companies claimed tax relief in 2019, only £25.9bn was carried out in Britain. Noting that countries like America and Australia do not offer similar rebates for R&D performed overseas, the government promised to "refocus the reliefs towards innovation in the UK."

As well as handing out cash, the chancellor set about reassuring startup founders and their investors that long-held gripes would be dealt with. One of these is a cap on the fees workplace pension schemes can pay to investment managers. Designed to protect retirement savings from outsized investment charges, it also limits pension schemes' ability to invest in things like infrastructure and early-stage companies, due to the performance fees charged by venture capital funds. Treasury officials will now consult on loosening the cap.

Another is access to foreign talent, which is set to be liberalised next spring. A new visa programme will allow those with a job offer from a fast-growing British firm to migrate with few strings attached. A second will make graduates of top universities eligible for visas, even if they do not have a job offer. It is time for startup lobbyists to come up with a new wish-list.

Industry

What’s behind the Great British Battery Bonanza?

Explaining the rush of gigafactories

Oct 30th 2021

FROM 2030, the government says, every one of the 2.3m new cars sold in Britain each year must be electric. All will need batteries, the most complex component in electric vehicles and the fulcrum around which their emerging supply chains turn. In November last year the government set aside £2.8bn ($3.9bn) to support the transition, and to help ensure that those supply chains run through Britain.

The result is a flowering of new battery factories which have emerged to meet the demand—and to take advantage of the subsidies. One, in Northumberland, under development by a two-year-old startup called Britishvolt, is courting the government for hundreds of millions of pounds. Another, in Sunderland, is being developed by a little-known Chinese battery company called Envision, which is expanding the plant that now supplies Nissan, a Japanese carmaker. Coventry City Council wants a factory of its own, and has filed for planning permission to build one. The local authority has yet to decide which company should operate it.

The stakes are high. This is thanks, in part, to the terms under which Britain left the EU. The rules-of-origin requirements in the withdrawal agreement mean that 40% of the components of cars exported to the EU must be of British or European origin. By 2027 this rises to 55%. Because the battery is such a large proportion of an electric vehicle's cost, if Britain cannot build battery-manufacturing capacity, the resultant lack of access to the European market will mean it loses car manufacturers, which would be costly. The manufacturing of internal-combustion vehicles currently supports around 180,000 jobs.

The new battery facilities, and any that come after them, face several challenges. Electric vehicles, by their nature, contain a higher proportion of electronic components than their fuel-burning counterparts. The manufacturing of these components, and particularly batteries, which alone make up some 30% of the value of an electric vehicle, is dominated by Chinese firms. This means that the government is subsidising the operation of factories not only with much higher labour costs, but also with a technological handicap.

An alternative is to attract Chinese firms to British shores. So far Envision is the only one with such plans. Contemporary Amperex Technology, by a long way the biggest and most important of the Chinese operators, has no public plans for a British plant, but does have plans for them in Indonesia and Germany. BYD, a Shenzhen-based maker of electric vehicles and batteries, may be an option. Whereas attracting Chinese manufacturers to British soil probably offers the best value for money, it comes with political baggage. Chinese investment in Britain is unpopular.

In favour of Britain's aspirations is the fact that batteries are heavy, bulky and flammable—and thus relatively expensive to ship. Willy Shih of Harvard Business School says this means batteries will not follow exactly the same path as solar panels and flat-screen displays, two high-tech items whose production is dominated by China. Instead it will make more sense to produce them close to their markets.

How well this works out depends on the route that the industry ends up taking. Tu Le, an automotive analyst in Beijing, explains that there are broadly two possible paths. One is that Chinese firms set up manufacturing hubs around the world, like Envision's in Sunderland, but keep their intellectual property, research and development in China, rather as Apple does with smartphone manufacturing and design. The other is a more traditional model whereby car manufacturers drive innovation in batteries and electric-vehicle power electronics, and the Chinese battery companies become mere suppliers.

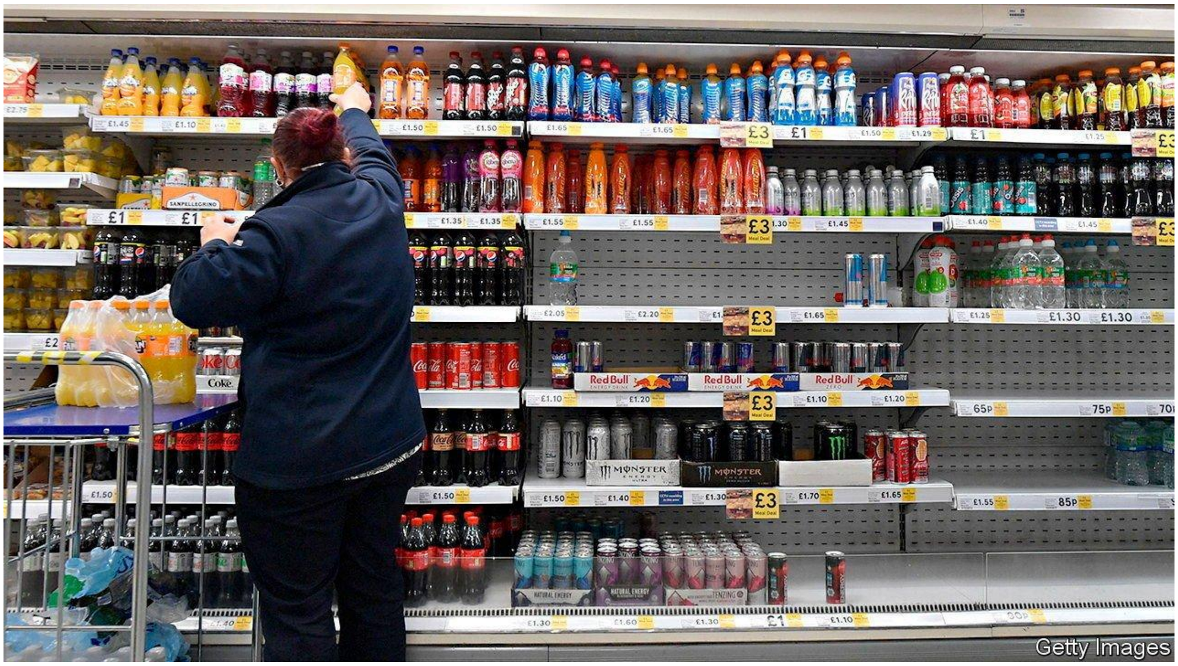
If the traditional model prevails, then Britain's battery investments may well pan out. But if the future is one in which Chinese manufacturers control the advancing technology which underpins electric vehicles, then Britain's battery factories will end up expensive, behind the technological curve and a waste of money.■

Pay up

Britain’s minimum wage is catching up with pre-pandemic ambitions

Another bold increase after a pause during the covid-19 pandemic

Oct 30th 2021



ONE OF THE pre-budget leaks—designed to ensure positive press in advance of the big event—was that the minimum wage would rise from £8.91 ($12.23) to £9.50. This will lift the pre-tax pay of a full-time worker by £1,000 a year from next April, in keeping with the government’s promise to deliver a high-wage economy. Yet if the politics of the move were obvious, the economics were less so.

The Low Pay Commission (LPC), a group of economists, employer representatives and trade unionists, has advised the government on the minimum wage since 1997. In recent years the government has given it increasingly ambitious goals. The latest, which it received in 2020, was to work out how to put an end to low pay altogether, defined as earning below two-thirds of the median hourly wage.

Previous changes have yielded results. The share of people on low pay fell sharply from around 23% in the 2000s and early 2010s, to just 15% in 2019. But it is uncertain whether further climbs will be as easy. Across the OECD, a club mostly of rich countries, only Chile, Colombia, Costa Rica and Turkey have minimum wages with a sharper bite.

Worries about the new target paled into insignificance when the covid-19 pandemic struck. The quality of the data available to the LPC plummeted, and the furlough scheme muddled average earnings figures by replacing 80% of people's pay. A year ago the commission's best guess suggested that staying on track to meet the target would have implied raising the minimum wage to £9.06. Given the extent of the uncertainty, they instead advised the government to apply an "emergency brake" and to raise it to just £8.91.

The impact the minimum wage had on the labour market during the pandemic is still unclear (when asked, businesses told the LPC they had no idea). A glance at the data suggests the commission was maybe too pessimistic about employers' capacity to absorb higher wages, as its latest estimates show the number and share of workers paid the minimum wage have fallen slightly. But that same observation may also suggest they were correct to be cautious, since it could be that the lowest-paid workers were more likely to lose their jobs.

The LPC's latest estimate is that achieving the government's goal means the minimum wage will need to reach £10.70 in 2024. A number of factors support the case for a meaty rise now. Inflation is higher than usual; earnings growth is strong, particularly in sectors where pay is lowest; unemployment is relatively low in places with lots of minimum-wage workers; and businesses do not seem to be planning waves of redundancies.

Next year's rise is almost—but not quite—on course to hit the target. The slightly cautious increase the LPC and chancellor ultimately plumped for reflects concerns about other business pressures looming in April, including a rise in National Insurance contributions and the end of tenants' protection from eviction. Despite long-standing fears, higher minimum wages have yet to noticeably increase unemployment. But no one wants to reach the point at which they do. ■

Dig deeper

All our stories relating to the pandemic can be found on our coronavirus hub. You can also find trackers showing the global roll-out of vaccines, excess deaths by country and the virus's spread across Europe.

African art

A bronze chicken looted in 1897 is flying back to Nigeria

Where one goes, many others will follow

Oct 30th 2021

IN FEBRUARY 1897 British soldiers raced from the Nigerian coast to Benin City, machine-gunning as they went. Their “punitive expedition” aimed to avenge the killing of several Britons a month earlier and to destroy the Edo kingdom. By the time the soldiers entered the city it was lifeless, all the residents having fled or been killed. But the troops were not disappointed. They discovered thousands of sculptures, which they removed before burning the city.

The bronzes came to be seen as a high point of African art. Given away or sold by officers, they were collected by artists such as André Derain and Pablo Picasso and by European and American museums. One bronze cock ended up in Jesus College, Cambridge—which, on October 27th, handed it to officials from Nigeria. It was the first time a British institution had freely handed a bronze over.

George William Neville, a businessman from Lagos, gave the cock to Jesus College in 1905. Neville was not part of the military expedition but made his own way to the city and grabbed what he could. He was given a guard of 20 soldiers for the return journey. "I would advise you to push on as quickly as possible," a lieutenant-colonel told him, "for the fact of so many ancient heirlooms leaving the city may attract attention and possibly lead to molestations."

For decades the cock stood unmolested on a plinth in the college hall. But in 2016 two students (one now a correspondent at *The Economist*) called for the sculpture to be returned. Three years later Jesus College agreed. Universities can move more quickly than national museums, which are bound by laws and scrutinised by politicians. They also mind how young people see them. When Oxford's Oriel College asked school pupils whether a statue of Cecil Rhodes, a famous colonialist, would discourage them from applying, two-thirds said yes.

As *The Economist* went to press a delegation was travelling to Aberdeen University to receive a second bronze. New York's Metropolitan Museum of Art has agreed to return two more. Next year German museums will start handing theirs back. At that point the British Museum, which holds the world's largest collection of Benin bronzes, will begin to look uncomfortably exposed.

Taking on the taxman

An attempt to stop Britain sharing expats' data with Uncle Sam

Can "Jenny" succeed where data-protection watchdogs have failed?

Oct 27th 2021

UNLIKE CITIZENS of almost every other country, Americans abroad do not escape the long arm of their country's tax laws. The United States operates a "worldwide" tax system, meaning Americans have to file returns even if they have lived and paid tax abroad for decades. This has led many expats and "accidental Americans"—most notably New York-born Boris Johnson—to give up their citizenship.

One disgruntled American is taking more extreme measures: suing in London to stop her data from being transferred. On October 27th lawyers for "Jenny", who has lived, worked and paid tax in Britain since she arrived two decades ago, filed a claim in the High Court. The pseudonymous plaintiff is seeking to stop her financial information being sent by HMRC, Britain's tax authority, to its American counterpart, the Internal Revenue Service (IRS).

HMRC is required to send the information under an agreement signed with America after the country passed a strict tax-compliance law in 2010. This law forces foreign financial institutions to cough up data on American clients, either directly or via their domestic tax agency, or face penalties. The intention is noble: to curb tax evasion through offshore banks. But is the compliance mechanism legal?

Jenny argues it breaches the principles of the General Data Protection Regulation (GDPR), an EU law, of which Britain retains a version post-Brexit, and also violates the European Convention on Human Rights. Filippo Noseda of Mishcon de Reya, her law firm, describes the case as “symptomatic of the steady erosion of individuals’ data-privacy rights by overbearing states”.

Britain is one of dozens of countries that have signed bilateral agreements to share tax data with America. Many worry that these deals, and other multilateral ones they have spawned, are heavy-handed. The European Parliament has hit out at both data transfers and America’s lack of reciprocity. Another worry is the security of shared data. A hack in 2015 compromised over 700,000 accounts at the IRS. The agency has increased spending on bits and bytes, but its systems remain creaky.

Despite unease among national watchdogs about data transfers, particularly in Europe, none has pushed back hard. Britain’s data-protection body, the Information Commissioner’s Office, even refused a request to consider their compatibility with the GDPR. Some suspect this is because of a reluctance to take on geopolitically sensitive issues.

Whether Jenny can single-handedly stem the flow of data across the pond remains to be seen. She will, though, have been encouraged by the European Court of Justice’s rulings in 2015 and 2020, in cases brought by a privacy activist, that the GDPR mechanisms for sending personal data from the EU to America are illegal. These involved transfers by Facebook, not a government, but may still have a bearing.

HMRC, which declined to comment, is likely to argue that the data transfer is an important tool in the fight against tax-dodging, and thus proportionate.

Should the High Court disagree, Jenny may trump Britain’s prime minister as the country’s bolshiest American tax rebel. ■

Bagehot

The greening of Boris Johnson

The prime minister is gung-ho about climate change—perhaps too much so for his new voters

Oct 30th 2021

WHEN DECIDING which side to support in the Brexit referendum Boris Johnson famously wrote two columns—one for and the other against—and chose the argument he found most convincing. Over the years he has adopted a similar endorse-both-sides approach to greenery. As a student politician and as mayor of London, he branded himself a "green Tory"; as a fire-breathing *Daily Telegraph* columnist, he denounced the green blob. In January 2013, for instance, he wrote a column speculating that the world was entering "a mini ice-age", quoting no less an authority than the former Labour leader Jeremy Corbyn's brother, Piers, an eccentric weather forecaster and anti-vaxxer, and pointing to the evidence that it was snowing outside. "If the climate can change", he now says in self-justification, "I don't see why my mind can't."

Since the general election in 2019 Mr Johnson has firmly come down on the green side. In a speech to the United Nations in September he urged global leaders to “grow up” and “recognise the scale of the problems we face”.In a statement to the Middle East Green Summit in Saudi Arabia this week he urged the world to go “further and faster” to limit global warming. The government has already made some solid green pledges—promising to cut carbon emissions by 78% by 2035, to ban the sale of new petrol- and diesel-powered cars by 2030 and to phase out gas boilers by 2035—and will no doubt make more at the COP26 meeting in Glasgow.

Mr Johnson’s conversion to greenery not only brings a jolt of energy to a lethargic international process. It also brings some ideological diversity. The debate about greenery has been in danger of becoming part of a proxy war between the right and the left, with environmental activists calling for the end of the capitalist system and populists such as Donald Trump dismissing environmentalism as crypto-communism. Mr Johnson likes to point out conservative heroes such as Edmund Burke embraced greenery long before socialism was invented. Arriving by tunnel for a book launch of a volume of Charles Moore’s biography of Margaret Thatcher, because Downing Street was blocked off by Extinction Rebellion protesters, Mr Johnson told the audience that the “crusties” outside would do well to read the biography because the first true green revolutionary was “not Greta Thunberg but Baroness Thatcher”. Mr Johnson may possess a unique ability to build a bridge between conservative climate sceptics such as Brazil’s Jair Bolsonaro and Australia’s Scott Morrison and establishment environmentalists such as America’s Joe Biden.

Why did Mr Johnson go green? And will his conversion stick when the going gets tough? It is tempting to ascribe the shift to his wife, Carrie Johnson, whose arrival on the scene certainly fits the timing. Mrs Johnson, a former director of communications for the Conservative Party, devotes much of her time to campaigning for green causes, particularly marine life and animal rights. In her first public statement after moving into Downing Street she said that politicians have a “gigantic responsibility to make the right decisions” over climate. But Mr Johnson is also much influenced by both his father, Stanley, and his friend, Zac Goldsmith.

The older Mr Johnson has been campaigning for environmental causes since he was at Oxford 60 years ago. He held green jobs at the World Bank, the Ford Foundation and the European Commission. He also wrote a succession of books on green issues; focusing, at first, on the danger of overpopulation. Lord Goldsmith is at the heart of the green aristocracy. His father, James, combined environmentalism with hatred of the EU; his uncle, Teddy, founded the *Ecologist* magazine and helped inspire the Green Party; his close friends include a menagerie of eco-toffs, such as the socialite and club-owner, Robin Birley, an animal lover who was disfigured by a tiger as a child. Lord Goldsmith has spent his life at the heart of the green movement —as editor of the *Ecologist*, a supporter of rewilding, the owner of an organic farm and, after David Cameron brought him into the Tory orbit, as the party's most influential green. Mrs Johnson has worked closely with Lord Goldsmith for years, starting as his parliamentary aide in 2010. Indeed, the first couple recently spent a week relaxing at Lord Goldsmith's 1,400-acre estate in Spain.

Trusting Mr Johnson is a fool's game. But it is hard to see him resurrecting his ancestral (Piers) Corbynism. Shrugging off speeches to the UN is more difficult than disavowing articles for the *Daily Telegraph*. Moreover, Mr Johnson's government has made concrete promises which it will be hard to forget. The pertinent question is whether he can take the rest of his party with him. Mr Johnson's greenery is laced with cake-ism: confronted with the problem that people might have to travel less to reduce carbon-dioxide emissions, the prime minister speculates that the problem will be solved by the invention of carbon-neutral aeroplanes.

Come rain or shine?

Keeping his promises will require annoying Tory voters. Liz Truss, the foreign secretary, distinguishes between Waitrose Tories and Lidl Tories: that is middle-class Tories who have money to buy fair-trade stuff and just-about-managing Tories who struggle to make ends meet. When it comes to greenery, Mr Johnson has surrounded himself not so much with Waitrose Tories but with Petersham Nursery Tories: that is people who frequent the eco-branded garden-centre-cum-delicatessen chain where afternoon tea can set you back £55 ($75) and a flower vase another £920.

Petersham Nursery Tories think nothing of spending £100,000 on a Tesla and £15,000 on a heat pump,not to mention more on every mouthful of organic cruelty-free food. But the Lidl Tories who voted for Mr Johnson because they thought he was on their side against meddling bureaucrats and their expensive regulations will have a different view. If anything can break the seemingly adamantine link between Mr Johnson and his Tory faithful, it is the long-term cost of his green conversion. ■

For more coverage of climate change, register for The Climate Issue, our fortnightly newsletter, or visit our climate-change hub

International

- Vaccine passports: Hard pass

Hard pass

Why vaccine passports are causing chaos

The problem is with humans, not technology

Oct 26th 2021 | new delhi

MANY COUNTRIES did not require passports before the first world war. But as the conflict spread, states scrambled to introduce travel documents to help secure their borders. The result, after the armistice, was a bewildering smorgasbord of different information for different nationalities that could create chaos rather than clarity at border crossings. But returning to a world where people could travel freely across borders was by then unimaginable.

In 1920 the League of Nations stepped in. It designed a 32-page booklet with the country's name on the cover and such basic personal information as place and date of birth. Some governments grumbled—France thought the booklet too expensive to print compared with its single sheet—and it took a few years for them to adapt. But today all passports follow the same format. Whether at Heathrow in Britain or Moshoeshoe I International in Lesotho, officials can glance at a passport and be fairly certain of its bearer's travel privileges.

During the covid-19 pandemic, a similar process is under way. States have rushed to create vaccine passports to stop the virus at the border—or at the doors to the restaurant or gym. Often people must prove that they have been vaccinated, recently tested negative or had covid and recovered.

This time governments are not alone. Tech has thrown open the doors to firms like IBM and Microsoft, industry associations like the International Air Transport Association and non-governmental organisations like the World Economic Forum. Three undergraduates at the University of Applied Sciences Upper Austria spent last summer pulling all-nighters to build a pass that works across the European Union. They can't afford much marketing, but the app, the GreenPass, has been downloaded 100,000 times.

As during the Great War, urgency has trumped co-ordination. India, which has administered over a billion jabs, has a "CoWIN" certificate with a QR code, identifying information and, confusingly, a photograph not of the bearer but of the prime minister, Narendra Modi. People in England can choose between a QR code on the National Health Service (NHS) app or website or a letter of certification from their doctor. In America, where President Joe Biden has vowed not to create a national vaccination database, many different state and private health passes are in use.

The trouble is that these passes are not interoperable. Most look the same: a QR code on a smartphone or piece of paper. Yet even scanning the codes can be a problem. Different verifier apps read different passes. Once scanned, the codes serve up widely varying information, depending on the national or local health systems or attitudes about privacy. Some vaccine passports, like the CommonPass used in parts of America, share raw data on vaccination status. Others, like the one issued by the NHS, yield only a symbol, a tick or a cross. And the rules of the game are not fixed. During a surge of infections this month, Israel yanked its "green pass" from 2m people who had not yet received booster jabs.

The administrative, commercial and even psychological burdens are obvious at airports. Traveller numbers have dropped between 85% and 90%, yet reaching the gate has become a more demanding obstacle course than ever. Queues lengthen as anxious travellers fumble for slips of paper and QR codes. Officials struggle to keep track of which vaccines state regulators have approved and how long which test results are valid for which destinations. As Corneel Koster, chief customer and operating officer at Virgin Atlantic, an airline, puts it: “It’s kind of a jungle out there.”

It is past time for standardisation. Yet designing a digital health pass is trickier than designing a travel document. Passports may reveal age, but vaccine passes are gateways to personal health information, potentially a great deal of it. That scares people. Even among countries with relatively high vaccination rates, support for vaccine passports varies, from 52% in Hungary to 84% in Britain (see chart). In India people are used to sharing their fingerprints and iris scans as part of the Aadhaar biometric ID system. Yet many, like Debjani Mazumder, a publishing executive in Delhi, worry about pharmaceutical companies and insurers getting hold of their health records. “I feel like a guinea pig,” Ms Mazumder says.

In theory, digital technology should make it easy to verify vaccination status. Yet because verifying apps cannot recognise all QR codes, many verifiers take what Edgar Whitley at the London School of Economics calls a “flash-and-go” approach, simply eyeballing them. A black market is thriving. Oded Vanunu at Check Point Software Technologies, a cyber-security company, has posed as a buyer and sourced fake French vaccine certificates for €75 ($87), Russian ones for 9,500 roubles ($134) and Singaporean alternatives for €250 on the dark web and Telegram, a messaging app. These sham passes look the part but would fall short if properly scanned.

When airline agents, employers and bar staff scan QR codes, they check for two things: confirmation that the bearer has been vaccinated or tested for covid and a digital signature proving the information comes from a trusted issuer. Uniformity across digital health passes would require broad agreement on exactly what health information to include, and how to label and package it. That ought to be relatively easy. In August, the World Health Organisation (WHO) published guidance recommending the minimum data for a certificate. The name and date of birth of the bearer plus the brand and batch number of a jab are considered necessary. Identifying who administered a jab—information some passes include—is not.

What is trickier is creating a unified system for checking the digital signatures of health authorities. Creating a repository of all trusted signatures is an expensive and politically fraught task. Countries with a national health service, like Britain, have just one issuer. But in America, there are around 300, including state governments, hospitals and pharmacies.

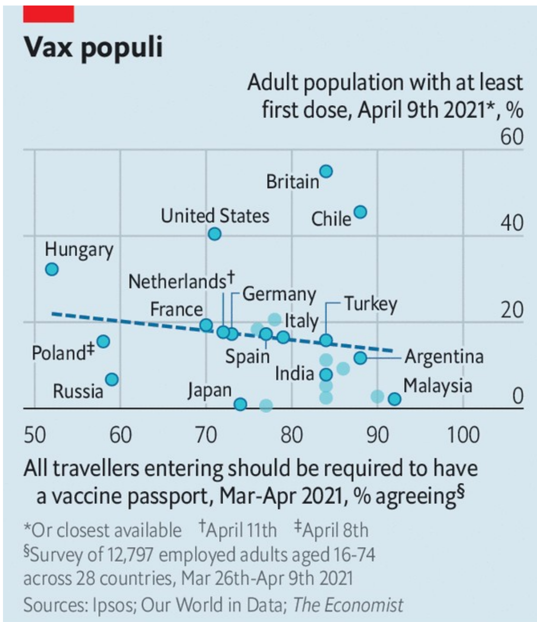
Without a trusted way to verify certificates across borders, even the most advanced technology falters. George Connolly is chief executive of OneLedger, a firm that designed OnePass, a blockchain-based vaccine passport. He says it has access to data from only around 20 jurisdictions. So he gets contractors to check passes from elsewhere by phoning and e-mailing health authorities. Dakota Gruener, head of ID2020, a public-private partnership focused on digital IDs, rolls her eyes. "Do you need blockchain? No," she says. "Is blockchain a distraction? Yes."

Luddites have reason to feel smug. As Albert Fox Cahn of the Surveillance Technology Oversight Project, an advocacy group, puts it: "There is so much money being spent on building this really shiny new metal fence around our society when the wooden gate was working just fine." Bits of paper signed by clinicians, like the WHO's "yellow card", have sufficed as immunisation records for decades. These are more globally inclusive, given that many people in poor countries do not have smartphones. Judging by black-market prices, paper passes are not much easier to forge. Fake versions of paper vaccine certificates issued by America's Centres for Disease Control and Prevention go for $150 apiece on Telegram, more than some digital alternatives.

Over the borderline

The biggest impediment to sensible vaccine passports is not technology but geopolitics. It would take a universally trusted organisation with sophistication in health, technology and diplomacy to get countries to agree on global standards. This might seem an obvious role for the WHO. But, embroiled in the rivalry between America and China, the organisation has been blasted from all sides for its handling of the pandemic. On digital passes, the WHO has got itself in a muddle. Even as it has published lengthy documents describing what vaccine passports should look like, it has insisted that proof of vaccination should not be required for international travel when vaccine distribution is so skewed to rich nations.

Crucially, the WHO has declined to involve itself in validation and verification. Maintaining a register of trusted signatories would require a large staff. It would also require politically charged choices, like whether to recognise signatures from Palestine or Afghanistan, and which vaccines are good enough. The WHO would also have to take some kind of action when a state broke the rules. Carmen Dolea, head of the International Health Regulations Secretariat at the WHO, says this task goes beyond its mandate. “There are liability issues,” she adds.



The Economist

Still, clumsily, the world does seem to be converging on a few standards and technologies. The European Union’s standards for digital covid certificates, for example, are also being used by Turkey and Switzerland. India’s have been picked up by Sri Lanka and the Philippines.

The next step, the WHO says, is for countries to negotiate bilateral or regional arrangements. Recent negotiations between Britain and India illustrate how messy this can be. Britain had refused to accept India’s CoWIN vaccine certificates, in part because they did not state the bearer’s precise date of birth. The government in New Delhi included only the year of birth because many poor Indians do not know their exact birthdays. A tit-for-tat escalation in travel restrictions kept families apart and business trips on hold for weeks, before an agreement was reached earlier this month.

India added the precise date, reasoning that most people who can afford international travel know their birthdays.

Some wonks still think they can fix the problems of poor governance with more technology. Nandan Nilekani, co-founder of Infosys, a tech giant, and the driving force behind India's Aadhaar system, is pinning his hopes on "adaptors" that convert one type of pass into another. Creating the right adaptors would be like finding a way to save shoppers from having to walk around with American Express cards, MasterCards and Visa cards in case shops require different kinds of payment. But technology that builds bridges between passes would not solve the problem that issuers would have to trust one another—and users would have to trust the adaptors fiddling with their health data.

Perhaps, from the ashes of the pandemic, the world will devise a seamless digital vaccine passport that will replace the yellow card. But when covid is still killing thousands of people a week, the bickering over QR codes and digital signatures among multilateral organisations, tech groups and states is a sideshow, if not a distraction. Vaccine passports will never contain the virus. Only vaccines will. More than three-quarters of people in Denmark, Singapore and Qatar are fully vaccinated, according to Johns Hopkins University. Yet less than 1% of those in Ethiopia and Uganda are. Someday, vaccine passports might help keep the peace. But right now the world must focus on winning the war. ■

Dig deeper

All our stories relating to the pandemic can be found on our coronavirus hub. You can also find trackers showing the global roll-out of vaccines, excess deaths by country and the virus's spread across Europe.

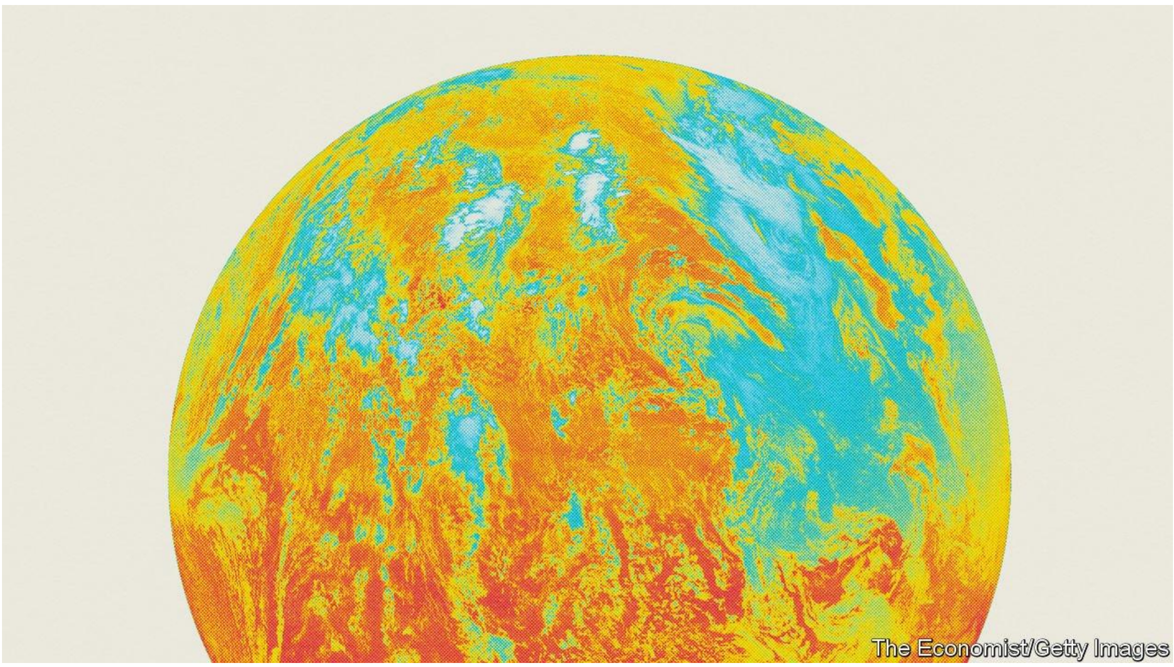
Special report

Stabilising the climate

The agenda for the COP 26 summit

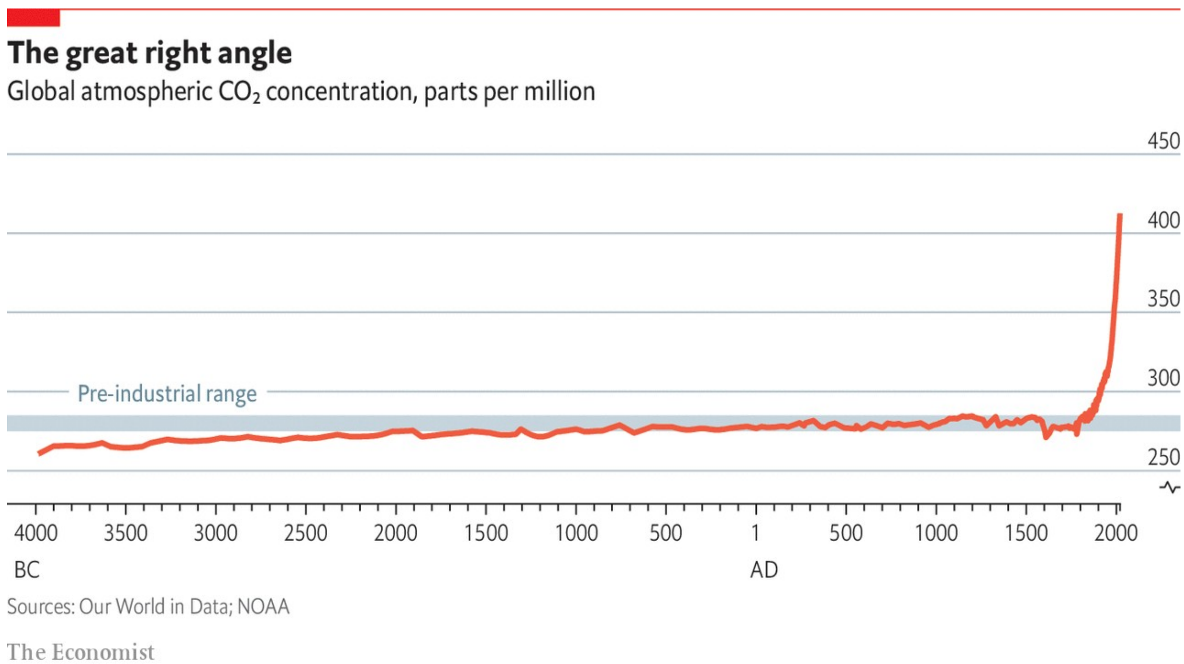
There has never been a collective human endeavour more ambitious than stabilising the climate. In this special report our journalists assess what it will take to meet the historic goals agreed on in Paris six years ago

Oct 27th 2021



SOME 1,500 years before the birth of Christ, when the chariots of Ahmose I, the first pharaoh of the 18th dynasty, had brought all of Egypt back under the rule of Thebes, the level of carbon dioxide in Earth's atmosphere was about 277 parts per million (ppm). When the Gautama Buddha attained enlightenment under the Bodhi Tree a millennium later, and when Socrates drained his cup of hemlock a century after that, the level of CO_2 had hardly changed at all. It was barely different when the Tang dynasty in China and the first Muslim caliphate arose in the 7th century AD, or when the Aztec empire fell to the conquistadors nine centuries later on the other side of the world. For most of history the composition of Earth's atmosphere has been as unchanging a backdrop to the human drama as the arrangement of its continents, or the face of its Moon.

In the middle of the 19th century that changed. Very quickly by historical standards, and instantaneously by geological ones, the CO_2 level began to rise. Having stayed between 275ppm and 285ppm for millennia, by the 1910s it had reached 300ppm. By 2020 it was 412ppm (see chart). In a century or so a crucial aspect of Earth's workings had undergone a change 100 times greater than had previously been seen in a millennium.



An equally sudden shift in the background arrangement of the continents would have been a lot more noticeable. But it might not have been much more consequential. Although the way in which the atmosphere's carbon-dioxide level affects the planet's biology, chemistry, and physics does not in itself shuffle the tectonic plates, it changes the world in which they sit.

More carbon dioxide means more plant growth. In the 30 years from 1980 to 2009 satellite observations revealed that between a quarter and a half of the plant-covered surface of Earth—an area between those of Africa and of Asia and Europe combined—grew noticeably greener. Plants were flourishing on the CO_2-enriched air, adding tens of billions of tonnes to the planet's biomass. The oceans, for their part, have grown more acidic after absorbing some of the atmosphere's sudden CO_2 surplus. It is as though ten rivers of pure battery acid the size of the Thames have emptied themselves into the seas.

And then there is the physics. Carbon dioxide absorbs infrared radiation. It is by emitting infrared radiation that the surface of Earth cools itself down. More CO_2 in the atmosphere makes this process harder, so it means a warmer Earth. The increase in CO_2 since the mid-19th century has, in concert with industrial and agricultural production and the release of other greenhouse gases such as methane, nitrous oxide and industrial gases like CFCs and HCFCs, increased the planet's average surface temperature by between 1.1°C and 1.2°C.

This has already had an adverse effect on crop yields which outstrips any of the benefits from a higher level of CO_2. It is increasing the frequency, intensity and duration of droughts and heat waves. It has made large tracts of permafrost impermanent, gobbled up mountain glaciers and reduced the area of multiyear ice on the Arctic Ocean by 90%.It is destabilising the great ice sheets of Greenland and western Antarctica and making it easier for midsized hurricanes to intensify into the most powerful of storms. It is also making it harder for nutrients at depth to get to the living things that depend on them close to the surface and reducing oxygen levels. Sea levels are rising by a centimetre every three years or so.

If this were a continental rearrangement, it would be a global tectonic spasm which moved all the continents and their hapless inhabitants away from the poles and towards the equator while, at the same time, pushing once-cool mountain heights down towards sweltering plains and once-stable coastlines beneath the waves. And it would be picking up speed.

There is no doubt that the change in the CO_2 level was brought about by humankind—mainly through the burning of fossil fuels, but also through conversion of forests and other natural ecosystems to farmland. As long as those activities continue in their current form, the CO_2 level will continue to rise, and the world will move further and more damagingly away from its historical state.

In 1992, when the CO_2 level had reached 356ppm and evidence of anthropogenic warming was, if not overwhelming, definitely discernible, the leaders of the world agreed to do something about the potentially catastrophic course they had more or less unwittingly embarked on. In the

UN Framework Convention on Climate Change (UNFCCC) agreed upon at a summit in Rio de Janeiro that year, they committed themselves to the "stabilisation of greenhouse-gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". This was to be done in a "time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner".

This was, by far, the most ambitious international agreement of all time. There is no way of stabilising the climate without stopping the increase in the levels of long-lived greenhouse gases in the atmosphere. Although it did not say so in so many words—many might not have signed up if it had—the UNFCCC had, in effect, committed its signatories to ending the fossil-fuel age.

A new era

Fossil fuels have been crucial to the development of the economy for two centuries. They played an intimate part in the most important transformation in the human condition since the development of agriculture, a transformation that saw a huge growth both in the world's population and in people's wealth. But their use also gave the CO_2 level, previously part of the background against which the human drama played out, a potentially show-stealing, or even show-ending, role. It had to be brought under control. It had to be stabilised.

While these remarkable aspirations floated free of specific targets, the sheer magnitude of the task could be ignored, and ignored it largely was. In 2015 in Paris, the same group of countries tethered their aspirations to a set of specific goals, thereby revealing the brutal size of the undertaking. "Preventing dangerous anthropogenic change", said the Paris agreement, meant in practice, "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels". As to the time frame, the peak in greenhouse-gas emissions should come about "as soon as possible", there should be "rapid reductions thereafter", and "a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases” (net-zero emissions) should be achieved by “the second half of this century”—ie, in considerably less than a human lifespan.

As the parties to the UNFCCC converge on Glasgow for the COP 26 summit, this special report looks at what those commitments mean. It is not a guide to the specifics of carbon-cutting policies and technologies, nor to the particular ways in which national commitments made in Glasgow will fall short of the ambition needed. It is a survey of the scale of action required, the battleground on which it will be fought and the fundamental novelty of undertaking to stabilise the climate.

The moment when the CO_2 level, so flat for so long, began to rise was the inadvertent beginning of a new era in which the industrial economy and the forces of nature became conjoined. The moment when the now perilously steep curve rounds the corner to a new plateau, or even a steady decline, will be as consequential. But the agreements in Rio and Paris say that this time it will not be inadvertent. The curve-flattening climate stabilisation will be the result of deliberate interventions in both the economy and nature on a global scale. And it will be maintained, if it is maintained, by human institutions with the astonishing, and possibly hubristic, mandate of long-term atmospheric management.■

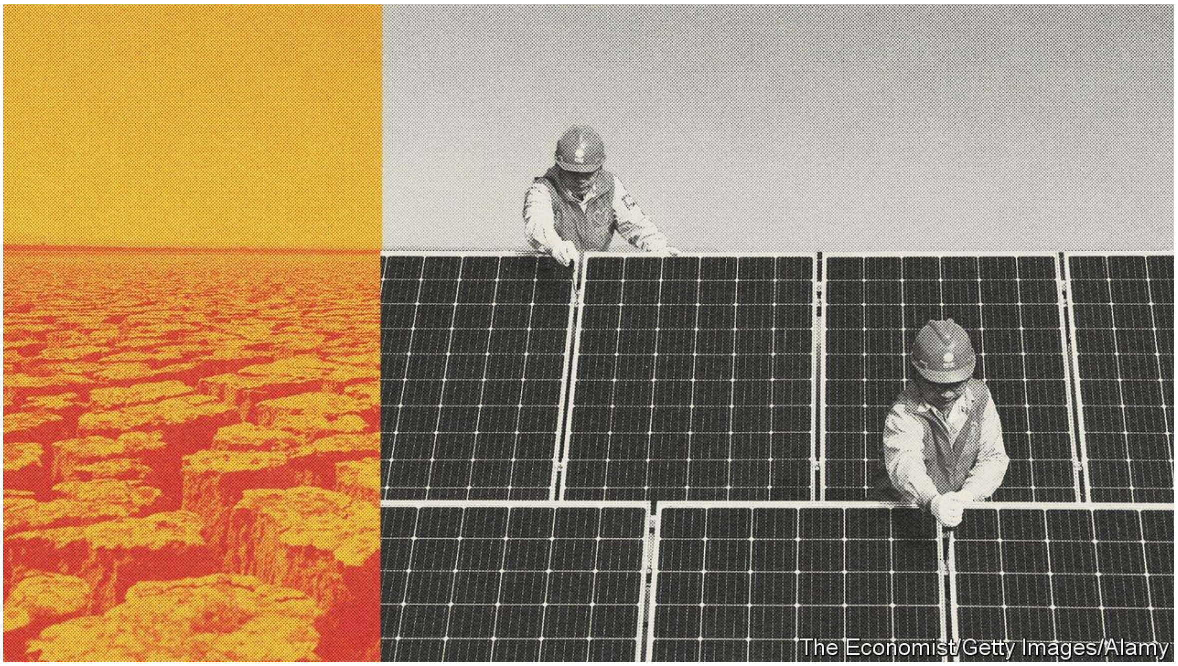
Full contents of this special report

The state of play

What the Paris agreement of 2015 meant

Replacing fossil fuels is becoming easier. But temperatures are still likely to rise too far

Oct 27th 2021

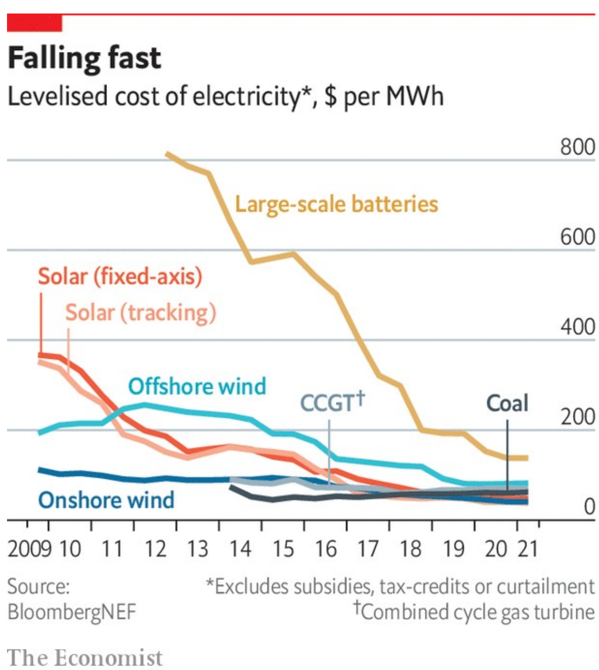

The Economist/Getty Images/Alamy

THAT IT TOOK almost a quarter of a century of diplomatic wrangling, setbacks and innovation for the world to put Paris's numbers and procedures to Rio's remarkable ambition makes it unsurprising that, as yet, little has been done to meet its goals. In 1992, according to figures from Our World in Data, 78% of the world's primary energy—the stuff used to produce electricity, drive movement and provide heat both for industrial purposes and to warm buildings—came from fossil fuels. By 2019 the total amount of primary energy used had risen by 60%. And the proportion provided by fossil fuels was now 79%.

Over the same period the share of primary energy provided as electricity by modern renewables—wind turbines and solar panels—rose from nothing to 3%. The share provided by nuclear power, which is also generated without fossil fuels, fell from 5.4% to 4%. Hydroelectricity was more or less stable at 6%.

Luckily, not all trends are linear. The highly subsidised growth in renewables that began to take off in the early 2000s has not yet made a big dent in global energy consumption, but it has vastly reduced the cost of wind turbines and solar panels. In many markets renewable-electricity projects can now match or undercut the price of fossil-fuel infrastructure—at least if their developers borrow at the same rates as fossil-fuel developers. In 2020 the share of the world's energy generated by solar panels grew by 21%, which points to a doubling every four years. Wind, which now supplies twice as much energy as solar, is growing more slowly, by 12% a year. But that is still a six-year doubling. The 3% penetration achieved in the past two decades might prove the basis for 30% or more over the next two.

The process can be speeded up further by the simple expedient of making fossil fuels more expensive. Carbon pricing has not, so far, had the traction that economists would wish for it. Most fossil-fuel users do not pay a carbon tax; nor are they subject to a cap-and-trade system of CO_2 emission permits. But in one of the world's largest economies, the European Union, electricity generators and an increasing number of other businesses face real costs for burning fossil fuels. Over the first half of this year, emitting a tonne of CO_2 under the EU's permit scheme cost, on average, €44 ($53).



The more the world's generators face similarly significant carbon prices, the more completely renewables will triumph over existing fossil-fuel plants and the more attractive low-emission approaches to heavy industrial processes will become. And the cleaner the grid becomes the more helpful it will be to electrify consumer activities which used to depend on the burning of fossil fuels, such as the driving of cars and the heating of homes.

Carbon dioxide is not the only greenhouse gas. Human activities also emit methane (from the natural-gas industry and rubbish heaps, but also from livestock), nitrous oxide (mostly from agriculture) and chlorine-bearing industrial gases. That these boost the rise in temperature is a problem, but is to some extent more tractable. Big reductions in agricultural emissions of methane and nitrous-oxide emissions will take time (though marginal improvements would come quickly if beef consumption fell). But other approaches to methane reduction, including plugging holes in the natural-gas infrastructure, might happen faster. Slashing methane emissions in half could, other things being equal, knock 0.2-0.3°C off the world's temperature.

Brimstone, too

Other "short-lived climate forcers", as they are known, are more problematic. Sulphur-dioxide emissions, which are mostly associated with burning coal and heavy oils, produce small airborne particles of sulphate which reflect sunlight back into space, offsetting greenhouse warming. According to the Intergovernmental Panel on Climate Change (IPCC) these particles cool Earth roughly as much as methane warms it. As the use of coal declines, so will the levels of sulphate, exacerbating global warming.

Cheap renewables and the willingness to pay for their installation; the electrification of ever more aspects of daily life; the clear efficacy of carbon pricing; a new seriousness about short-lived climate forcers: they all make action on climate change look easier today than it did 12 years ago, when the meant-to-be-momentous Copenhagen climate summit ended in disarray and disagreement, and also a good bit easier than it did six years ago in Paris. The new round of "nationally determined contributions" (NDCs) that countries are volunteering under the rules of the Paris agreement reflect that progress.

Yet the increased ambition in the NDCs should not be mistaken for anything like victory; at best it shows that the world is just about staying in the game. As the collapse in Copenhagen made clear, the UNFCCC, despite being a treaty that was signed by almost all the countries in the world, cannot be used to force those countries to take action. The Paris agreement worked around this impotence with a sort of cognitive dissonance. Together, the member countries set demanding temperature targets; individually, they committed themselves to voluntary NDCs that offered far too little by way of emission reductions for those targets to be met.

So although the NDCs being offered at Glasgow—the Paris agreement calls for a new set every five years—are more ambitious, they always had to be. To come even close to achieving the temperature goals requires a lot more progress, much of it in areas where alternatives are less well developed than renewables were at the time of Paris, and a lot of it already assumed in this round of NDCs. There is still a lot of fundamental work to be done on how to decarbonise things which cannot be electrified. Nor is turning the easy deployment of cheap renewables into stable, reliable electricity grids a problem that is anything like fully solved.

Even if progress does continue, it is not going to produce emission reductions that are deep enough to meet the target of keeping overall warming as low as 1.5°C. The inclusion of efforts towards meeting that goal in the Paris agreement was a central demand for climate-vulnerable countries. For some low-lying island states, it was an existential issue: "one point five to stay alive," as the chant had it. More generally it was seen as a way of ratcheting up the ambition of the whole UNFCCC process. Its supporters were willing to give ground on other things in order to see it adopted. It would be going too far to dismiss the limit's inclusion in the text of the agreement as "the tribute vice pays to virtue", the pithy definition of hypocrisy by La Rochefoucauld, a 17th century aphorist. But it was easier to accept the less than stellar NDCs on offer from many large countries in the context of the increased long-term ambition of the 1.5°C limit.

The biggest problem with this is that, even in Paris, it was clear that the 1.5°C limit could not be met by emission reductions alone. They would have to be supplemented by something else: the withdrawal of CO_2 from the atmosphere by means of "negative emissions". In a few years CO_2 removal went from a largely sidelined topic to a central one. But substance has not kept up with increased salience; mechanisms which can provide lots of reliable CO_2 removal remain, at best, embryonic.

At the same time, the amount of work that negative emissions may be required to do is getting ever greater. Analysis in the *World Energy Outlook* published by the International Energy Agency (IEA) in the run-up to Glasgow finds that the pledges so far made in the NDCs are too small to provide a good chance of staying under 2°C, let alone 1.5°C. And this is despite some ambitious pledges with significant negative emissions built in: a net-zero America by 2050, a net-zero China by 2060.

Stabilising the climate will always be challenging; but the lower the residual emissions, the better the odds of meeting the challenge. Unfortunately, decarbonisation at a rate anywhere close to that required by Paris still looks highly unlikely to happen. To see why, this report turns next to the region where most emissions now come from, and where the largest share of cuts in future will be needed: Asia.■

Full contents of this special report

How Asia is crucial in the battle against climate change

Whether the climate can ever be stabilised depends largely on Asia

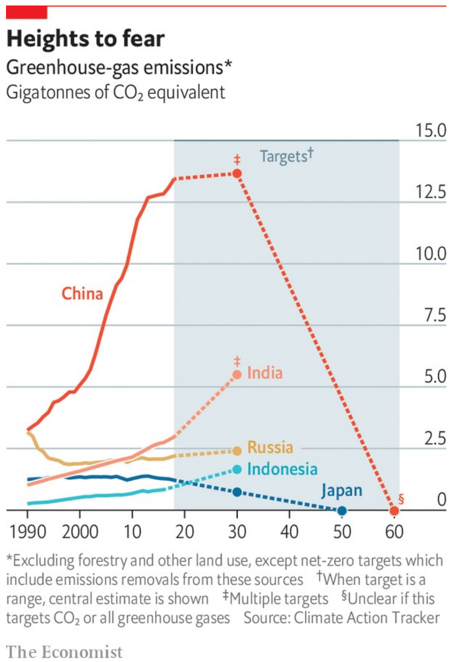
Oct 27th 2021

MIHIR, A 25-YEAR-OLD who lives near the Indian city of Durgapur, has big plans. They all depend on coal. Every day, he rides his bicycle around collieries and depots gathering sacks of coal slipped to him by conniving workers or security guards. Once he has stacked the bike with as much as it can carry he pedals off to a brickworks or a small forge and sells all ten or 11 sacks. After the necessary bribes and kickbacks have been paid, Mihir makes enough not only to keep him, his mother and sister clothed and fed, but also to save for a motorbike. That will allow him to double the scale of his operation, which should provide enough money to build a second storey on the family’s tiny house. When that is done he will be able to propose to his sweetheart.

Durgapur’s coal deposits first came to commercial attention in the 1770s, the decade in which James Watt revolutionised the steam engine. In the 19th century, developed in part by the grandfather of Rabindranath Tagore, India’s most famous poet, they provided the fuel for the subcontinent’s growing railway network and its steamships. After independence Jawaharlal Nehru, India’s first prime minister, ordered a huge steel mill to be built in the city to make use of them.

Even now nobody in Durgapur can imagine life without coal. Few have heard of climate change. Those who have assume that it is someone else’s problem. To Mihir, the very idea that the government might one day impose restrictions on coal is absurd. “Why on earth would they do that?” he asks. After all, the racket in which he plays the tiniest of parts is a big source of funds for political parties, he says. Very important people have a big stake in keeping it going. According to the Central Bureau of Investigation, a national law-enforcement agency, they include the government of West Bengal state. Bijan, a former maintenance worker at a mine in Durgapur who is now an environmental activist, sighs, “It is difficult to understand how coal-mining can be reduced, let alone stopped. You need a complete paradigm shift for that.”

Asia (including Australia) produces and consumes three-quarters of the world’s coal. Roughly half of China’s electricity comes from it. For India the figure is three-quarters. Of the 1,002 coal-fired plants planned or under construction around the world, fully 865 are in Asia and the Pacific, according to Global Energy Monitor, a watchdog group. Asia also produces most of the world’s cement and steel, activities which release copious quantities of greenhouse gases. And as its people get richer, they buy more cars and take more flights.



In 1990 the Asia-Pacific region's burning of fossil fuels produced six gigatonnes of CO_2, according to the IEA, representing about a quarter of the world total. In 2020 Asia emitted 16.5Gt, or 49%. The IEA reckons that under national governments' stated climate policies the total will grow by about 9% by 2030 before falling back to 95% of today's level in 2050. That is a larger climb than in the rest of the world bar Africa, and a smaller long-term cut.

Asian governments, like those elsewhere, have pledged to do better. In 2020, with the world watching, Xi Jinping, China's president, told the UN general assembly that his country's NDC for Glasgow would commit it to net-zero emissions by 2060. Japan and South Korea, perhaps embarrassed to be beaten to the punch by China, both promised shortly afterwards to reach net-zero by 2050. Poorer countries are getting in on the act, too. Indonesia has matched China's pledge. The Maldives, a strong proponent of "one point five to stay alive", has offered to reach net-zero by 2030, which is quicker than most rich countries.

In theory such cuts are perfectly plausible for Asia, just as they are elsewhere. Chinese and Indian academics and activists have sketched out plans to bring emissions in those countries down to zero over 40 or 50 years. In late 2020, for example, 19 Chinese research institutes published a potential path to eliminating their country's net emissions completely by 2060. It foresees power generation being emission-free by 2050, with renewables and nuclear plants supplanting coal and gas. After that, negative emissions, provided in this case by power stations burning new-grown biomass and sequestering the CO_2 produced underground, as well as a reforestation scheme, would offset residual emissions.

Lauri Myllyvirta of the Centre for Research on Energy and Clean Air, an independent research group, calculates that, to stick to the Chinese academics' plan, China would need to build four times the 770 gigawatts (Gw) of solar capacity that the world can muster today and three times the world's current 743Gw of wind power. But that is not inconceivable; massive investment is something that China does. For renewables, what is needed is less than a doubling of the current rate of deployment, undertaken when costs are low and still falling. For nuclear it would be more than a doubling of what is already the world's fastest expansion, though the trend in costs is not so encouraging. But given how many other industries have ballooned in China, and that the country has assured access to many of the strategic minerals required, it is not so far-fetched.

Similar paths can be mapped for India, though the country has yet to set a net-zero target or commit to a point at which it expects emissions to peak. Earlier this year Montek Singh Ahluwalia, a retired Indian civil servant, published a plan to eliminate emissions by 2070. It concluded that a $15 per tonne carbon tax would be sufficient to stop the use of coal for power generation by 2060. Mr Myllyvirta argues that, although investment in renewables would have to expand dramatically, as in China, this is not impossible. India built six times more renewable generation capacity from 2016 to 2020 than from 2011 to 2015. If renewable installations grow as fast over the next five years, they will reach the sort of annual additions needed to displace coal, Mr Myllyvirta says.

There are two problems with this. One is that even these remarkable ambitions will not produce a trajectory which meets the Paris goals. In a global-net-zero-emissions-by-2070 scenario, which the IEA says should keep warming below 2ºC, Asian emissions in 2050 need to be a fifth of those now predicted on the basis of current policies, and a third of those predicted on the basis of announced pledges. Even with net-zero pledges from most big Asian economies bar India, a serious shortfall remains.

Between cup and lip

The second is that technical feasibility is not the same as political palatability. There is little popular pressure on Asian governments to act, even when it seems in their clear interest. Earlier this year, when a ferocious storm struck Zhengzhou, a city in central China, causing severe flooding, there was almost no commentary among Chinese netizens about the link to global warming—this despite the city's much-ballyhooed retrofitting to absorb more rainwater on the assumption that climate change meant more severe storms. Whether the muted reaction was because censors deterred such talk or because people simply did not make the connection is hard to say. Either way, the government does not face a clamour to do more to cut emissions—though that could change.

In Asia's democracies, too, climate change is not so far a big part of political debate. Even though Bangladesh is one of the countries most obviously and dangerously exposed to rising sea levels and worse storms, ordinary Bangladeshis assume that averting catastrophic climate change is the responsibility of people far away, notes Saleemul Huq of the International Centre for Climate and Development, an NGO. Farmers and fishermen know that climate change is harmful, he says, and would like their government's help, but they are unlikely to see a link with the construction of new power plants.

The state of West Bengal, where Durgapur is to be found, lies just across the border with Bangladesh and is as vulnerable to storms and rising seas. Yet a fiercely fought election earlier this year barely featured climate change. Even more than in rich countries, elections in poorer ones hinge not on policy pledges, but on the size of the competing bungs that candidates promise to voters.

When Asian governments do promise policy change, they often lack the administrative capacity to enforce it. The conversion of virgin jungle and peat forest to palm-oil plantations, a big source of emissions in Indonesia, has been banned since 2011. In 2019 Greenpeace, an environmental group, claimed that deforestation had actually accelerated since the ban. In federal countries such as India, states are not even theoretically obliged to follow many edicts from the centre.

Resistance to change largely reflects vested interests. The miners of Durgapur are among 700,000 Indians whose job is wresting coal from the ground. But the seam of jobs and profits derived from coal goes far deeper. Many of the country's coal-fired power plants are privately owned. They sell power to the grid under lucrative take-or-pay contracts. The railways earn almost half their freight revenue by hauling coal around. That income, in turn, subsidises the 8bn or so passenger trips taken each year. The railways are state-owned, as are many mines. And the coal industry is concentrated in a few relatively poor states, which would suffer disproportionately from any attempts to stifle it. So legions of workers, investors, politicians, bureaucrats and even rail passengers can be counted on to lobby for coal. Similar stories can be told of logging in Indonesia, cement-making in China and other emissions-belching industries around Asia.

Yet there are also countervailing forces. In many cases, the most pressing reason for pushing back against polluting industries is not climate, but clean air. Although CO_2 is the most important product of fossil-fuel and biomass burning in climate terms, more tangible pollutants such as soot and sulphate particles do more immediate damage to health, costing millions of lives. Indonesia wants to stop deforestation partly because the fires that are used to clear land for palm plantations shroud the country in acrid smoke for half the year, upsetting urbanites and infuriating neighbouring countries. Air pollution riles city-dwellers in India, which has some of the dirtiest cities in the world, and China, where it has prompted the closure of a number of coal-fired power plants in urban areas.

Asian greens

Asian leaders are now vying to burnish their reputations with greenery. Sheikh Hasina, prime minister of Bangladesh, has become a spokeswoman for poor countries at risk from climate change (a stateswomanlike stance helps deflect foreign criticism of her autocratic nature). Nor was it by chance that Mr Xi's NDC announcement at the UN came when America had made no comparable commitment. Appearing resolute on climate change allows

China to show up its rival and assert the superiority of its political and economic system.

Cutting domestic CO_2 emissions also fits with Chinese leaders' plans for their economy. For 15 years policymakers have been trying to reduce the country's dependence on massive, debt-fuelled investment in heavy industry, and the switch to cleaner energy will reinforce that shift. And encouraging emissions to fall elsewhere also provides an economic fillip. China is already the world's biggest producer of solar panels and electric vehicles. It aspires to dominate other green technologies, too, including nuclear power.

Another point is that big Western development agencies have stopped lending to coal plants, as have many rich-world banks. At this year's UN general assembly Mr Xi announced that China would follow suit, removing all new coal projects from its Belt and Road Initiative. Scarcer finance is driving up the cost of building coal-fired plants. At an auction in India in November 2020, developers offered to sell output from as-yet-unbuilt solar farms for two rupees ($0.03) a kilowatt-hour, not just cheaper than new coal but less than the cost of electricity from many already built and debt-free coal plants. Such arithmetic is altering planners' ideas about the future even in the absence of ambitious emissions targets. The Vietnamese government's latest long-term outlook for power generation cuts the expected power needed from new coal plants this decade by half. And those projections were made before the recent global spike in coal prices.

The direction of change seems clear, but vested interests (which include those of millions like Mihir whose lives are mixed up in fossil fuels purely through force of circumstance) look likely to slow it down. To fight that slowing effect will take money that many countries do not have. India's state-owned power-distribution firms, for example, which need to invest heavily in improved transmission and storage if the renewables boom is to go as far as it should, are already saddled with around $70bn in debt. State-owned banks, their biggest creditors, are mired in non-performing loans. Privatisation, which might be part of the solution, has never enjoyed broad political support.

The pandemic has pushed up public debt across Asia. It has also highlighted pressing needs in public health and education. That makes it a difficult time to steer a vastly bigger share of public investment towards climate stabilisation and an opportune moment to renew calls for outside help, often couched in terms of “climate justice”. In Asia as elsewhere, those at greatest direct risk from climate change are mostly poor folk in the tropics and subtropics. These people have in the past been responsible for very few CO_2 emissions. What is more, their poverty can be attributed in part to the lack of development allowed their forebears compared with that enjoyed by the ancestors of people in economies which grew rapidly through exploiting fossil fuels.

This, the argument runs, imposes a moral burden on those living in countries which were first enriched by fossil fuels, and then imposed the power that development created on almost all the other countries, in Asia and elsewhere, now trying to develop.

The need to maintain a clear path for development has been central to the approach which poorer countries have taken to climate diplomacy since before Rio. So has the idea that rich countries bear particularly onerous obligations. It is enshrined in a phrase from the UNFCCC which is endlessly, and often angrily, cited at all COP summits: that countries of the world should participate in the effort to stabilise the climate “on the basis of their common but differentiated responsibilities and respective capabilities”. And though the term climate justice does not appear in the main part of the Paris agreement (it is relegated to the preamble, which “[notes] the importance for some of the concept of ‘climate justice’ ”), the phrase “common but differentiated responsibility” turns up repeatedly. The way developing countries interpret this is clear in Asian NDCs, which explicitly say that more cuts will be forthcoming if more assistance is given.

Thus Indonesia's government promises an emissions cut of 41% by 2030 if it gets enough outside support, but only 29% if it has to go it alone. The Philippines takes the logic to its furthest extreme, saying that it will cut emissions by 75% by 2030 if it is showered with cash. If it pays its own way the cut will be just 3%.

Rich countries will find lots of reasons to push back at what can seem, and to some extent is, straight extortion. Some of their citizens already chafe at expenditure on climate action at home; subsidising it abroad is even worse. And there are rarely if ever adequate mechanisms for ensuring that the help will actually produce the promised cuts.

For all but the biggest economies, however, cutting emissions at home makes no appreciable difference at all unless they fall elsewhere, too. The cuts that are necessary in Asia are enormous; according to the IEA, the pledges announced in the region's NDCs foresee a fall in the region's annual CO_2 emissions of 9bn tonnes between 2030 and 2050, a 20-year change which outweighs the total emissions of North America and Europe combined. If such a cut does not happen, the best efforts of the rest of the world will not achieve anything like enough. Rich countries can do a lot by accelerating the rate at which new emission-cutting technologies are developed. But if they do not find some way to make the deployment of technologies both old and new more affordable far beyond their borders they will not see those technologies deployed as fast as they need to be.

One way to look at the problem, which has long been popular with Indian climate negotiators, is through carbon budgets. To a close approximation the level at which carbon dioxide will peak, and thus the amount of anthropogenic warming the world will undergo, depends on the total amount dumped in the atmosphere. According to the latest IPCC report, a 50% chance of keeping temperatures below 2°C requires keeping total emissions below 3.7trn tonnes. The report also reckons that, all told, 2.4trn of those tonnes have already been emitted through industrialisation and deforestation, mostly to the benefit of the 1bn or so people who live in the rich world. This means that only 1.3trn tonnes of emissions are left in the 2°C budget for more than 6bn other people, 4bn or so of them Asian, who might reasonably aspire to reach similar standards of living, or to want them for their children.

That is why many Asian governments insist they need help to deliver the development their citizens require but at the same time transform the energy systems and industrial landscapes powering their economies. The alternative is to abandon the climate target or to abandon growth—both of which would have dire consequences that would be felt soonest, and in their greatest severity, in poorer countries.

Negative emissions have been introduced into climate policy in large part to offer a way around that lose-lose choice. They can be used, in effect, to expand the total carbon budget. Before turning to that possibility, though, it is worth looking at the argument, increasingly heard in some circles, that if developed countries could only agree to slow or even abandon growth they would, at least, maximise the remnant of the global carbon budget available to poor- and middle-income countries. This is often accompanied by the belief that were such restraint to be deemed impossible, it would demonstrate that capitalism and climate stability cannot coexist.

Those arguments are not remotely convincing to this newspaper. But they raise questions about the relationship between how an economy powers itself and the shape it takes. A principle of thermodynamics, the science of heat and work which 19th-century physicists developed to explain the steam engine among other things, was that all energy was fundamentally equivalent in its ability to do work. Investors in the 19th century knew that, in economic terms, the energy stored in coal was much more valuable than any other kind, and built their world accordingly.

High-level discussion of the energy transition that is needed for a fossil-fuel-free world tends to take the physicists' view: watt is a watt is a watt. Watts associated with carbon emissions simply need to be replaced by watts that are not. Looking at the 19th-century Industrial Revolution that this 21st-century transition seeks to reverse, though, suggests that things may be a bit more complicated than this.■

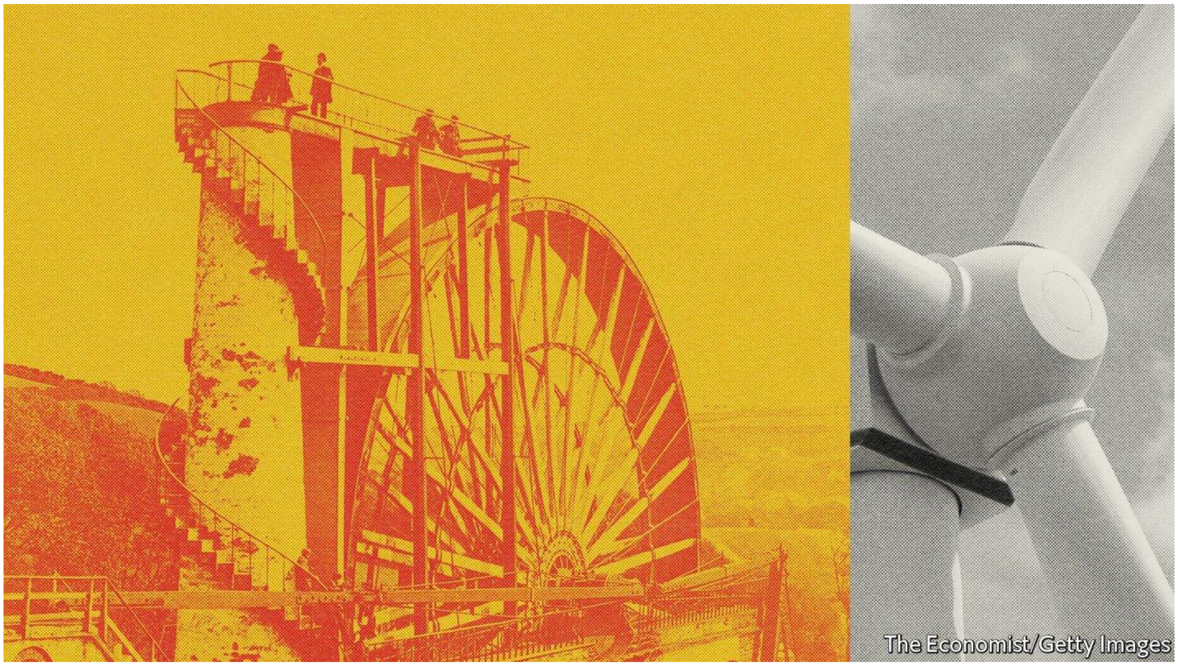
Full contents of this special report

Economics and energy

The economics of the climate

Energy choices shape economies—and could reshape them

Oct 27th 2021


The Economist/Getty Images

IF DELEGATES TO the Glasgow COP fancy a day out, they could do worse than take a 50-minute train journey to Wemyss Bay and a 35-minute ferry journey across the Firth of Clyde to Rothesay on the Isle of Bute. Rothesay's charms as a resort have faded, but its distance from the madding crowd and wonderful sea views remain. So do the lessons it holds about how fossil fuels became integral to industrial growth.

The first cotton mill in Rothesay opened in 1779, using the water that flowed out of Loch Fad to power a new type of spinning machine which was transforming the textile industry: Richard Arkwright's water frame. But the stream proved fickle and underpowered. By 1800 the mill was running on steam engines based on James Watt's design. But shipping coal to the island was pricey, and Rothesay's industrial future looked increasingly bleak.

Robert Thom, an engineer, turned things round. In the 1810s he increased the water supply with a dam and drainage cuts to feed it, and installed an ingenious, self-acting sluice to govern the flow of water, ensuring its perfect evenness. The power for the mills doubled, and the steam engines were retired.

The school-book version of Britain's Industrial Revolution is that the steam engine drove it by providing more power than previously possible. By the end of the 19th century that was true. But to explain the rapid take-up of coal in the late-18th and early-19th century only in terms of steam power is to put cart before horsepower. As Andreas Malm of Lund University in Sweden points out in "Fossil Capital" (2015), steam triumphed when there was still lots of untapped hydropower. Even in the 1830s industry was not taking out more than 10% of the water energy that was available in the English Midlands. Although watermills were an old technology, they were open to improvement by modern entrepreneurs like Thom. And unlike steam engines, they rarely exploded.

What set steam apart were several advantages which appealed to investors. The most important was the ability to build new steam-powered mills close to old ones in towns which already had textile industries, so long as a supply of coal was nearby. The cheeks of cloth-producing factories could run up against the jowls of garment producers. The owner of a new mill could get workers from old ones without having to move them to some faraway river.

The large industrial cities which this produced also encouraged the flow of ideas and skills that made it quicker and easier to improve steam. Watt's development of the condenser did not just improve one particular mill and steam engine, in the manner of Thom's changes at Rothesay. It made all subsequent steam engines better, and built improvement into the very idea of such things. What is more, however good water wheels might have become, they were never going to drive locomotives or ships, as steam had begun to do.

Putting that engineering culture into big cities spun it even faster. Alfred Marshall, an English economist, waxed poetic about this in the 1890s, noting that "The mysteries of the trade become no mysteries; but are as it were in the air." As the 19th century wore on, growth was increasingly driven by the more systematic pursuit and application of technical knowledge, for which the steam engine provided the paradigm model. And it had ever greater amounts of energy at its disposal.

Coal-powered machinery may not have initiated the Industrial Revolution, let alone created the new attitudes to capital, growth and investment which underlay it. But it universalised what began as something peculiarly British and parochial. It allowed industry to be moved—indeed, when boilers and pistons were attached properly to appropriate wheels or propellers, to move itself—around the world. And as sustaining further growth required ever more energy, it was later joined by other fossil fuels, notably oil and gas.

Some, including Mr Malm, take the centuries of structural intimacy between fossil fuels and the capitalist system that was inaugurated by England's mill-owners and mines to mean that one cannot get rid of the first without also demolishing the second. It is a matter of "Capitalism vs. the Climate", as Naomi Klein, a writer and activist, puts it in the subtitle to her bestselling book "This Changes Everything" (2014). In this view the fossil-fuel industry's insistence on putting its own profits ahead of the global risks posed by its effluent is not just a brake on sensible climate policy but a sign of a systemic inability to reach climate goals in a capitalist economy.

It is essential that the world proves this thesis to be wrong. Doing so means embracing the aspect of capitalism which most worries environmentalists: growth. To develop while reducing dependence on fossil fuels—the only sort of growth with a real future—the poor world needs new technology and new investment. The growth supplied by capitalism is what provides both these things, which is why most economists see it as crucial to bringing the fossil-fuel age to an end. All that is needed is to find ways to ensure that growth does not have to be linked to rising CO_2.

The issue is nicely summed up in a formula credited to Yoichi Kaya, a Japanese energy economist, which links the size of the economy, the scale of emissions and the amount of carbon in the energy system:

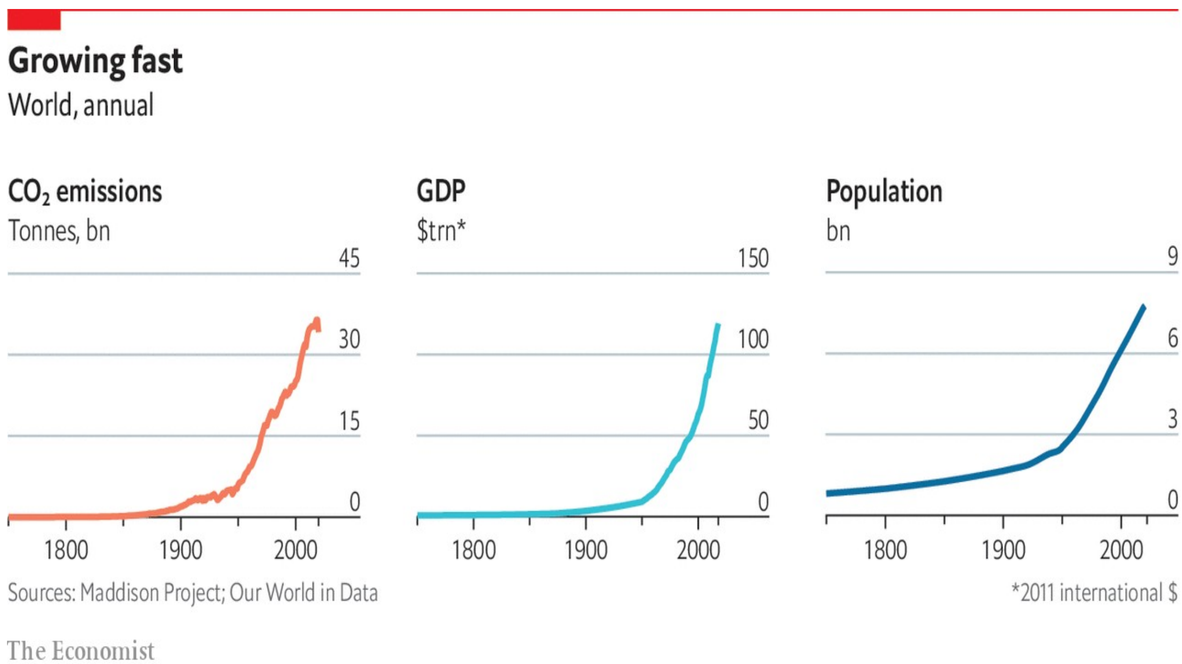
$$CO_2 = \text{population} \times \frac{\text{GDP}}{\text{capita}} \times \frac{\text{energy}}{\text{GDP}} \times \frac{CO_2}{\text{energy}}$$

Emissions are the product of population, GDP per head, energy used per unit of GDP and carbon emissions from that energy. To reduce emissions one must reduce one or more of those four factors. Private and government action on the climate has concentrated on the last two: carbon emissions per unit of energy (decarbonisation) and energy use per unit of GDP (efficiency). But given insufficient progress, some say it is time to look at the first two.

The history of the 20th century shows that reducing population, though still spoken of as a long-term goal by some greens and predicted by demographers for much of the world later this century, is not a course of action that governments can effectively and decently pursue (though dealing with unmet contraceptive needs certainly is). That leaves GDP per head. When this grows, as it has by a factor of ten worldwide since the carbon needle began to tick up in the 19th century, energy efficiency and carbon intensity must improve merely to keep carbon emissions stable. If growth stops, the benefits from increased energy efficiency and reduced carbon intensity can go straight into reducing emissions.

The degrowth debate

Since the Paris agreement of 2015, discussion of degrowth has become an increasingly hot topic among some ecologists, heterodox economists and other scholars. Some see it as a strategy solely for the rich world, which they feel does not need any more affluence, while accepting the need for continued growth in poorer places. Others are dubious about the whole idea of sustained growth. Either version, though, has huge moral, political, and economic drawbacks.



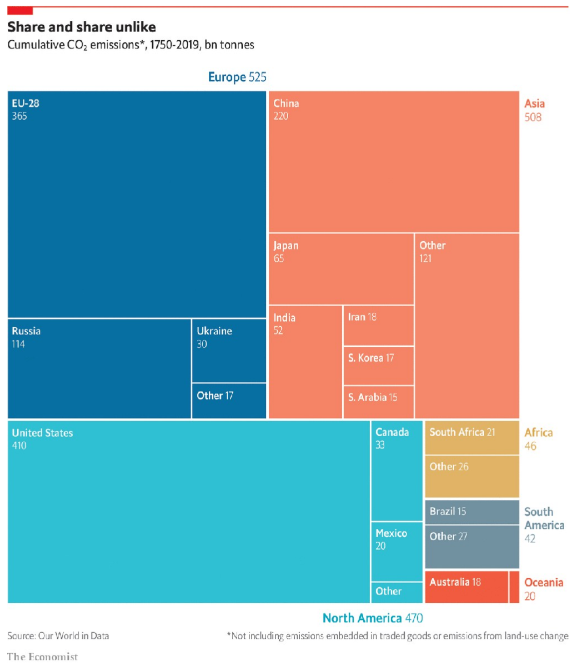
The moral problem is that, fine though it may be for individuals to renounce increased consumption, it is not for them to impose their choice on others. There are specific things that societies can require people not to produce or consume, and there may be reasons for rationing some things during emergencies and in special circumstances. But production and consumption in general should remain matters of individual choice.

If those devoted to degrowth could persuade everyone else, their goal might conceivably come about as a voluntary, consensual moral revolution. Otherwise they would need to gain political power and impose their aims. And that raises the problem of political practicality. Governments can and do suppress growth in various ways. Often they do it through wrongheadedness, haplessness or as the result of capture by pernicious interests. Sometimes they do it as explicit policy—as in the austerity imposed on some countries in the early 2010s. But an overt policy of deliberately slowing, stalling or reversing long-term growth, even if presented as being for the good of the world, is a highly unpromising platform on which to win elections.

Even if it were not both wrong and impractical, enforced degrowth would still be a bad idea. Much of the increase in prosperity in poorer countries over the past 20 years has been driven by rising demand from rich countries. Remove that motor and the rate at which the world's poor are raised out of poverty would slow. It would also hobble the fight against climate change. Rapid decarbonisation requires massive investment in renewables everywhere, but most of all in emerging economies. Much of the money must come from investors in rich countries seeking returns, even if rich-world governments commit resources too. Without huge amounts of investment, decarbonisation will take longer.

And without accelerated innovation it will be incomplete. The current system is not the only way to get from bright ideas to products used on a broad, even world-changing, scale. But it has the best record. A lot of innovations are still needed if the world is to speed up its decarbonisation—better ways of storing energy, of heating houses, of cooling houses, of processing crops, of growing crops, of powering large vehicles, of producing plastics and more. A contracting, low-demand, low-investment economy is not likely to provide any of these.

This case against degrowth does not necessarily mean business as usual, however. To serve the goal of decarbonisation, innovation must be directed towards specific goals with particular properties—it cannot simply roam freely in search of ideas that look profitable. Some of this purpose can come from founders and investors. Tesla is a good example: a company built up by Elon Musk to make both money and electric cars, and, by showing that it could do so, to establish the need for other carmakers to follow suit. But without the certainty of a price on carbon to constrain their sense of the possible, it is asking too much of private innovators to expect them to provide all the tools needed.



Making good the lack requires governments not just to help the private sector through tax credits targeted at innovations which decarbonise—one of the parts of President Joe Biden's climate package that seems most likely to pass—but also to find ways to bridge the gap between research and development and full scale deployment with a more serious commitment to large-scale demonstration projects.

The ways in which the emission-free technologies to hand and yet to be developed reshape the energy economy will be less marked than those seen with the advent of coal. In an increasingly electrified world, sources of energy are less distinctive and more fungible. The plug does not care where the socket gets its power. An example is the way today's grid-linked gigawatt world of skyscraper-topping turbines and solar farms spreading over cropland and desert alike has little place for the putatively innate characteristics which first attracted greens to solar panels and wind turbines in the 1970s and 1980s. They saw them as "appropriate" technologies suited to decentralisation, self-sufficiency and the living of less industrialised lives.

But if renewables no longer have the smallness once seen as beautiful, they have special characteristics that come to the fore the more that grids depend on them. The most obvious is intermittency. The flows powering renewables are familiar to the farmer more than to the industrialist. They change with the passing of clouds, the turning of Earth, the rolling of weather fronts, the succession of seasons and the differences between good years and bad.

Dealing with this variation will require new ways of balancing flows of energy and storing it for later use. As Robert Thom discovered, you need to have both storage and a careful approach to regulating flows through the system. But those principles must be applied on scales both local and continental, and measured in both split seconds and years. Grids need to become larger, to make up for shortfalls in wind or sun, and smarter, to balance demand to supply rather than always working the other way round. To what extent markets can be designed to provide all this remains an open question. But it seems a fair bet that a more centrally planned approach will often be necessary.

In return renewables promise to provide grids and their customers with a new resistance to scarcity. The overweening power of coal-miners and oil ministers alike will be broken. With energy freed from physical fuels things will be far harder for would-be rentiers. As in Rothesay, once you have invested, you have guaranteed power with minimal operating expenses and minimal risk.

And they should allow a new form of energy-abundant environmentalism. Environmentalist worries about growth are not limited to relationships between carbon emissions and GDP. There are deeper worries that the demand will break nature's bounds in other ways. But in a world of copious clean energy the demands industrial civilisation makes of the natural world may in principle be curbed through reuse and recycling. What some call the circularisation of the economy could be spun round more quickly and smoothly. Clean energy need not undermine the capitalism that commoditised fossil fuels built. It could still change its complexion, its political economy and its geopolitical setting.

But it is unlikely to do this in the time demanded by Paris. So the world needs more than an energy system without emissions. It also needs innovation and investment to reverse them.■

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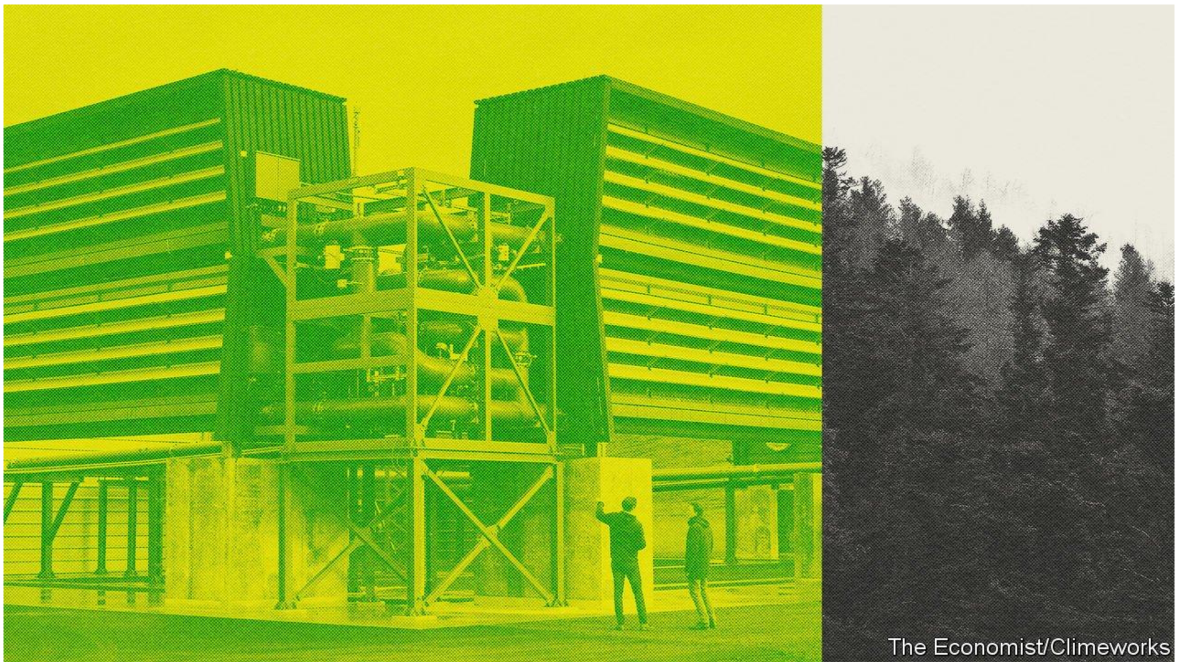
The agenda for the COP 26 summit: Stabilising the climate

Negative emissions

Why the world needs negative emissions

If negative emissions are to play a role in policy much more needs to be done to make them practically achievable

Oct 27th 2021



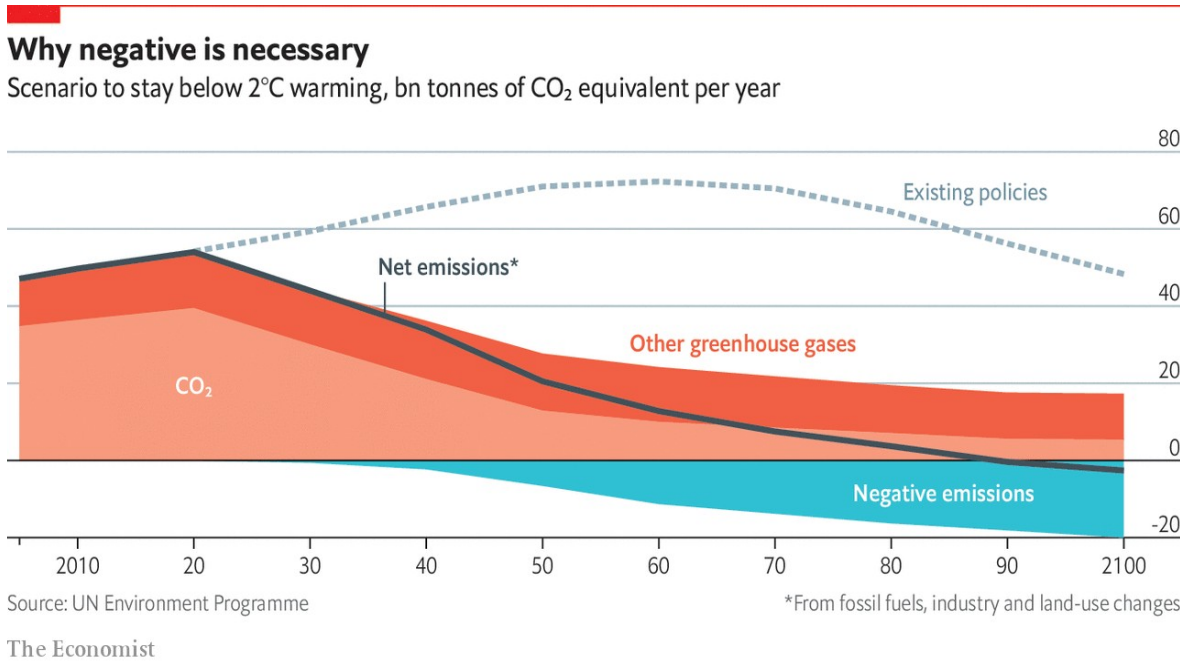
THIRTY KILOMETRES down the road from Reykjavik, the Hellisheiði geothermal power plant sits amid black boulders draped in phosphorescent green moss. Behind its plumes of rising steam, steep mountains sweep up from the rocky plain. Boulders and mountains alike are made of basalt, as is some 90% of the rest of Iceland. It is a 300trn tonne sawn-off tree stump of basalt sitting on the floor of the Atlantic—which is itself just more basalt. There is no commoner rock in Earth's crust.

The cylinder of basalt that Kári Helgason is holding out, though, is different. Young basalt is riddled with tiny holes, but in this case most cavities are filled with flecks of white crystal. "This," he says, pointing to the white flecks, "is mostly calcite." Calcite, a form of calcium carbonate, is not a rare mineral on the island—it is commonly known as Iceland spar—or elsewhere. But this basalt-bound calcite is exceptional. It is the physical manifestation of CO_2 emissions being turned to stone.

Small amounts of CO_2 are part-and-parcel of the hot fluids piped up from the underlying crust at geothermal power stations like Hellisheiði. Since the early 2000s, Carbfix, the Icelandic company where Mr Helgason works, has been capturing CO_2 and pumping it back into the porous bedrock in the form of carbonated water. Once there it reacts with calcium in the basalt. Tracer studies have shown that 95% of the gas injected by Carbfix is mineralised within two years.

Carbfix says Iceland's basalt could store a century of CO_2 emissions, even at today's rate. By 2030 it hopes to have a "mineral storage terminal" west of Reykjavik that can petrify 3m tonnes of CO_2 a year, most or all of it captured at industrial facilities in Europe. In early 2021 it signed a deal with Dan-Unity CO2, a Danish shipping company, for custom-made low-emission tankers to bring it CO_2 earmarked for disposal.

Carbon capture and storage (CCS) along these lines has been a disappointment. There are ways to take CO_2 out of the exhaust gases of power plants and steelworks, and injection into basalt is just one of various possible places to store it—others include gasfields and saline aquifers. The idea of putting these technologies together has been around for decades. The UNFCCC asked the IPCC to produce a report on the technology 20 years ago. Yet there is still not a single large gas- or coal-fired power station that is capturing and storing its emissions.



One problem is that fossil-fuel industries and governments that value them have an interest in saying they are pursuing CCS, because it seems to provide a future for some fossil fuels, but no pressing reason to make it an implemented reality. The technology makes plants more expensive and less efficient, and in the absence of a high carbon price that is a penalty nobody wants to pay. What is more, many people—sometimes termed "numbies", for "not under my backyard"—dislike the idea of industrial waste being squirted into aquifers and gasfields anywhere near their homes. Hence the attraction of shipping it to Iceland where it can be turned into solid rock.

Given all this, it is a problem that the technologies on which CCS relies are now central to climate action, thanks to the spread of net-zero pledges. It is not just that these require decarbonising cement-making (for which CCS looks crucial), or that they have a role for hydrogen (which, if made from fossil fuels, needs CCS to be clean). It is that at some point they need CO_2 to be drawn down from the thin but thickening air and stored away.

Take back what hurt you

Next to Carbfix's operation at Hellisheiði is Orca, a facility built in partnership with Climeworks, a Swiss company. Fed with air from a bank of 96 industrial fans, Climeworks's technology filters out atmospheric CO_2 so it can be fed into the geothermal plant's wastewater for disposal at depth. Orca, which opened in September, is the world's largest "direct-air capture" (DAC) facility. Its 11 tonnes of carbon captured each day are the forerunner of an enterprise which, if models are right and pledges are adhered to, will grow a millionfold in the next half-century.

The negative emissions DAC is held to offer play two roles in climate stabilisation. One might be seen as balancing the current carbon account. Although most emissions can theoretically be eliminated using technologies that exist now, aviation, shipping and some industrial processes remain hard to decarbonise.Some agricultural greenhouse-gas emissions look as if they will prove recalcitrant. As long as emissions of long-lived greenhouse gases persist, stabilisation will require negative emissions.

The other role for DAC is getting rid of historical excess. As we have seen, the cumulative CO_2-emissions budget consistent with a 50-50 chance of meeting the 2°C goal is 3.7trn tonnes. The budget for 1.5°C is just 2.9trn tonnes. With 2.4trn tonnes already emitted, that leaves a decade of emissions at today's rates for 1.5°C, maybe 25 years for 2°C.

Those constraints could be eased if some of what has already been "spent" were repaid—that is, if CO_2 were pulled out of the atmosphere faster than it were being put in, producing net-negative emissions. Removing a billion tonnes of carbon dioxide in 2050 is not quite the same as not having emitted it in 1950, but it is close. And this remains true even if the removal comes after the budget has been broken. Carbon budgets can be overshot, at least for a while.

This offers rich countries that benefited disproportionately from 20th-century emissions a way to create room in the budget for poor ones which were left out. But to do this on an appreciable scale they need to draw down huge amounts of carbon. Some scenarios have negative emissions of well over 10Gt a year—a global fossil-fuel industry running in reverse. Done through DAC that would require huge capital investment and use up a great deal of clean, renewable but still not free energy in the process.

This would not have to be done entirely through DAC. Nature takes half the carbon dioxide that humans put into the atmosphere back out, through either photosynthesis or geochemistry. Both processes could be ramped up.

For photosynthesis, more trees are the obvious option. They can be grown in plantations, including commercial ones where new trees replace each year's harvest; or they can be encouraged in regenerated forests. The second option is much better. A study in 2019 found that over 80 years restoring natural forests stores an average of 40 times more carbon per hectare than new plantations. Restoration also scores better in preserving biodiversity. But plantations make money in an easily understood way. The same study found that 45% of commitments made under the Bonn Challenge, a voluntary NGO-led initiative to boost forests, involved planting poor-quality commercial plantations.

Another option is to raise the amount of carbon stored in agricultural land and forests that are already commercially exploited. So-called "nature-based solutions" along these lines are staples of the market for voluntary carbon offsets, where vendors promise to do things like growing trees, or stopping them being cut down, to absolve clients' sins of emission.

Offsetting schemes seem able to deliver negative emissions at a reasonable price. When Microsoft and Stripe, a fintech company, sought carbon-removal projects to meet their net-zero pledges, they found that nature-based projects were priced at $5-50 per tonne. But there are three problems. One is that not all offsetting schemes are well run or well supervised. In Chile government subsidies helped establish 1.3m hectares of tree plantations since 1986—but a rule requiring that this expansion should not happen at the expense of native forests was not enforced. As a result the programme actually reduced the amount of stored carbon by some 50,000 tonnes.

A second is that offsetting is unlikely to solve deeper issues. The airline industry has strong economic incentives to use fuel efficiently, but they have not made the wrenching technological shifts required to stop buying kerosene. If the industry buys offsets to make its planes "carbon-neutral", as it plans through a scheme called CORSIA, the efficiency incentives will increase further. But that will not of itself make a post-kerosene world more likely. That is one reason why the Science Based Targets Initiative, a standard-setting coalition, does not accept offsetting as a path to emission reduction.

The third drawback is limited capacity. This feels surprising, since in principle the scope for nature-based solutions could be very large. A team of researchers led by Cécile Girardin of Oxford University estimates that a radical commitment to the idea could see the amount of CO_2 from human emissions absorbed by the biosphere more or less doubled by 2025, from 10Gt a year to 20Gt a year, making a real difference. Even more would be possible. Add the measures described by the researchers to a trajectory which would otherwise lead to 2°C of warming and you get 1.8°C; a 3°C trajectory comes down to 2.7°C.

Such massive effects cannot be achieved through expansion of current offsetting schemes. The Oxford plan would entail agricultural transformation around the world, an end to deforestation and the restoration of natural ecosystems across roughly 7m km^2 of Earth's surface—twice the area of India. It also requires forests and other ecosystems to stay healthy. Unfortunately climate change is making this much harder by increasing the risk of fire and other nasties, such as insect infestations. If nature-based solutions were to go ahead without a simultaneous effort to curb emissions, leaving the world to go on warming regardless, carbon stored in wood and soil could find its way back to the atmosphere.

Another process that could be co-opted is mineral weathering—reactions with rocks that use up CO_2 dissolved in water. What is going on in the basalt under Hellisheiði is a form of weathering which produces calcium and carbonate ions that go on to precipitate out as calcite. Rock weathering already soaks up a billion tonnes of CO_2 a year. Increase the area available for it by grinding suitable rocks into dust and you will get more. David Beerling, a researcher at the University of Sheffield, and his colleagues have calculated that spreading 3.5bn tonnes of finely ground basalt over 700,000 km^2 of farmland every year—that's 50 tonnes per hectare over an area roughly as big as Texas—could double the weathering rate, drawing down another billion tonnes.

Find a way

For weathering to work on a really large scale, though, turn to the oceans, where geochemical manipulation could in principle store trillions of tonnes of CO_2. Increase the alkalinity of seawater—eg, by adding lime, an oxide of calcium used in cement—and the amount of carbon dissolved in it as carbonate atoms increases. That shift provides room for more CO_2 to be absorbed. Unfortunately it takes some 700m tonnes of lime for 1Gt of CO_2—and to make the lime requires putting a lot of energy into heating limestone in kilns which have to be fitted with CCS, since the process itself gives off CO_2. The sheer scale of the carbon drawdown that ocean alkalinisation offers makes such schemes worth considering. But they are at best a long-term possibility. Their costs would be enormous, their effects on ocean ecosystems would need careful monitoring and they would require international laws governing marine pollution to be renegotiated from the bottom up.

A more plausible near-term approach to sucking down CO_2 industrially is to fit CCS to power stations which burn recently cropped plants. Because the carbon in those photosynthesising plants was recently CO_2 in the air, putting what is released by burning them underground is in effect a transfer from atmosphere to crust. And because biomass energy with CCS (BECCS) provides electricity as well as negative emissions it can be used to displace fossil fuels, further reducing emissions.

When the climate-and-economics models used to analyse emission pathways first began to be applied to negative emissions, it was by adding BECCS to them. This gave the technology a first-mover advantage in subsequent discussion in the IPCC, at the Paris summit and elsewhere. That it has been more discussed than other approaches, though, does not make BECCS better. Its large-scale deployment requires vast amounts of land be turned over to growing energy crops; in some estimates an area equivalent to up to 80% of that now used for food crops would be needed.

This is what gives purely technological DAC schemes like Orca their appeal. The installation is designed to tuck away 48,000 tonnes of CO_2 over its 12-year life. A tree plantation in a temperate climate capable of soaking up that much would have to cover about 400 hectares. Orca is just a small hangar and four pairs of shipping-container-sized collector units on stilts; a plant the size of a small school doing the work of a forest as big as a fair-sized town. And not only does DAC require less land than BECCS. It can also use land that agriculture can't: witness Hellisheiði's barren boulders and moss. Sunny deserts far from anywhere where the process can be powered by cheap solar panels would do fine.

The problem is cost. Climeworks says it costs between $600 and $800 to separate a tonne of CO_2 from the Icelandic air and store it away, though it may do better in larger plants. It sells customers the assurance that a tonne of CO_2 has been turned to stone at their behest for over $1,100. Because Orca is exciting and its capacity small, these offsets have more or less sold out. But when non-novelty offsets sell for a hundredth of the price it doesn't look like a very scalable business. One serious rival, a Canadian firm called Carbon Engineering, says it can offer offsets at $300 a tonne when it gets its 1m-tonne-a-year plant operating in Texas by 2025. That fits with an analysis in an academic journal by the company's founder, David Keith, that puts the costs of the technology it is using in the $90-240/tonne range.

Neither company focuses on offsetting as a core business. Carbon Engineering, which is partnered with Occidental Petroleum, an oil firm, plans to pump the CO_2 it isolates in Texas into oilfields to squeeze out oil that is otherwise reluctant to flow. Because the CO_2 stays underground, the oil will count as a low-carbon fuel which can be sold at a premium, thanks to regulations in California. It is also looking at combining the CO_2 it captures with hydrogen to make synthetic fuels—a business Climeworks is keen on. A startup called Prometheus Fuels claims to be able to do this profitably with a cheaper form of DAC, but has yet to provide details.

Such fuels may help with decarbonisation in some of the places electricity cannot reach, such as aircraft flying over oceans. But the greatest potential for DAC lies in changing the overall carbon budget. If applied on a scale close to that of today's natural-gas industry it could in principle create space in the atmosphere for hundreds of billions of tonnes of further emissions as the world weans itself off fossil fuels and in the decades after it does so.

Such an idea seems utterly fantastical. So do a huge alkalinisation of the oceans and nature-based solutions or BECCS plantations on scales approaching those of a small continent. But if they remain so, in all likelihood so will a world where the temperature rise stays "well below 2°C", in the words of the Paris agreement.

And, unfortunately, fantasies that do not become realities can still have real effects. The "net" in net zero functions as a notional safety net: it lets the world imagine that, if somewhere along the tightrope of emissions reduction it trips or tumbles, negative emissions will break its fall. But this is only true if the capacity for stonking great negative emissions is realised. If it remains a fantasy, such a fall could hurt a lot.■

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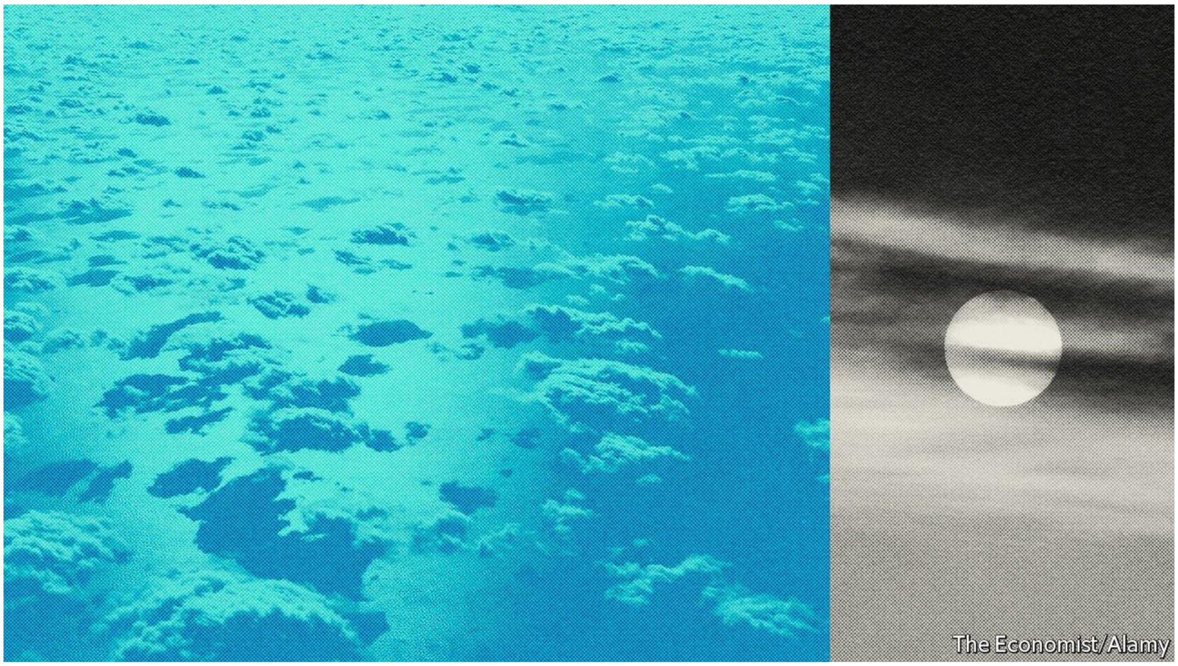
Veils and ignorance

Governing the atmosphere

Technologies which might stabilise the climate could do the reverse to international relations

Oct 27th 2021



THE ASSESSMENT of the science of climate change released by the IPCC in August looked at various future-emission scenarios. In every one the best estimate for the difference in temperature between the mid-19th and the mid-21st centuries was above 1.5°C. Only two scenarios, both with close to net-zero emissions by mid-century and net-negative ones thereafter, had best estimates lower than 2°C for the final two decades of the century.

What the report did not say was how the world would pay for the net-negative decades needed to provide a climate both stable and within the Paris temperature limits. In a net-zero economy, it is possible to imagine "polluter-pays" schemes under which emitters pay for the negative emissions that cancel out their activity. They might conceivably evolve from emission-trading schemes like the EU's. But once you need to remove more CO_2 than is being put in an insufficient number of polluters makes things trickier.

Some companies, including Microsoft and Ikea, plan to go net-negative at their own expense. They aim to remove from the atmosphere an amount of carbon equivalent to all the emissions they have been responsible for over their corporate lives. But it is hardly likely that all big emitters will volunteer to behave so admirably.

An imaginative group of academics writing in the journal *Nature* recently described a polluter-pays scheme which might force companies to become at least somewhat carbon-negative. Well before net zero is reached, emissions would start to attract a “carbon-removal obligation” requiring later removal. To incentivise companies to act promptly, the obligations would grow over time: leave a tonne up in the air long enough and you would have to pull two tonnes out. It is an ingenious idea. But it would do nothing to remove emissions made before the scheme began.

It is hard to imagine negative emissions on a scale large enough to make up for overshooting the carbon budget being paid for by anyone except governments. Any agreement on how that should be done would surely reflect some version of “common but differentiated responsibilities”: countries disproportionately responsible for using up the carbon budget in the first place would be asked to take on most of the burden of dealing with the overshoot.In a world where rich countries had already invested heavily in helping poorer ones reduce emissions, that added expense might be borne willingly. But it is also possible that it would not.

What is more, in a world where some, presumably richer, countries have enough negative-emissions capability to get to net zero and beyond, other countries—either poorer or just more bloody-minded—might abandon further emissions reduction, gambling that the countries with negative-emissions capability would rather increase their use of that capability than see the CO_2 level continue to rise.

They might win that gamble; they might not. It is all too easy to imagine a world where most people in poor countries continue to think that climate change is not their fault and someone else should sort it out, while people in richer countries don’t want to shoulder the full burden of doing so. A stand-off develops in which the overshoot is never sucked down and temperatures eventually stabilise at a level considerably higher than 2°C over pre-industrial levels—if they stabilise at all.

The alternative to this game of chicken would be to meet the Paris temperature limits through other means. Solar geoengineering is an approach to the climate that concentrates not on making it easier for the Earth to cool itself, as removing carbon dioxide does, but stopping it from warming so much in the first place. The way of doing this which has been studied in most detail, albeit almost entirely in models, is to create a thin layer of reflective particles in the stratosphere that reflects sunlight back into space before it warms the surface. Studies suggest that, for good or ill, such a scheme could be implemented by a relatively small fleet of purpose-built aircraft.

These ideas have, for understandable reasons, long been marginalised in policy circles. They reek of hubris and the potential for unintended consequences. And if, by providing another way of limiting temperature rises, they reduce the perceived urgency of curbing emissions, they might weaken or even stall the commitment to emissions reduction.

That would be disastrous. Though it has the opposite effect on temperature, the cooling offered by solar geoengineering is not, in physical terms, an exact counter of the warming created by greenhouse gases. One difference is seen in the world's hydrological cycle; solar geoengineering tends to suppress precipitation. The more the world came to rely on it, the more this and other mismatches would become harmful. This, alongside the fact that it does nothing about ocean acidification, is a strong part of the reason why researchers looking seriously at solar geoengineering never advocate using it instead of mitigation. Those not turned off by it completely see it as a possible complement to mitigation, not as an alternative.

In this it is very like negative emissions—one reason they are sometimes called "carbon geoengineering". The way a solar-geoengineering capability might reduce the incentive to continue with emissions reduction is similar to the way existing negative-emissions capacity might work. And in both cases that reduced ambition might well come about even if the proposed geoengineering did not.

A crucial difference between the two, though, is the cost of instigating them. It seems likely that putting a veil into the atmosphere would be comparatively cheap (in the tens of billions of dollars a year, perhaps even less), though the externalities not included in the cost might be high. Another difference is that negative emissions would affect the climate in more or less the same way whoever undertook them; the world's carbon-dioxide level is what it is. Different sorts of solar geoengineering, though, would have distinctly different regional effects.

Design for living

If the world as a whole were able to design a solar-geoengineering scheme, studies suggest it could come up with one that provided climate benefits to almost everyone and serious problems to almost nobody. A plausible way to use such an optimal scheme might be to offset the temperature rise caused by overshooting the carbon budget. That would provide a sort of breathing space to allow the excess CO_2 to be drawn down more slowly and cheaply than would be necessary if its warming effects were actually being felt. A comparatively gentle acceleration of chemical weathering, rather than a huge investment in DAC or other schemes, might prove sufficient. As those measures slowly wore the overshoot down the solar geoengineering could be reduced. When the CO_2 level was low enough it would be phased out completely, leaving behind a stable climate.

But the world as a whole might not get to choose the wisest path. A small group of countries, or even a single large one, could undertake a solar-geoengineering scheme unilaterally. Such a club would be likely to optimise its own interests rather than those of the world. It might, for example, choose to cool some places to a degree that, because of geoengineering's effects on the water cycle, risked desiccating others. That might lead to resentment, rancour or reprisals.

Nor would any given set of solar geoengineers be sure to get things their own way. The late Marty Weitzman, a pioneering economist of climate change, pointed out that though emission reductions (and by implication negative emissions), because of their cost, have a free-rider problem, solar geoengineering, because it looks cheap, has a "free-driver" problem. Where free-rider problems lead to underprovision (countries are unwilling to commit to cutting emissions when others do not, as 26 years of COPs has made clear) free-driver problems may lead to overprovision. Solar geoengineering looks cheap enough that countries wanting more of it can provide it unilaterally, whatever others think.

This implies that, other things being equal, the level of solar geoengineering would be a trade-off between the amount that the most enthusiastic countries wanted and the amount that the least enthusiastic would endure before taking decisive action, quite possibly through force of arms. Another game of chicken.

The difficulties involved in negative emissions and solar geoengineering are very different, and the second looks much more unfamiliar and threatening than the first. But in both cases the problem is fundamentally similar—and closely related to the contradiction between global temperature goals and national emissions-reduction commitments at the heart of the Paris agreement. The world has needs which can be agreed on; but the decisions necessary to meet those needs are made by countries which differ in their interests, their capabilities and the amount of persuasion they can exert or resist. The responsibilities may be common; the differentiation is endless.

Glasgow will show the degree to which national governments are able to deliver progress in terms of the increased ambition of their NDCs, the realisation of long-promised transfers of money from north to south, and workable rules for the parts of the Paris agreement which remain sketchy. The progress is unlikely to be spectacular, reinforcing the point that managing global issues like the climate purely through national lenses is impractical. But coming up with an alternative in which individual countries will allow the interests of others to be placed above their own is implausible. And if the world is to stabilise the climate at an acceptable level, something will have to give.

The climate crisis was brought about as part of the creation of a new world economy. Coming through it successfully may well require a new world politics. Failing to do so will be calamitous in terms of politics and economics alike.■

Full contents of this special report

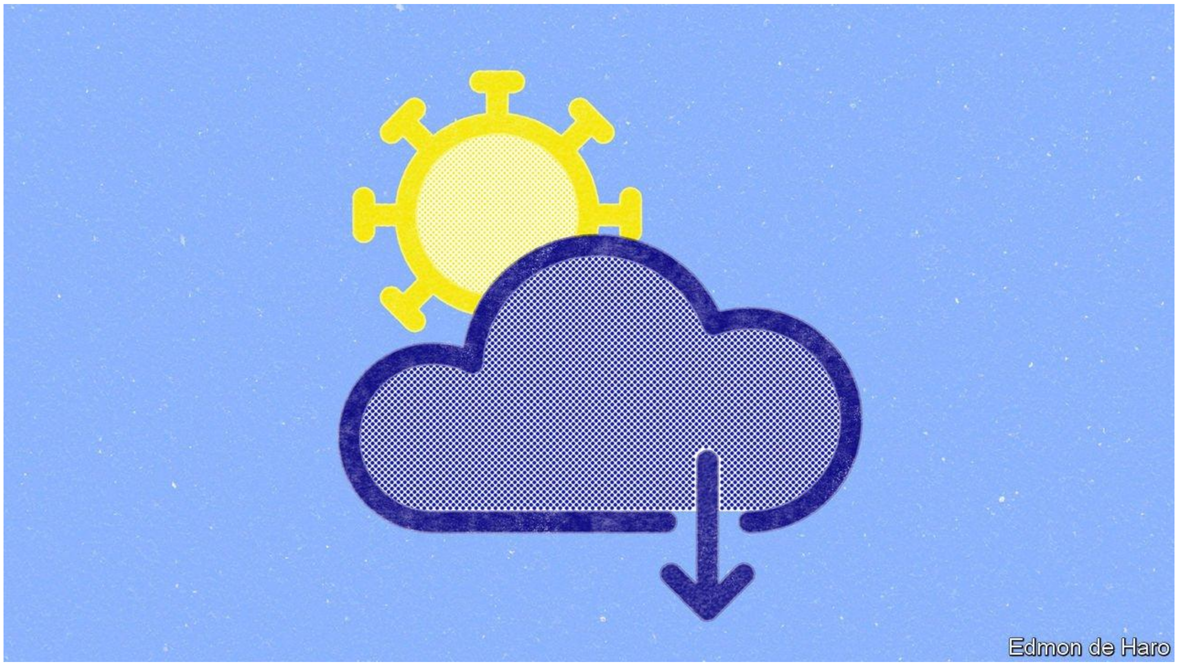
Business

Cloudy with a dearth of chips

How the pandemic has changed the weather in the technology industry

The cloud, hardware and competition are gaining in importance

Oct 30th 2021 | SAN FRANCISCO

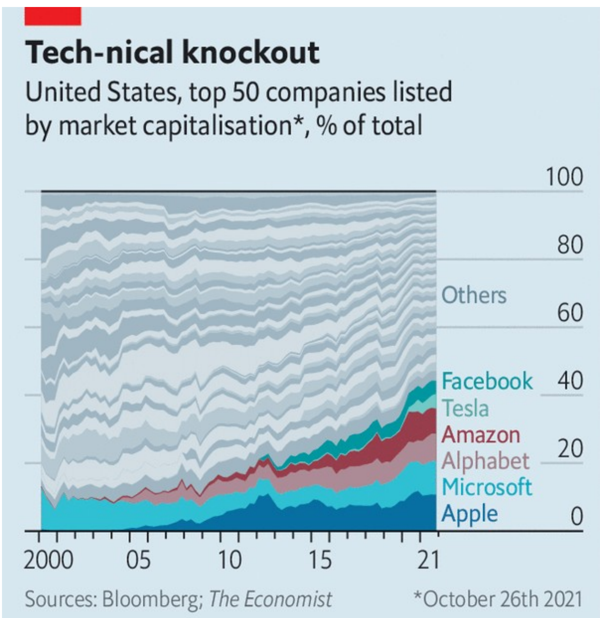


THE TECH industry recently appeared to be sitting on cloud nine. One record after another fell when quarterly results were reported three months ago. Revenues had grown by 40% on average compared with the same period a year ago and profits by 90% for the five Western technology titans—Alphabet (Google's parent company), Amazon, Facebook, Apple and Microsoft, collectively known as GAFAM. Indices of tech shares, such as the S&P 500 Information Technology benchmark, climbed to stratospheric heights.

If the latest round of quarterly earnings are any guide—three of the digital giants have already reported and results from Amazon and Apple are due to after *The Economist* goes to press—the tech industry is coming back down to earth. Assuming that the pair meet analysts' expectations, GAFAM's revenues and profits will both have increased but by a more modest 30%. Share prices are languishing. The slowdown—or breather, if you will—

provides additional evidence of the degree to which the pandemic has changed the tech industry. The question now is whether the sector is on a new trajectory or will revert to type over the next few years.

For starters, one of the first predictions when covid-19 hit in early 2020 was that it would make big tech even bigger. Those firms, ran the theory, would be best placed to benefit from an increased demand for digital offerings, whereas smaller firms, having fewer resources to get through the pandemic, would suffer most from its downsides. The first half of this prediction has come true: as the growth of the five firms' market capitalisation shows. In January 2020 their combined value accounted for 17.5% of the S&P 500.Today their share hovers around 22%.



The Economist

That said, many smaller companies have also grown in size and value. The pandemic has given rise to a group which could be called "tier-two tech", the weight of which, measured by market capitalisation, has grown notably relative to the titans. In May we defined this group to include 42 firms with a market value then of no less than $20bn that were incorporated in 2000 or later. In February 2020 these had a joint market capitalisation of 22% of GAFAM's. Today the figure stands at 31%

The reasons for this new strength are multiple. One is the large number of listings of late, particularly of tech startups: more than 100 since the start of the year, says Renaissance Capital, a data provider. Despite some high-value deals, a backlash against big tech's acquisitiveness has slowed the pace of mergers and takeovers this year. Most importantly, the pandemic has shown that there are big digital markets that are not dominated by GAFAM. The group of tier-two firms, for instance, is led by PayPal, a payments provider, that boasts a market capitalisation of $276bn.

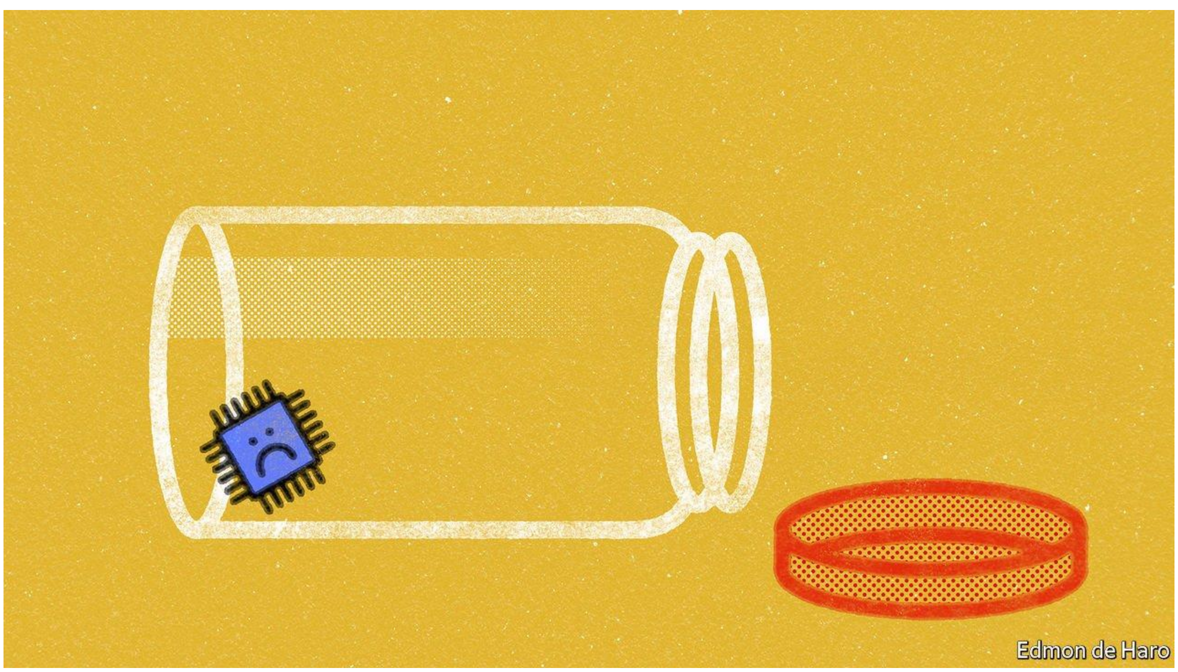
Yet the most intriguing shifts are qualitative. The first is that the tech industry has become far cloudier than previously. "We saw two years of digital transformation in two months," said Satya Nadella, the boss of Microsoft, early in the pandemic, referring mostly to the growth of its cloud. Taken together, revenues of the three biggest clouds—Microsoft's cloud business, Amazon's AWS and Google Cloud Platform, which between them provide more than 60% of online-infrastructure services—have surged by more than a third from $27bn in the fourth quarter of 2019 to nearly $37bn in the second quarter of this year.

The gathering cloud's bigger beneficiaries seem to be smaller firms, however. Taking a panel of 50-odd second-tier tech firms today, about four-fifths are providers of cloud services. Some are now forces to be reckoned with: Snowflake, a cloud-based data platform, is worth $104bn; Twilio, which provides corporate-communication services, some $61bn; and Okta, which manages employees' digital identities, some $39bn.

Older tech firms are now also more firmly anchored in the cloud. Salesforce, a software giant, was one of its pioneers. Adobe, another software titan, has successfully reinvented itself for this new form of computing. Even the cloud's laggards, Oracle and SAP, the world's largest vendors of conventional corporate software, are at last making use of it. The biggest hardware-makers—Cisco, Dell and IBM—are also increasingly selling their wares "as-a-service", accessed remotely through the cloud on a pay-per-use basis rather than installed on office computers.

The industry's second shift is that lowly hardware has also made a comeback of sorts during the pandemic, despite the migration up into the computing skies. Most surprisingly, personal computers staged a revival as remote workers required better gear. In 2020 PCs saw their biggest growth in a decade, with more than 300m devices shipped, 13% more than in 2019, according to IDC, a market-research firm. Growth has since slowed, but mainly because shortages of chips and other components are holding back production. Dell, the world's third-largest maker of PCs after Lenovo and HP, has done best, increasing shipments in the third quarter by nearly 27% compared with last year, according to IDC—almost guaranteeing good results when Dell reports on November 23rd.

Chipmakers give an even stronger signal of the return of hardware to the industry's core. Although Intel disappointed investors when it released its quarterly results on October 21st, sending its share price down, sales were up by 5% to $19.2bn and profits by 60% to $6.8bn. Samsung Electronics, the world's largest memory-chipmaker, which will also reported results on October 27th, saw its profits jump to the highest level in three years. And TSMC, the top contract manufacturer of semiconductors, for its part said on October 14th that sales had continued to grow at a rapid clip, reaching $14.9bn with net income coming in at $5.6bn, an increase of 16.3% and 13.8% respectively.



The big question is whether the three companies can profitably follow through on their record-breaking investment plans. These are meant to satisfy growing demand for chips not just from cloud providers, but from firms making gear for what is called the “edge”: devices connecting to the cloud or extending it, from smartphones to intelligent sensors. Intel, for instance, has said that it will invest up to $28bn in 2022. TSMC plans to spend $100bn over the next three years to expand its chip-fabrication capacity.

The third big change to the tech industry during the pandemic may be the most consequential: increased competition. Although members of GAFAM have yet to attack each other’s main franchises, such as online search in the case of Google and ecommerce for Amazon, rivalries have heated up. So far, vigorously competing clouds and changes in Apple’s privacy policies on the iPhone—which hurt Facebook’s ad revenues according to results released on October 25th—are the main examples. But on October 21st Google announced that it would lower the fee it charges providers of subscriptions in its app store to 15%, putting pressure on Apple to do the same. And with so many people now working remotely and probably continuing to do so, a platform battle has broken out between Google, Microsoft, Salesforce and Zoom, a popular videoconferencing service, over which will dominate the virtual office.

Other firms are also picking more fights with GAFAM. Facebook’s social-media fortress looks a lot less safe now that it has at least two serious rivals: America’s Snapchat, a social network owned by Snap, and TikTok, the short-video app operated by ByteDance, a Chinese internet giant. According to data divulged in a recent wave of leaks, Facebook’s teenage users in America now spend two to three times longer on TikTok than on Instagram, which belongs to the American social-media conglomerate. Amazon also faces more competition, both in the form of incumbents that have at last embraced the digital world, including Walmart, and newcomers, such as Shopify, which helps merchants sell online and fulfil orders. PayPal’s attempt to buy Pinterest, another social network, now seems to have been abandoned, but it would have helped PayPal to move deeper into ecommerce.

After nearly two years of covid-19 the tech industry is cloudier, more tied to hardware and more turbulent. Of these trends, the first two are unlikely to last for ever, at least in their current form. Digital meteorologists argue that the cloud has already reached "peak centralisation", meaning that it will henceforth grow not so much through football-pitch-sized data centres, but at the "edge", where its digital services touch the physical world. And given the economics of the semiconductor industry—fabrication plants often cost over $10bn and take years to build—the chip shortage could eventually turn into a glut.

A more open question is how long the new phase of competition will last. Optimists argue that, after a long period of ossification, the pandemic has helped push the industry into a more dynamic period, in which the giants compete with each other as well as with smaller firms. Pessimists say that this phase will not last long—and that the industry's leaders will sooner or later shore up their fortresses and buy out competitors. And that is why, more than ever before, trustbusters should not let down their guard.■

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Poison-pill popping

Will Japan’s new prime minister continue to reform corporate governance?

A hostile takeover should provide some clues

Oct 30th 2021 | HONG KONG

KISHIDA FUMIO, Japan’s new prime minister, has voiced no opposition to the corporate-governance reforms of Abe Shinzo. His predecessor’s efforts to make Japanese companies more focused on shareholder returns and less beholden to insider management were central to his economic reforms. But nor has Mr Kishida said much in their favour. Proposals for tax breaks for companies that increase wages have made it into the manifesto of his ruling Liberal Democratic Party, as have references to the importance of stakeholders over shareholders. That will worry those who think Japanese shareholder capitalism has not yet gone far enough.

A new test will provide more evidence of Mr Kishida’s attitude to changing the behaviour of Japan Inc. In September SBI Holdings, a financial conglomerate, made an unsolicited takeover offer which would raise its holding in Shinsei Bank, a regional lender, from around 20% to 48%. SBI has ambitions to create a Japanese megabank through alliances and acquisitions. The consolidation of the country's multitudinous small banks is precisely the sort of change the corporate-governance reforms were implemented to facilitate. Shinsei Bank opposes the offer as it stands, making it a hostile bid, still an extremely rare event in Japan. It is willing to defend itself using a "poison pill" which would dilute SBI's holding, subject to shareholder approval in a meeting on November 25th.

That puts the government in a tricky position. It holds around 22% of voting shares in Shinsei Bank through the Deposit Insurance Corporation of Japan and the Resolution and Collection Corporation. These institutions are involved as the result of a bail-out long ago of Shinsei's former incarnation. The government cannot sell the stake because rules prevent making a loss on Japanese taxpayers' investment, but it can vote on the poison pill.

Approval, rejection or an abstention would offer some fresh insight into the government's appetite to press ahead with reforms that have brought a number of welcome changes. The prevalence of cross-shareholdings has declined. Among non-financial companies listed on the Topix 100 Index, the total number of shares held in this way dropped by around 20% between March 2013 and March 2020. The proportion of all listed firms adopting anti-takeover measures has also fallen from 19% in 2012 to 8% last year. Over the same period, the portion of companies without a single outside director went from 45% to 1%.It seems to have worked. Profits (measured by a common Japanese accounting standard) as a proportion of sales reached 6% shortly before the pandemic, the highest level since records began in 1950s.

There is still room for improvement says Nicholas Benes of the Board DirectorTraining Institute of Japan. He regards disclosure as a crucial area where a change of policy could yield significant results. In June the country's corporate-governance code was revised to require listing the skills and experience of directors as well as broadening disclosure requirements for large listed firms in fields such as environmental policy. "This is a jungle of largely unreadable, sometimes encrypted [documents], written with a variety of different formats," says Mr Benes. Standardising such publications and making them machine-readable would be a simple way of improving investors' access to information.

Greater scrutiny can yield results. In June Toshiba's chairman, Nagayama Osamu, was ousted by shareholders following a report that alleged that the firm's management and the Ministry of Economy, Trade and Industry had colluded to put pressure on big investors to back management at an annual general meeting. (He expressed his regret at the "unacceptable events".) But efforts at reform often get bogged down by Japan's bureaucracy. The Ministry of Finance, the Financial Services Agency, the Tokyo Stock Exchange and Ministry of Justice all play a part in introducing and enforcing new regulations.

Clear leadership by Mr Kishida might help to set a path through the swamp. The outcome of the takeover attempt at Shinsei will show whether there is still enough momentum to improve corporate governance or whether old impulses run deep. ■

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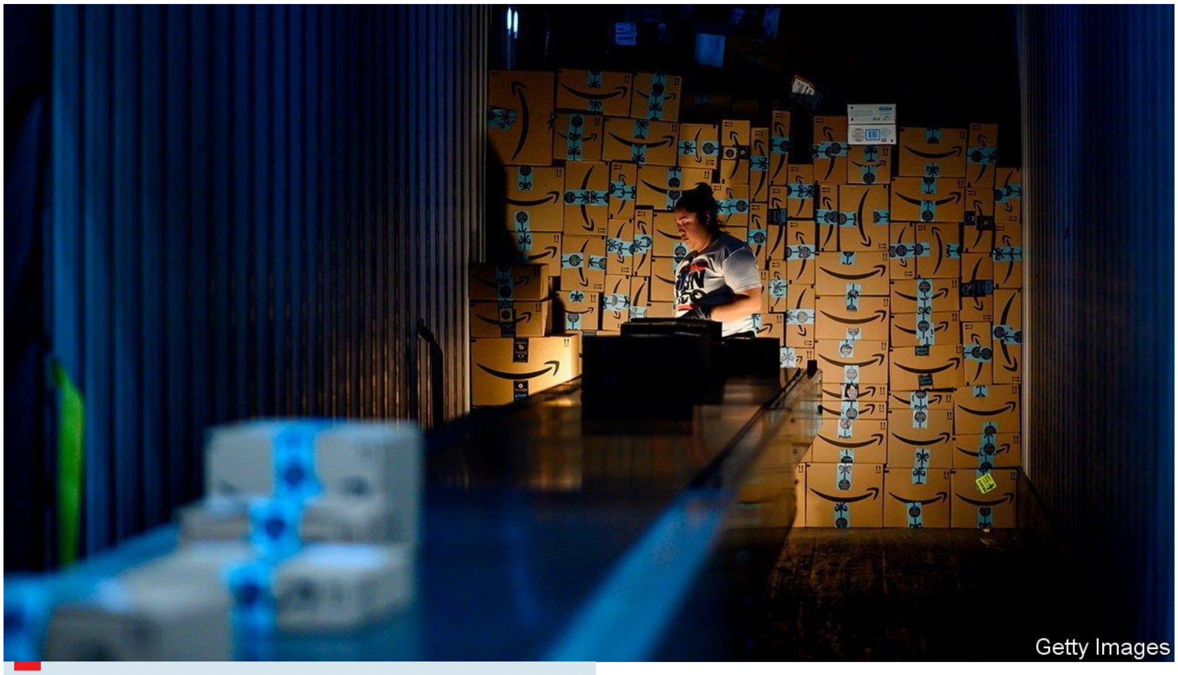
Trouble brewing

Worries ahead for American firms

Oct 30th 2021



The Economist

THE PROFITS cranked out by American businesses make them look indestructible. Despite a pandemic and savage slump in 2020, the net income of large American firms for the third quarter of this year is expected to exceed $400bn. Yet as the earnings season gets into full swing three worries are circulating: supply-chain tangles, inflation and wages, and concerns that competition is intensifying in some industries.

Thinking outside the box

The rapid growth of retail subscription services could be coming to an end

Box-sellers are trying to adapt

Oct 30th 2021 | NEW YORK

TRADE COFFEE shifted under 1m bags of whole and ground beans between beginning operations in April 2018 and the start of the pandemic in March 2020. By the start of 2022 it will have sold another 4m or so, says its boss, Mike Lackman. It has benefited from a covid-era craze for subscriptions. Confined at home, consumers round the world hit “subscribe” on all manner of boxes delivered to their doorsteps, from drinks and meal kits to scented candles, razors and underwear. Sales in America surged by over 40% during 2020 to $23bn according to eMarketer, a research firm. But hanging on to those customers as lockdowns start to ease will be hard.

Investors like a business which offers recurring sales and oodles of data on customers. The Subscription Trade Association reckons global revenues grew at an average annual rate of 17% between 2014 and 2019. That encouraged venture-capital firms to invest close to $3bn worldwide in online subscription firms between 2018 and 2020, according to PitchBook Data.

But finding customers is pricey and keeping them has proved hard, given high cancellation rates among those who find themselves tossing away unused products at the end of the month. Shipping costs nibble away at margins.

Competition has intensified, both from a fresh influx of startups and large established firms that have launched or acquired their own services. Early entrants such as Walmart, which introduced Beauty Box in 2014 featuring popular cosmetic brands, and Unilever, a British consumer-goods giant, which bought Dollar Shave Club for $1bnin 2016, have been joined by the likes of URBN, which owns fashion brands such as Urban Outfitters. In 2019 it launched Nuuly, a clothing-rental service.

More firms are fighting over a pie that will expand more slowly as customers return to physical shops. Companies such as Mr Lackman's are trying to adapt. He is giving subscribers more flexibility over how often they receive coffee. Stitch Fix, an online clothing marketplace, has introduced one-off purchases.But acting more like a regular online retailer diminishes the advantages of selling subscriptions, and may not stop shoppers from clicking the "unsubscribe" button.

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Splitting time?

An activist investor targets Shell

The plan to break up an oil major

Oct 30th 2021 | NEW YORK

"THERE IS PERHAPS no bigger ESG opportunity than in 'Big Oil', and specifically, at Royal Dutch Shell." Regarding Shell as an environmental, social and governance investment is the hyper-green explanation offered by Dan Loeb for his move against one of the fossil-fuel industry's biggest firms. Third Point, an activist hedge fund run by Mr Loeb, revealed on October 27th that it has taken a stake (thought to be worth $750m) in the Anglo-Dutch oil firm. His aim, Mr Loeb declared, is to unleash trapped shareholder value by forcing the breakup of the energy supermajor.

The accelerating race to decarbonise the global economy has put the world's oil companies in a bind. They are denounced as immoral carbon-spewers for peddling petroleum. On October 28th, executives from several big oil firms were due to be grilled by America's Congress, with some politicians vowing a repeat of the treatment handed out to Big Tobacco. In May Shell was ordered by a Dutch court to slash its emissions of greenhouse gases (GHGs) by 45% below the levels in 2019 by the end of this decade, a ruling that it is now challenging in a higher court.

In response to the legal challenge and mounting financial pressure from ESG investors, Shell's management has been speeding up its cautious embrace of greenery. The firm says spending on renewable energy and low-carbon technologies will make up a quarter of its budget by 2025. It is putting money into hydrogen, carbon capture and sequestration, and other non-oily efforts. It is also slowly shrinking its petroleum footprint, divesting some $4.7bn worth of refineries and hydrocarbon assets in the first half of 2021. Environmentalists remain unsatisfied.

On the other hand, the company is also criticised by hard-hearted investors who care little for ESG fads but do demand better financial returns. Though Mr Loeb dons a green cloak, he is more obviously in this camp. His explanation for his move on Shell starts by observing that "it has been a difficult two decades for shareholders", with annualised returns of only 3% and falling returns on capital. On October 28th, Shell's announced quarterly results that sought to please everyone. It said that adjusted profits had increased four-fold compared with a year ago and that cash flows were at a record, and set a new target of halving its emissions by 2030 compared to 2016 levels.

Third Point thinks Shell's long-run underperformance arises from "too many competing stakeholders pushing it in too many different directions." The resulting incoherent strategies can only be fixed, it insists, by breaking up Shell into "multiple standalone companies". IHS Markit, a research firm, identifies "strategic divergence" among oil majors into three camps in response to the carbon challenge. The unrepentant, like America's ExxonMobil and Chevron, have stuck with legacy oil and gas businesses. The super-green, like Eni and BP, have dramatically shifted their portfolio mix towards low-carbon energy.

The problem, argues Christyan Malek of JPMorgan, a bank, lies with those in the third camp like Shell, which have tried to do both. "Investors' apparent lack of conviction in the hybrid model has forced a rethink," he says in explaining why a challenge like Third Point's was inevitable. On his analysis, Shell's massive business in natural gas is undervalued because it is tarred with the same dirty brush as its oil division, and should be spun out. “Shell’s ‘breakup-ability’ is quite high once you consider renewables plus gas”, he insists.

So will Shell really be split up? It is unlikely. Mr Loeb’s investment may seem big until you consider Shell’s valuation of roughly $190bn, making it a mere 0.4% stake. Ben van Beurden, Shell’s boss, is well-established, at the peak of his power and backed by a board whose chairman, Andrew Mackenzie, fiercely battled a similar activist challenge when he ran BHP, an Australian mining firm. However attractive a split might be in theory, Mr Malek reckons there is not enough financial pressure to force a break up.

Even so, Shell’s boss would be wise to heed some of Mr Loeb’s unsolicited advice. Short of dismantling his empire, he could give his renewables and gas divisions far more autonomy and capital, for example. If he chooses instead to stick with the current hybrid muddle, he may find that it satisfies neither the greens nor the greedy.■

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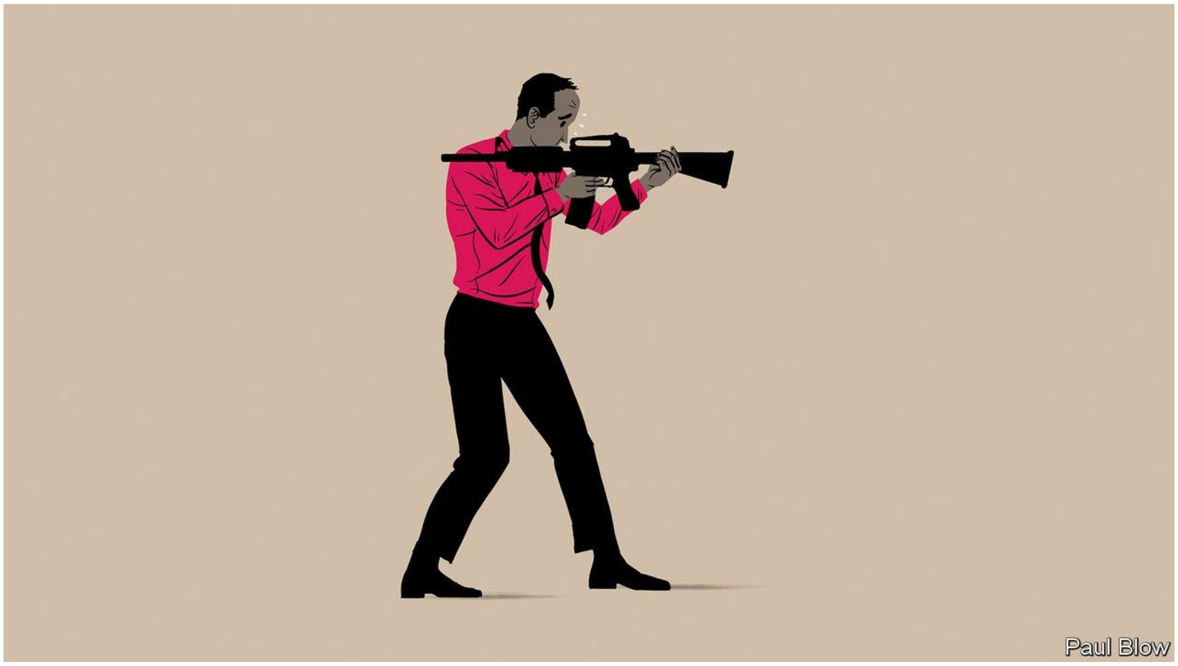
Bartleby

The limits to the lessons of army leadership

Life in uniform is very different from life in suits

Oct 30th 2021



ONE OF THE all-time-great corporate emails was sent several years ago, by a manager at Shell to pep up a team of oil engineers on a project in the far east of Russia. "Personally, I, like most others, love winning," he raved. "I despise cowards and play to win all of the time."

The language was bizarre in other ways, too. "When everyone of you were kids, I am sure that you all admired the champion marble player" struck a chord with precisely no one in 2007. The anachronism was because the writer borrowed liberally from a stirring speech by General George Patton to American troops in 1944. Patton's "all real Americans love the sting and clash of battle" became "all real engineers love the sting and clash of challenge." And so on.

Copying from the army is seldom so cack-handed, but the idea that managers have lessons to learn from uniformed types persists. A cottage industry rests on the conceit that soldiers have insights into leadership that can be of use in the boardroom. Two new books based on the premise have come out this month—"Risk: A User's Guide" co-written by Stanley McChrystal, a retired four-star general in the US Army, and "The Habit of Excellence" by Lieutenant-Colonel Langley Sharp, a British officer.

General McChrystal's book is a pot-pourri of anecdotes and case studies on how to manage risk. The general's idea of creating "fusion cells" to bring together a network of intelligence teams in the fight against al-Qaeda has spread to other areas: the state of Missouri did something similar to connect different agencies to combat covid-19.

Lieutenant-Colonel Sharp has written the more distinctive book, a detailed account of how the British army goes about developing its leaders. Much of the thinking will be surprisingly familiar to managers. The army's concept of "mission command", in which the overall intent of a mission is set at the centre and the decision-making that brings it to fruition is delegated to people on the ground, is akin to the ethos of agile software development. "Serve to Lead", the motto of the army's academy at Sandhurst, came decades before the now-modish management theory of "servant-leadership".

Yet these echoes are only that. The differences between leading in the armed forces and leading a business come through more strongly from both books than the similarities. Most obviously, the use of lethal force tends not to be a big feature of corporate life. The stakes are much lower, and the calculus of risk is therefore just different.

Leaders in the armed forces can draw on deeper motivations among soldiers than bosses can with their employees. History offers a shared narrative to those in service. Patriotism provides a ready-made sense of purpose. And nationality operates like a permanent non-compete clause: soldiers do not change their allegiances to countries in the same way that workers can switch companies. "England expects that every man will do his duty," was the message that Admiral Nelson sent his sailors before the battle of Trafalgar in 1805. Swap in the name of your employer and see how it sounds.

The contrasts do not end there. Leaders in the armed forces play a much more familial role than the average boss. They will have been in the forces themselves for years. The people below them are often very young. Many live and work in close proximity.

The armed forces also emphasise intensive training in preparation for moments of extreme stress, when there is no time for senior figures to be consulted. When pivotal decisions need to be made at companies, the bigwigs schedule a meeting weeks in advance. The closest analogues of army leadership lie in elite sports rather than in firms.

It is interesting for civilians to read about army life, but largely because it is so alien. It may make sense to hire veterans, but as part of the mix rather than as a template. A research paper from 2014 found that bosses who had been in the armed forces were more conservative than those who had not donned uniform. They invested less; they were less likely to commit fraud; and their firms performed better in times of crisis.

Patton's speech in 1944 ended by imagining what his soldiers would say to their grandchildren after the war was long over: "Son, your Granddaddy rode with the Great Third Army and a Son-of-a-Goddamned-Bitch named Georgie Patton!" The Shell executive's missive finished thus: "Details of the team are summarised in the enclosed email." War and work are not the same.

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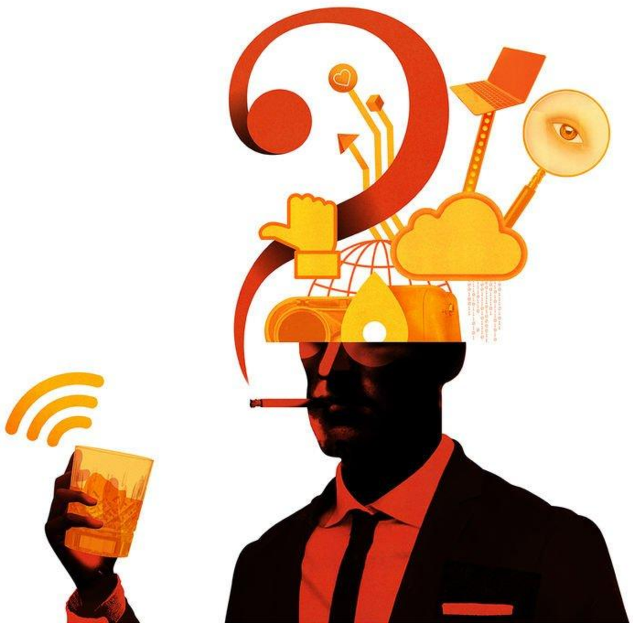
Schumpeter

The three unknowns of the modern ad age

For all its aura of precision, the digital-ad industry is as murky as ever

Oct 30th 2021



Brett Ryder

AS WELL AS a louche mystique, there has always been something murky about advertising. From P.T. Barnum's "Mammoth Fat Infant: only three years old and weighing 196 POUNDS" to three-martini lunches at the dawn of the TV era, it was never quite clear whether the adman was artist, scientist, strong-livered schmoozer or con man. For all the wit and wiliness on Madison Avenue, the economic cycle had a much more direct impact on ad spending. And it was a wonder companies embraced the medium at all. As far back as 1904, the *Atlantic*, an American magazine, wrote that an estimated 75% of advertisements did not pay; yet the other 25% paid so well "there is scarcely a businessman who is prepared to stand idly by."

In the digital age the guesswork should have become a thing of the past. User IDs, device-tracking technology and electronic marketplaces handling billions of transactions a day have turned the targeting of individuals into a drone strike rather than a hit-or-miss barrage. Costs have come down, so millions of online businesses, instead of renting premises, have turned digital ads into the Yellow Pages on steroids. People are spending more time glued to screens, giving advertisers more scope to seduce them. The result has been stunning growth. MoffettNathanson, a research firm, says digital ads have grown from 27% of all dollars spent on advertising in America in 2015 to 52% (TV, the second-biggest category, has dropped from 42% to 33%). Until recently, the main question asked on Wall Street was not whether the feast would continue but how soon the digital share would reach 80%?

For the first time, the past week has dented those convictions. On October 21st Snap, a photo-sharing platform, revealed that it had been caught flat-footed in the third quarter by new privacy measures introduced by Apple to enable users of iPhones and its other devices to stop advertisers tracking them across the web. Though revenues of $1.07bn were only just shy of expectations, it lost a quarter of its value in a day. Facebook, a social-media giant, recorded $28.3bn in ad revenues, a third higher than the prior year, but that was lower than expected. It is having to increase spending next year partly to improve its targeting and measurement techniques to counteract Apple's restrictions. Alphabet, which owns Google, bucked the trend, recording its highest sales growth in more than a decade in the third quarter; its search engine, source of almost all of its ad revenue, seems immune to Apple's changes.

For all of them, the underlying digital-ad market still looked vibrant. But their divergent performances raise three big questions about the future of advertising. For all its aura of precision, it's an industry still full of unknowns.

The first one concerns the correlation between advertising and economic growth. Sir Martin Sorrell, chairman of S4 Capital, an advertising agency, notes that digital ads easily outperformed their analogue counterparts during the pandemic, indicating a break in the age-old link with GDP because of a structural shift as the economy moves online. But whether that shift continues is a matter of faith, not fact. Economic factors may already be re-emerging. Both Facebook and Snap said tangled supply chains would diminish the incentives to advertise in the lucrative holiday period because of fewer goods on shelves. Moreover, even if the link with GDP has frayed, online ads appear to correlate closely with growth in e-commerce, which

Facebook says is slowing as the pandemic fades. In America, there is growing evidence that consumer confidence is on the wane, which could affect one of the biggest factors believed to be fuelling the ad boom—the explosion of new businesses, many of them small-time online retailers.

The second unknown is the extent to which consumers will continue to tolerate advertisers stalking them. According to Flurry, an app-analytics firm, only about one in five app users have opted in to being tracked since Apple's iOS 14.5 launch in April gave them the option to choose. That suggests a keen embrace of privacy, which vindicates Apple's hunch. That said, Apple may be benefiting at its rivals' expense. The opt-in only applies to third-party apps. Meanwhile Apple's advertising business is booming, especially in relation to searches on its App Store, according to Bernstein, an investment firm. Moreover, its privacy push is provoking rivals, such as Facebook, to make counter-moves into virtual-reality headsets and 3D digital worlds it calls the metaverse, in order to create a parallel universe to that dominated by Apple. Bernstein's Mark Shmulik calls such domains "walled gardens". If consumers discover they are just a way of better bombarding them with ads, the gardens will soon feel more like prisons.

The third unknown is the firms paying for all the ads. The tech giants provide little detail about where they come from, what size of firms they are, and on what they are spending their money. The result is a lot of frustrating sleuthing and guesswork. Brian Wieser of GroupM, the world's largest media buyer, estimates from Facebook's billing-address data that Chinese manufacturers selling abroad account for approaching $10bn of advertising on the social network this year. He points to third-party data suggesting that more than 40% of Amazon's marketplace sellers are from China, but Amazon does not disclose such information. There is scant reporting quantifying the number of small versus large advertisers, and whether they are paying for brand-related advertising or for direct sales. The industry remains as murky as ever.

From grey-flannel suits to just flannel

The platforms promise precision to their advertisers based on consumers' data. But they fail to reveal anything like enough information to enable outsiders to gauge the robustness of the digital-ad craze. The result, shared by many in the industry, is blithe optimism that the market will continue to grow like Topsy. The past few days have provided a welcome opportunity to re-examine that thought. ■

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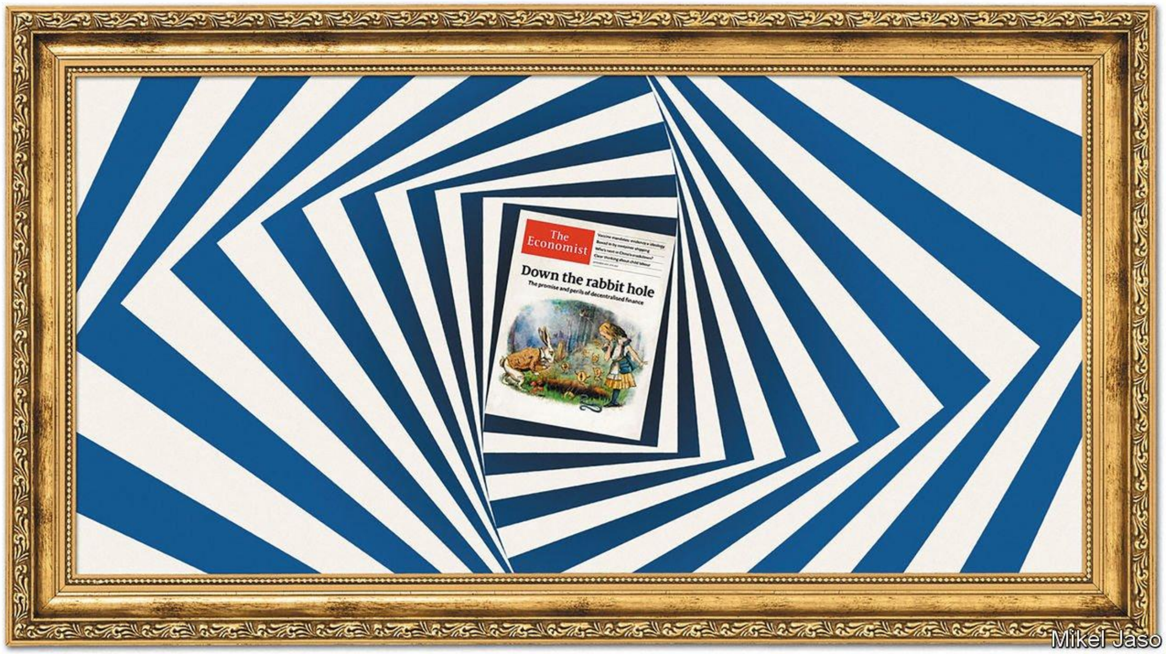
Finance & economics

Through the looking glass

The market for non-fungible tokens is evolving

The Economist joins the fray by auctioning an NFT of our cover

Oct 30th 2021 | NEW YORK



Mikel Jaso

JOURNALISM IS ABOUT telling a story, rather than living it. Yet sometimes these two realities collide. When a new technology shows promise, trying it out can help tell the story. In September we wrote that non-fungible tokens (NFTs) and the crypto infrastructure they sit on could in time transform finance and the digital economy. Our cover image that accompanied the article, inspired by “Alice in Wonderland”, shows Alice tentatively peering over the edge of the rabbit hole, into this weird new world.

Now she is part of it. On October 25th *The Economist* auctioned an NFT of that cover image, raising 99.9 ether (around $420,000) for charity. In addition to raising money for a good cause, the sale allowed us to grasp more fully the potential of the technology.

An NFT is a record, typically on the Ethereum blockchain, that represents a piece of digital media: an image, say, or some text, or a video. Invented in 2014, NFTs enjoyed a mini-boom in 2017 as “cryptokitties”, collectable images of digital cats, began selling for thousands of dollars. But the tokens grabbed the headlines in March this year when Christie's, an auction house, sold an NFT of a work by Beeple, a digital artist, for $69.3m.

Today the total value of NFTs issued on the Ethereum blockchain is $14.3bn, according to DappRadar, a research company, up from around $340m last year. According to a poll conducted in March by Harris, a market-research firm, 11% of American adults say they have purchased an NFT (only a percentage point less than those investing in commodities). Analysts at Jefferies, an investment bank, expect the value of NFTs to double next year, and to approach $80bn by 2025. Furthermore, the tokens' use is expanding beyond cats and collectables. In time, they could prove useful for all sorts of activities in both the digital and the real worlds.

NFTs are crypto-tokens, like bitcoin or other cryptocurrencies. Bitcoin, however, is fungible: one unit is worth the same as any other, much like a dollar bill or a print copy of the latest issue of *The Economist*. NFTs, like plane tickets and baseball cards, are not. The tokens store some data, often including the name of the NFT and a link to a digital image. Each token is unique and can be held only in a single online wallet. The image, however, can be viewed, copied or downloaded by anyone.

Curiouser and curiouser

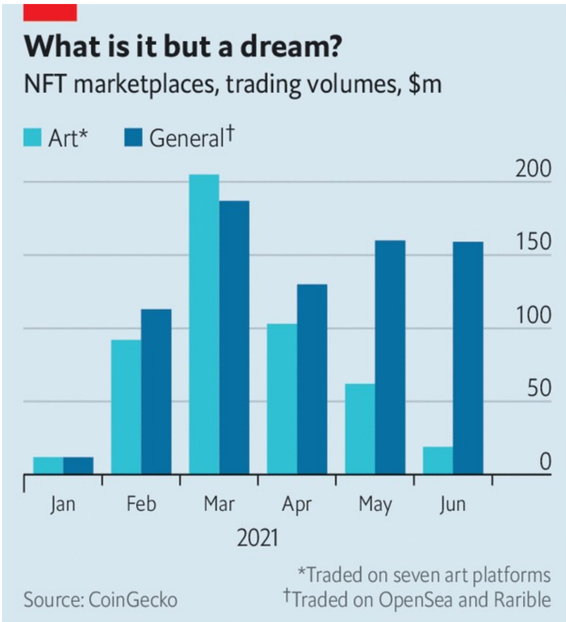
Why would such a set-up exist? NFTs were invented by Anil Dash, an entrepreneur, and Kevin McCoy, an artist, to help convey that an item was a digital original. They offer proof that the holder owns that specific token, even if it does not give them copyright or exclusive use of that work. Even Mr Dash seems a little bemused by their popularity. "If you liked an artwork, would you pay more for it just because someone included its name in a spreadsheet? I probably wouldn't," he wrote in April. But, he added, "Putting artworks on the blockchain is like listing them in an auction catalogue. It adds a measure of certainty about the work being considered." Being able to separate the artist's original creation from mere copies does confer some value.

NFTs have other potentially useful features. Because they live on an open blockchain system, the history of transactions involving them can be viewed publicly. That makes it possible to code features into the contracts that govern how they are bought and sold. Digital artists can retain a stake in their work, entitling them to a share of the proceeds if the digital original goes on to be sold. This is something that small artists might struggle to enforce through conventional means.

In theory, an NFT could link to text including a legal contract that confers a specific type of property right or ownership. In practice, however, nothing is included. The property rights for art NFTs are instead typically set out by the specific platform used to issue them. Some make clear that the issuer of an NFT must have copyright over the work they are minting. The terms of Foundation, the platform that *The Economist* used, spell out that the buyer of an NFT has rights that resemble a licence to use an image in limited ways: they can publicly display and copy the NFT for personal use, for instance, but cannot use it for commercial purposes.

If I had a world of my own

Monthly NFT-trading volumes on designated art platforms, including Nifty Gateway and Foundation, reached $205m in March this year, with the sale of Beeple's opus marking the height of the frenzy. The ardour for art has cooled since. But the wider market for NFTs is evolving. The idea of issuing a unique token that contains information, proves ownership and includes some ownership rights has taken hold for other uses. Secondary trading on OpenSea and Rarible, platforms that offer all sorts of NFTs, has been stable (see chart).



The Economist

Many venture capitalists and developers are attempting to build a new kind of digital economy, in which everything you do online will be run through "decentralised" applications that can be owned and operated by their users. The distribution of all kinds of digital content, like pictures, videos and even articles, could eventually start to take place through something like today's NFTs.

Something similar is already happening in gaming. Among the most valuable categories of tokens are those used in "Axie Infinity", a game with 250,000 daily active users. Players collect, breed, battle and trade little creatures, which are digitised as NFTs, and earn other tokens, some of which give them a stake in how the game is developed. Dom Hofmann, a creator of Vine, a video-sharing app that has since shut down, is launching Supdrive, a video-game platform in which the games themselves are sold as NFTs. And some of the biggest types of NFTs are those used to trade virtual plots of land in immersive online worlds known as "metaverses".

But the tokens could also be useful for activities conducted in the real world. Some universities are experimenting with using them to fund research. The University of California at Berkeley raised $50,000 by selling an NFT based on documents relating to Nobel-prizewinning research on cancer immunotherapy as a collectable item. It is planning another, similar auction.

The country of San Marino has approved the use of tokens as digital covid-vaccine passports.

The fact that they signal proof of ownership could make NFTs useful for financial activities. Much as they make virtual-land transfers possible, they could become a way to exchange real-life property deeds, or other sorts of contracts. In June Michael Arrington, the founder of TechCrunch, a media company, sold a flat in Kyiv in this way (the platform listing the property got agreement from Ukraine's government that the sale of the NFT would be registered as a transfer of a property deed). NFTs would also allow buyers and sellers to tap into a growing number of decentralised-financial applications that are based on blockchains and can make loans without the need for trusted intermediaries.

Like any new technology, NFTs have flaws. Technical limits when they were first created mean that they contain a link to the image, rather than the image itself. That can be a weakness: unscrupulous sellers have broken or changed links after a transaction. Blockchain technologies consume electricity wantonly; we estimate that our experiment created emissions similar to having a seat on a long-haul flight. And the identity of a buyer of an NFT, and the provenance of their funds, cannot always be known. Some solutions are in the works: a decentralised storage system, for instance, tries to fix the problem of broken links; some applications try to touch the blockchain as little as possible, generating fewer emissions. If the promise of the technology is to be realised fully, more innovation will be needed.

Time will tell, then, whether cryptokitties will prove to have been the start of a revolution in how people live their lives online. But our experiment suggests that the potential for a new kind of digital economy seems great enough, at least, to warrant closer examination. ■

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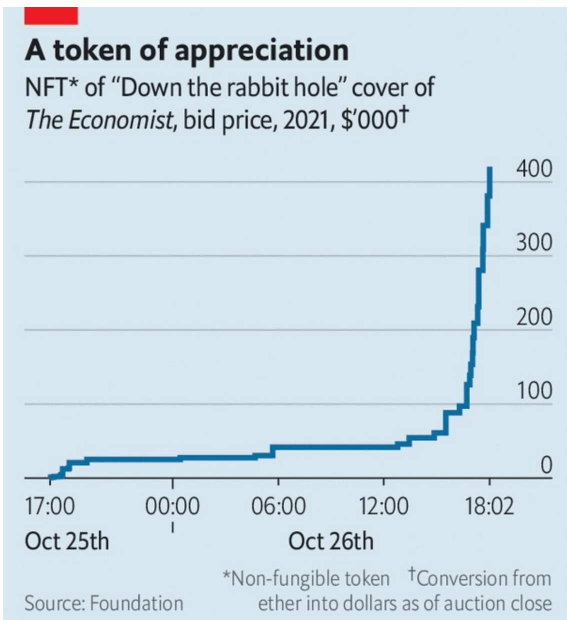
Alice's adventures

How our NFT auction went

We raised around $420,000 for charity

Oct 30th 2021

"DOWN THE rabbit hole", were the words on our cover on decentralised finance in September. To illustrate it Justin Metz, a visual artist, looked to the first edition of "Alice in Wonderland" for inspiration. On 25th October we put a non-fungible token (NFT) of that cover up for sale. A little over a day later, after a late flurry of bids, it sold for 99.9 ether (around $420,000).



The Economist

With "Down the rabbit hole" we sought to convey the dizzying sense of adventure and weirdness associated with the world of NFTs and blockchains. The winning bidder, who goes by the alias @9x9x9 and spends many hours a day trading NFTs, told us that the description was bang-on.

The proceeds of the sale, less fees, transaction costs and potential tax liabilities, will be donated to The Economist Educational Foundation, an independent charity that teaches young people to analyse current affairs. *The Economist* will retain a royalty stake of 10% of all future resales of the NFT, which will also be donated to the educational foundation.

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Corporate minimum tax

The Democrats target companies with giant profits but tiny tax bills

A minimum tax on corporate income seems alluring, but is likely to disappoint

Oct 30th 2021 | WASHINGTON, DC

ON THE FACE of things, it seems both absurd and unfair that large American companies regularly whittle down their tax bills, taking advantage of every loophole on offer. One study found that at least 55 big companies incurred no federal taxes at all on their profits in 2020. A proposal being discussed as *The Economist* went to press, and as the Democratic Party scrambled to fund its social-spending package, seems to offer a popular solution: a minimum tax on corporate earnings as reported to shareholders, rather than as massaged down when reported to tax collectors.

The structure of the minimum tax looks simple enough. Companies that report more than $1bn in profits to shareholders would pay a tax of at least 15% on those profits. The levy would be explicitly aimed at firms such as Amazon, which had an effective federal income-tax rate of just 4.3% from 2018 to 2020, far below the statutory rate of 21%, according to the Institute on Taxation and Economic Policy, a left-leaning think-tank. All told, the new tax would apply to some 200 big companies.

Politically, the minimum corporate tax has much going for it. Angus King, an independent senator who is an architect of the proposal, believes it could raise $400bn over ten years. That would help fund the bill that is the cornerstone of President Joe Biden's "Build Back Better" agenda, featuring about $2trn in spending over the next decade (equivalent to less than 1% of projected GDP during that time). The corporate minimum is also less controversial than another new levy the Democrats were rowing over, a tax on unrealised capital gains that would target 700 billionaires.

Democrats had hoped at first to rely on a general increase in the corporate-tax rate to raise revenues. But Kyrsten Sinema, a Democratic senator from Arizona whose support is needed for the bill to pass, opposed the wider increase and has instead backed the minimum tax as "commonsense". The idea also has the approval of Joe Manchin, a Democratic senator from West Virginia, whose vote could prove decisive.

The economic rationale is, however, more dubious. Despite its apparently simple structure, it would introduce more complexity into an already bloated tax code. Companies would face two parallel systems, calculating their liabilities first under regular tax rules and then under the minimum-tax regime. An earlier version of a minimum corporate tax, repealed under President Donald Trump in 2017, was so onerous that in some years compliance costs outstripped tax collections.

The gap between taxable income and book income as reported to shareholders exists for a reason. When, say, a company builds a factory, financial rules require it to spread the cost over many years based on depreciation, letting investors know the value of its assets. Tax rules, however, let firms report costs when incurred. That lowers tax bills when investments are made and encourages more spending.

Calculating minimum taxes based on book, rather than taxable, income would lead to two perverse outcomes. First, powers over tax would, in effect, be granted to the Financial Accounting Standards Board, an unelected body that governs how companies report income. Changes in its standards would lead to changes in taxation.

Second, companies would have less scope for deducting investment expenses, and hence might pare back capital spending. Mr Biden, though, does not want that to happen, so the proposal maintains several deductions, including for spending on clean energy and on research and development—one of the provisions that may have allowed Amazon to lower its taxes.

Companies, for their part, will adapt. By turning more to debt instead of equity markets for financing, for instance, they could increase their interest expenses, which would eat into both their book and taxable incomes. The upshot is that the minimum corporate tax may end up raising far less revenue than its proponents believe, while also skewing investment incentives—and making a messy tax code even more complicated. ■

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Perverse but persistent

As energy prices spike, governments reach for the dirtiest tool in the box

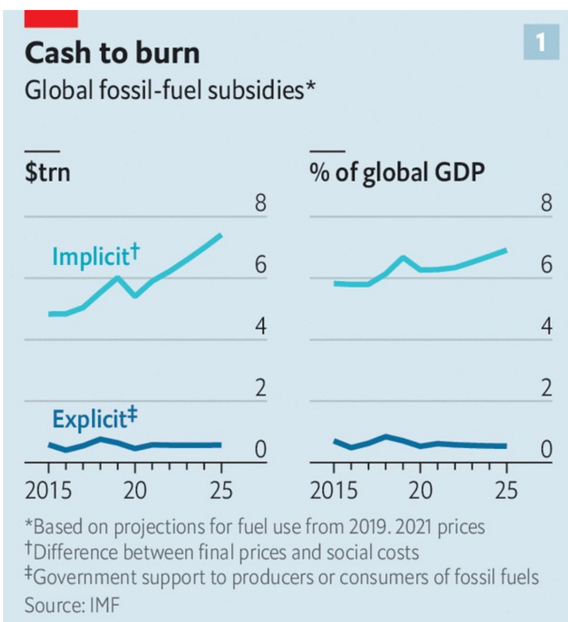
A new IMF study shows that fossil-fuel subsidies are a climate nightmare

Oct 30th 2021 | NEW YORK

"THIS REFORM will increase our energy security...and it will help us combat the threat posed by climate change." Those hopeful words were uttered by Barack Obama, then America's president, at the end of a meeting of the G20 group of countries in Pittsburgh in 2009. The gathered leaders had agreed to phase out subsidies for fossil fuels, which, by encouraging the use of polluting fuels, tilt the playing field against cleaner alternatives. Twelve years later, however, fossil-fuel subsidies are still hanging on. And as a severe energy-supply crunch leads to soaring prices around the world, they are making something of a comeback.

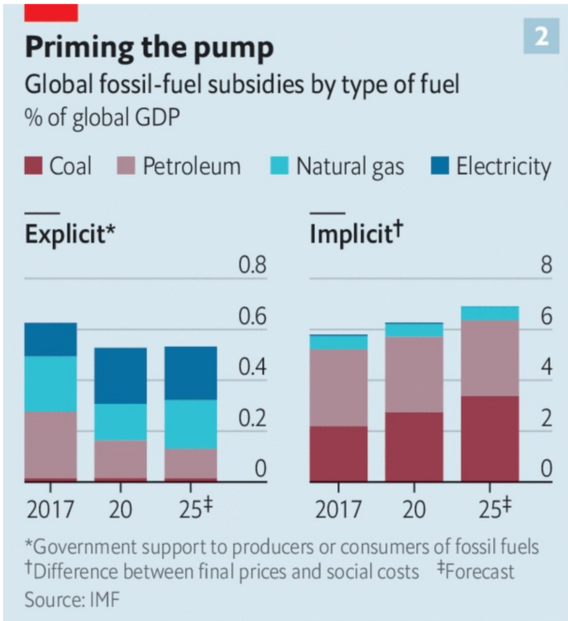
Ministers from the European Union held an emergency meeting this week to discuss how to respond to the price spikes, but failed to agree on a plan. National politicians, however, are turning to subsidies and price caps. Italy is considering spending more than €5bn ($5.8bn, or 0.3% of GDP) this year and next to reduce the price of natural gas and power for consumers. France will extend its cap on household-gas prices until the end of next year.

Most people would agree that fossil-fuel subsidies should, in principle, be ditched. But no politician wants to expose voters to pain at home or at the petrol pump. Even before the energy crisis, the politics of subsidies were veering off track. BloombergNEF, a research outfit, and Bloomberg Philanthropies, a charity, calculate that G20 countries offered direct subsidies on coal, oil, gas and fossil-fuel-fired power worth more than $3.3trn between 2015 and 2019. Tim Gould of the International Energy Agency, an official body, notes that periods of lower energy prices offer governments a chance to reduce subsidies. The fact that they did not use the pandemic-induced drop in energy demand and prices last year to roll back subsidies, he says, was "a missed opportunity". In July G20 ministers could not even agree on a date by which fossil-fuel subsidies would be phased out.



The Economist

A new study from the IMF powerfully sets out both the scale of the subsidies and their impact. It estimates the effects of two types of support. Explicit subsidies, which include production-tax breaks for oil firms, create a wedge between the cost of supplying fuel and the price consumers pay at the pump. Yet governments are underpricing energy not only relative to supply costs, but also compared with social costs (such as the damage to health and the environment caused by fossil fuels). The researchers call this an implicit subsidy.



The Economist

They estimate that explicit subsidies will amount to just under $600bn this year (or 0.6% of global GDP) but that implicit subsidies could be ten times that (see chart 1). Even if the value of explicit support remains constant as a share of global output, the boffins reckon that the damage from fossil fuels, especially coal, will worsen, and that the value of implicit subsidies will continue to rise (see chart 2).

If governments were to eliminate both explicit and implicit subsidies by 2025—admittedly, a huge if—then global emissions of carbon dioxide would fall by 36%, and global tax revenues would be higher by 3.8% of world GDP, compared with a scenario with no subsidy reform. Rather than a miserable world in which warming is 3°C above pre-industrial levels, the temperature rise would be kept "well below" 2°C and perhaps even on track towards 1.5°C, as the UN's Paris climate accords intend. As the world's leaders prepare to assemble in Glasgow for a climate summit, the hope is that these findings re-energise their efforts to tackle subsidy reform. ■

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Buttonwood

Why currency volatility could make a comeback

A decade of low inflation and interest rates smothered forex markets. Now consumer prices and rates are going up

Oct 30th 2021

FOREIGN-EXCHANGE markets were once a hotbed of lively, speculative activity. But today traders seeking an adrenalin fix must turn to assets like cryptocurrencies instead. Barring a brief surge early in the pandemic—and isolated goings-on in the Turkish lira—currency markets have gone quiet. Macro-trading funds no longer strike fear into central bankers and finance ministries with speculative attacks. The last sudden end to a major currency peg—that of the Swiss franc in 2015—was a result of the central bank taking investors by surprise, rather than the other way round.

Rock-bottom inflation and interest rates over the past decade helped smother swings in exchange rates. Deutsche Bank's CVIX index, a gauge of forex volatility, has been above its current level more than 90% of the time over the past 20 years. By contrast, the VIX, which measures expected volatility for America's S&P 500 index of stocks and is often used as a measure of overall market sentiment, has so far spent October at roughly its long-term average. But as consumer prices and interest rates go up, currency volatility could well stage a return, with potentially unwelcome consequences for some investors.

The strangeness of the recovery from the pandemic makes predicting the path of policy especially hard. Yet some divergences seem likely to reassert themselves. Countries are recovering at different speeds, and central banks are displaying varying levels of discomfort with inflation. Policy in America is especially important, given the pivotal role of the dollar: 88% of over-the-counter foreign-exchange trades in 2019 involved the greenback, according to the Bank for International Settlements. The chances that the Federal Reserve turns more rapidly to policy tightening are rising. Break-evens (the gap between yields on inflation-protected Treasury bonds and conventional ones of the same maturity) point to annual inflation of around 3% over the next five years, the highest reading since at least 2003. By contrast, no one is expecting interest-rate rises for decades in Japan, where year-on-year inflation, excluding food and energy, is negative.

Long periods of low volatility are understandably regarded as a good thing by most investors. But they can have less desirable side-effects. Hyman Minsky, an economist, suggested that periods of financial stability and sustained profits can change the behaviour of market participants, by pushing them to adopt riskier strategies that could in turn destabilise markets. The danger is that, as currency markets return to life, the shortcomings of these sorts of strategies are exposed.

The boom in Asian economies in the 1990s, which led to enormous unhedged dollar borrowing by governments and firms, is a case study in how the perception of safety, once overturned, can cause violent market reactions. Faced with steep currency depreciation in 1997-98, that borrowing proved impossible to service, spurring defaults and bail-outs. Today emerging-market governments issue far more of their debt in their own currencies, and when they borrow in foreign currency, do so at longer maturities. Still, weak spots remain. Dollar borrowing by non-banks in the developing world has almost doubled to over $4trn in the past decade, much of it reflecting bond issuance by companies, rather than governments.

Creditors, too, are vulnerable to exchange-rate risk. Working out the extent to which asset-owners hedge their exposures is tricky. But the available figures indicate that falling volatility tends to cause companies to reduce hedging. Large Japanese insurers have tended to hedge more over the past two decades whenever volatility has risen, suggests Fed research published last year. Insurers bought far more currency forwards and swaps during and immediately after the global financial crisis, when volatility peaked, and a declining share relative to their foreign assets thereafter. Unhedged net foreign assets in Australia, too, have risen in the past couple of decades, in part reflecting the rise of non-bank borrowers that are unprotected.

An optimist might point to the market stress of the early days of the pandemic, when volatility surged without causing big currency-market blow-ups. If the system was able to weather acute distress then, why worry now? But placidity was restored in short order last year because central banks were unusually co-ordinated in their easing. Now, by contrast, they are preparing to go their separate ways. Currency markets may no longer be an oasis of calm.

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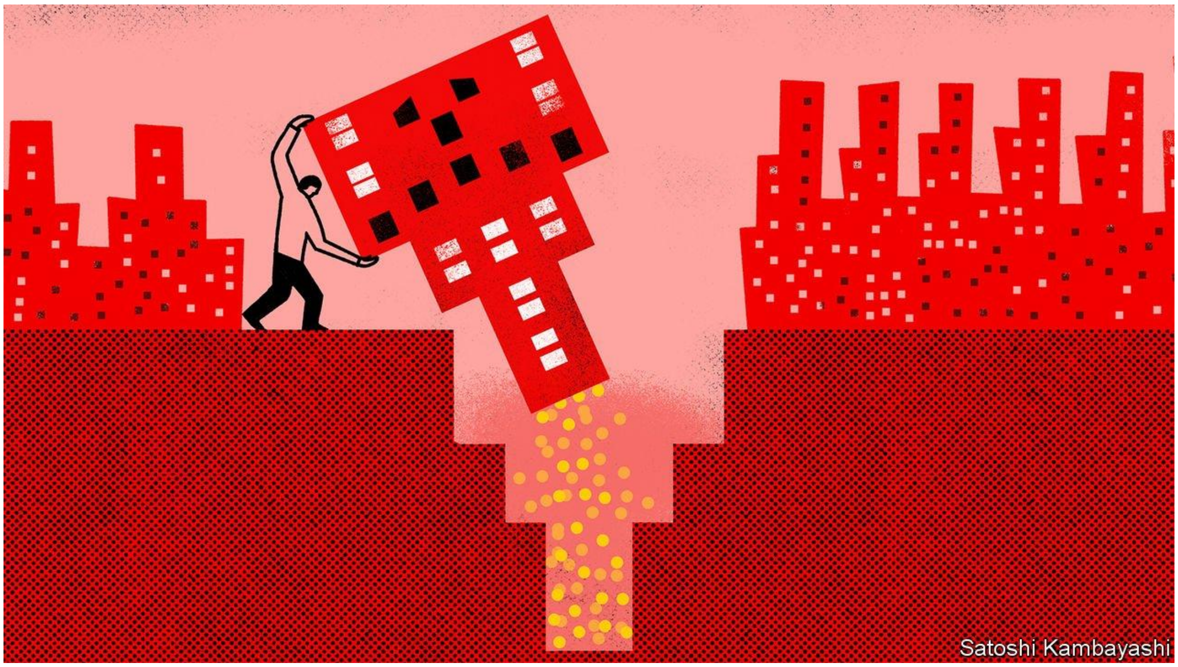
Progress and procrastination

China’s long wait for a tax everyone loves to hate

The government will at last roll out a property tax

Oct 30th 2021 | HONG KONG


Satoshi Kambayashi

IF SUN YAT-SEN had got his way, China would have been a bold pioneer in the taxation of real estate. During his exile in Europe from 1896 to 1898, the republican revolutionary fell under the spell of Henry George, an influential American journalist who believed a single tax on land should replace all others. Sun hoped pre-industrial China could adopt such innovations more easily than the West, because it was “unimpeded by the opposition of entrenched capital”, as one scholar put it.

Instead China has become a timid procrastinator in the taxation of real estate, particularly of the property built on top of land, as opposed to the land itself. It first proposed a recurring tax on the value of property in 2003. And it introduced a half-baked pilot scheme in the cities of Shanghai and Chongqing in 2011. The tax was included in the five-year legislative plan of the National People’s Congress (NPC), China’s rubber-stamp parliament, in 2015. But things went no further. Reform, it seems, was impeded by the opposition of entrenched interests, including no doubt many officials who would prefer not to declare their properties, let alone pay taxes on them.

But in August Xi Jinping, China's president, expressed support for a property tax as part of his campaign to curb excessive wealth and promote "common prosperity". And on October 23rd the NPC said pilot schemes would be expanded to new cities (although it did not say when or which).

Such a tax is sorely needed. China raises little money from its personal-income taxes, which are too easily avoided. Indirect levies, such as the value-added tax, are more lucrative but regressive. Local governments in particular lack a stable source of revenue, which leaves them heavily reliant on land sales and transfers from the central government. Although China does impose a variety of property-related taxes (including one on the purchase of land), these levies fall more heavily on the construction and trading of real estate than on the possession of it. As China's property market matures, and its economy moves beyond breakneck urban expansion, housebuilding and selling will provide fewer feathers to pluck.

The tax could also ameliorate some of the perversities of China's economic model. About a fifth of its urban housing stood vacant in 2017, according to the China Household Finance Survey, led by Li Gan of Texas A&M University. A property tax would make it more costly to buy second or third homes and keep them empty, in the hope of selling them on for a higher price. It could therefore discourage speculation and invigorate China's underdeveloped rental market.

But a property tax will also be unpopular. It is the tax "everyone loves to hate", as Jay Rosengard of Harvard University has put it. Such taxes are not discreetly withheld from a paycheque or embedded in a product's price. Payments can be lumpy, conspicuous and irksome, especially if the taxpayer doubts that bureaucrats will spend the money well. As property prices have raced ahead of incomes, many homeowners may also be "asset-rich" but relatively "cash-poor". In 2019, for example, a property tax of 1.2% would have eaten up over 10% of the average urban resident's disposable income.

Some people also fear that the tax will crash the market. That seems unlikely. It will be some time before any revenue is actually collected. And the tax is not the only lever that policymakers can pull. China’s cities impose a variety of other impediments and deterrents to property purchases, including hefty downpayment requirements, limits on the purchase of additional flats, and rules that oblige buyers to show a history of local social-security contributions. If a property tax were to weigh too heavily on the market, these prudential limits could be eased.

The bigger danger is that the tax will do too little, not too much, to cool speculation. The Chongqing tax, which is levied chiefly on detached and high-end properties and exempts the first 100 square metres of space, depressed prices by 2.5% a year, relative to where they would have been, according to a study in 2015 by Zaichao Du and Lin Zhang of Southwestern University of Finance and Economics in Chengdu. But prices still rose on average. Shanghai’s tax had no effect on prices at all.

Progress and procrastination

To make them more palatable, the Chongqing and Shanghai pilot taxes were both patchy and complicated. The new pilot cities should try cleaner designs. Any flaws, kinks or ill-judged exemptions can be difficult to fix later. Indonesia, Mr Rosengard has pointed out, decided to keep its effective property tax at a meagre 0.1% while it collected better data on property ownership and values. Yet even after the data improved, it found it difficult to raise the rate. Britain’s property tax in the 1980s was based on increasingly anachronistic rental values. But the government was so reluctant to update them that it introduced a disastrous “poll” tax instead. Ontario in Canada spent 30 years talking about reforming its property tax, before eventually taking the plunge in 1998, as detailed by Richard Bird and Enid Slack of the University of Toronto.

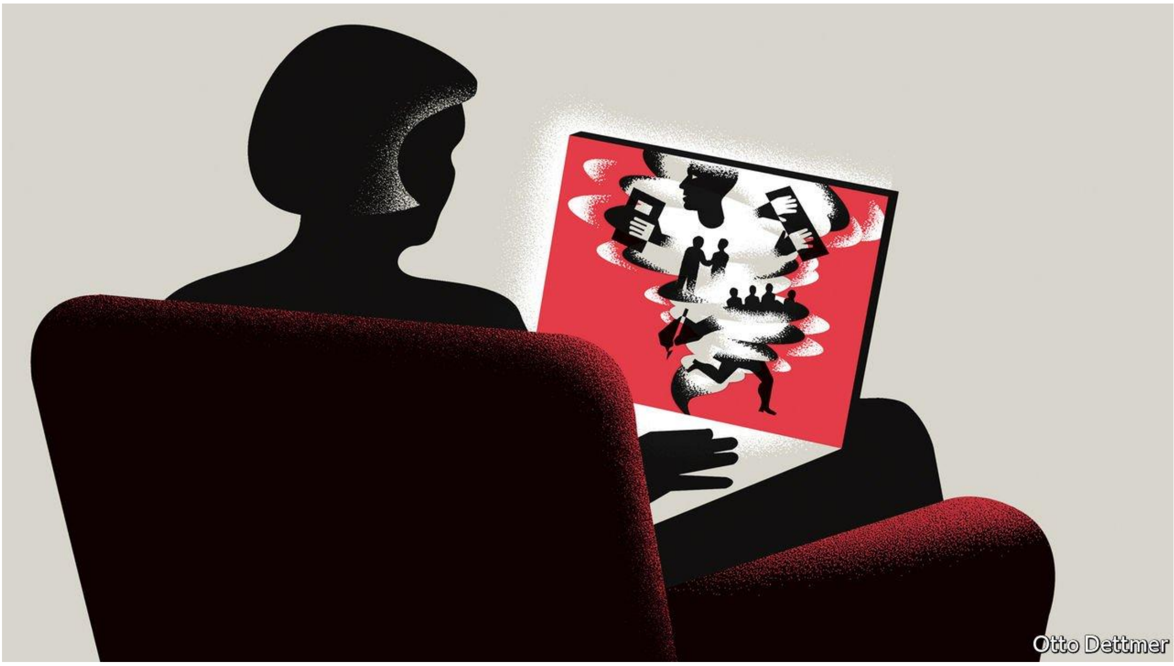
Sun Yat-sen hoped that China’s late start in economic modernisation would help it avoid some of the mistakes of the countries that went before it. China’s later start in property taxation gives it plenty more examples to avoid. ■

Free exchange

Remote-first work is taking over the rich world

A growing body of research hints at why

Oct 30th 2021



IN FEBRUARY 2020 Americans on average spent 5% of their working hours at home. By May, as lockdowns spread, the share had soared to 60%—a trend that was mirrored in other countries. Many people, perhaps believing that working from home really meant shirking from home, assumed that office life would soon return to something like its pre-pandemic norm. To say it has not turned out that way would be a huge understatement.

Most office workers remain steadfastly "remote-first", spending most of their paid time out of the office. Even though a large share of people have little choice but to physically go to work, 40% of all American working hours are still now spent at home. In mid-October American offices were just over a third full, suggest data from Kastle Systems, a security firm. From Turin to Tokyo, commercial areas of cities remain substantially quieter, compared with pre-covid norms, than residential ones. Economists are trying to work out what all this means for productivity.

Perceptions about the future of office work are changing. Last year British government ministers exhorted workers to get back to the office; now they are quieter. Wall Street banks, often the most enthusiastic advocates for in-office work, are toning down the rhetoric. According to a monthly survey by Jose Maria Barrero, Nick Bloom and Steven Davis, three economists, bosses expect that in a post-pandemic world an average of 1.3 days a week will be worked from home—a quarter more than they expected when asked the same question in January. Even that could in time prove to be an underestimate. Workers hope they will spend closer to half their working hours at the kitchen table.

A few factors explain why remote-first work remains dominant. Many people remain scared of contracting covid-19, and thus wish to avoid public spaces. Another possibility is that workers have more bargaining power. In a world of labour shortages, it takes a brave boss to make people take a sweaty commute five days a week (workers view being forced to be in the office full-time as equivalent to a 5% pay cut). There is a more intriguing possibility, however. Work that is largely done remotely may be more efficient compared with an office-first model.

The past year has seen an explosion of research on the economics of working from home. Not all the papers find a positive impact on productivity. A recent paper by Michael Gibbs of the University of Chicago and colleagues studies an Asian IT-services company. When the firm shifted to remote work last year average hours rose but output fell slightly. The authors ascribe part of the decline in productivity to "higher communication and co-ordination costs". For instance, managers who had once popped their head round someone's door may have found it harder to convey precisely what they needed when everyone was working remotely.

Most studies, however, find more positive results. Mr Barrero and his colleagues' surveys cover a large number of firms, rather than just one. Only 15% of home-workers believe they are less efficient working in this way than they were on business premises before the pandemic, according to a paper published by the team in April. A study released that month by Statistics Canada finds that more than half of "new" remote workers (ie, those who normally worked outside the home before the pandemic) reported completing about the same amount of work per hour as before, while one-third said they got more done.

Economists have less insight into why remote workers might be more productive. One possibility is that they can more easily focus on tasks than in an office, where the temptation to gossip with a co-worker looms large. Commuting, moreover, is tiring. Another factor relates to technology. Remote workers, by necessity, rely more on tools such as Slack and Microsoft Teams. This may allow bosses to co-ordinate teams more effectively, if the alternative in the office was word-of-mouth instructions that could easily be forgotten or misinterpreted. Patent applications for work-from-home technologies are soaring, while American private-sector investment in IT is growing by 14% year-on-year.

Yet the popularity of remote-first work presents a puzzle. If it is so wonderful, then why is there little evidence of a shift towards “fully remote” work, where firms shut down their offices altogether? Companies that have chosen to do this are in a tiny minority. The number of people moving to cities such as Tulsa, in Oklahoma, which is positioning itself as the global capital of remote work, remains small.

Perhaps it is only a matter of time before everyone who can goes fully remote. A new study in *Nature Human Behaviour*, however,suggests that firms have good reason to hold on to their office buildings, even if they are used less frequently. The paper studies the communications (including instant messages and video calls) of 60,000 Microsoft employees in 2019-20. Remote work makes people’s collaboration practices more “static and siloed”, it finds. People interact more with their closest contacts, but less with the more marginal members of their networks who can offer them new perspectives and ideas. That probably hurts innovation. The upshot is that fully remote teams might do quite well in the short term, but will ultimately suffer as innovation dries up.

What a way to make a living

How best to collaborate, then, in a remote-first world? Many firms assume it is enough for everyone to come into the office a few days a week, since this will lead to people bumping into each other and talking about ideas. Others, backed by stronger evidence, say that managers must be more intentional, and bring people together with the express purpose of discussing new ideas. Firms will have to experiment as they get used to a new way of working, and the precise arrangement may vary depending on the type of work. What seems clear, though, is that offices will still have a role after the pandemic—even if they are mostly empty. ■

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Science & technology

Placing perches in the sky

Private space stations will soon be in orbit

And with them, industry

Oct 27th 2021

ON OCTOBER 21ST a consortium led by Lockheed Martin, one of America's biggest aerospace companies, announced plans to build a permanently crewed commercial space station called *Starlab*, and launch it into orbit around Earth by 2027. Not to be outdone, on the 25th, Blue Origin, a firm that is Jeff Bezos's ticket into space, unveiled plans for a yet more ambitious effort. O*rbital Reef*, pictured above as an artist's impression, is a joint venture with (among others) Lockheed's competitor Boeing. It will host up to ten people and will serve, as Blue Origin put it, as a "mixed-use business park". The hope is that this orbiting industrial estate will open by the end of the decade.

Private-enterprise missions to orbit are not new. Mr Bezos's rival Elon Musk, for example, has been offering them, via his rocketry firm SpaceX, for several years. But these two projects, if they succeed, will be on a far grander scale. Eye-catching though they are, however, they are not alone. Several other firms, egged on in some cases by NASA, that country's space agency, have similar ideas. The firms' owners hope to make money. NASA hopes to save America's *amour propre*. And, acting together, these motives seem likely, some time this decade, to result in the first real settlement of outer space by private enterprise.

The men in the high castles

The underlying reason for all this activity is the imminent death of the International Space Station (ISS). This intergovernmental but American-dominated effort, the first elements of which were launched in 1998, was designed to last about 15 years, so is already past its sell-by date. Cracks and air leaks have multiplied. And, on September 9th, the smell of smouldering plastic wafted through it, though no open flames broke out.

NASA believes that, with upgrades, the ISS can limp on until 2028, or perhaps a bit longer. But either way, it will not be long until thrusters on the most expensive object ever made push the whole caboodle to fiery doom over the Pacific Ocean. No other intergovernmental habitat will supersede it. But NASA is encouraging commercial replacements instead.

The agency's plan is to pay the firms behind these replacements for services rendered, such as hosting astronauts or conducting research in the microgravity that the perpetual freefall of orbit offers. That, says Phil McAlister, a senior space-flight official at the agency, may save NASA as much as $1.5bn a year. But Mr McAlister also claims that commercial opportunities in orbit are now so abundant that industry should be able to support much of the cost of private space stations, even without government contracts.

NASA calls its side of this enterprise the Commercial Low-Earth-Orbit Destinations (CLD) project. Last year it awarded $140m to Axiom Space, a firm in Houston that is already manufacturing such a station. It will soon hand out a further $400m to two, three or possibly four of a dozen other firms which hope to enter the market. Officials at the agency are privately thrilled with the unexpectedly high number of bids they have received for a share of this money. But they are not commenting publicly about the competition until the winners are announced later this year.

Of Axiom's project, the first module will, if all goes to plan, be launched in September 2024 and will dock at one of the ISS's two ports. It will be joined, six and 12 months later, by a second and a third module. After a fourth and final module, equipped to generate extra solar power, arrives in 2027, *Axiom Station*, as the whole assembly will be known, will detach and become a "free flyer" with nearly double the usable volume of the ISS.

The cost of doing all this will be about $3bn, says Matt Ondler, Axiom's top technologist. Though no trifle, that is but a small fraction of what the ISS has cost. Every year, NASA spends roughly $3.5bn merely to maintain and operate the station. And that covers only about three-quarters of the cost of doing so. The rest is provided by Canada, Japan, Russia and participating European countries.

Axiom's lower budget is partly explained by elimination of the waste common in government spending. But the firm is also harnessing lessons from the ISS to cut costs for things that range from blocking radiation, via recycling urine to recovering water from rubbish. Beyond that, much kit is cheaper and better now than when the ISS was designed in the 1990s. Today's solar panels generate, kilo for kilo, six times more power. And lots of the components developed for smartphones and cars will be used in *Axiom Station*. Mr Ondler reckons it will cost, per unit of capability, about a hundredth of the bill for the ISS.

Axiom's competitors, for their part, have kept quiet about their stations' expected costs, but all the firms envisage a range of ways to make money. Hosting astronauts, tourists and even marketing campaigns will be one source of revenue. Servicing and refuelling satellites could be another. Many people also believe there will be demand for pharmaceutical and biotechnological work in microgravity, including the 3D-printing of human organs for transplantation and the development of stem-cell therapies.

On Earth, gravity means that cells printed onto scaffolds intended to create structures that are the same shape as natural organs have to be suspended in a viscous gel, to stop them dripping off the scaffold. This means high pressure is required to force them through the nozzle of the printer that sprays them onto the scaffold, a process that damages a fair number of those cells. In orbit, though, nothing drips, so the gel is no longer needed. Cell cultures, meanwhile, benefit from microgravity because their components remain in suspension in their nutrient fluids, rather than tending to settle out, as happens in Earthbound fermentation tanks.

The firms also plan to host microgravity manufacturing. Axiom, for example, says one of its potential customers thinks it can produce better eyesight-restoring retinal implants in space than on Earth. Other firms with which it is in talks hope to harness freefall to make purer fibre optics for lasers and, more challengingly, to forge stronger alloys for things like jet turbines.

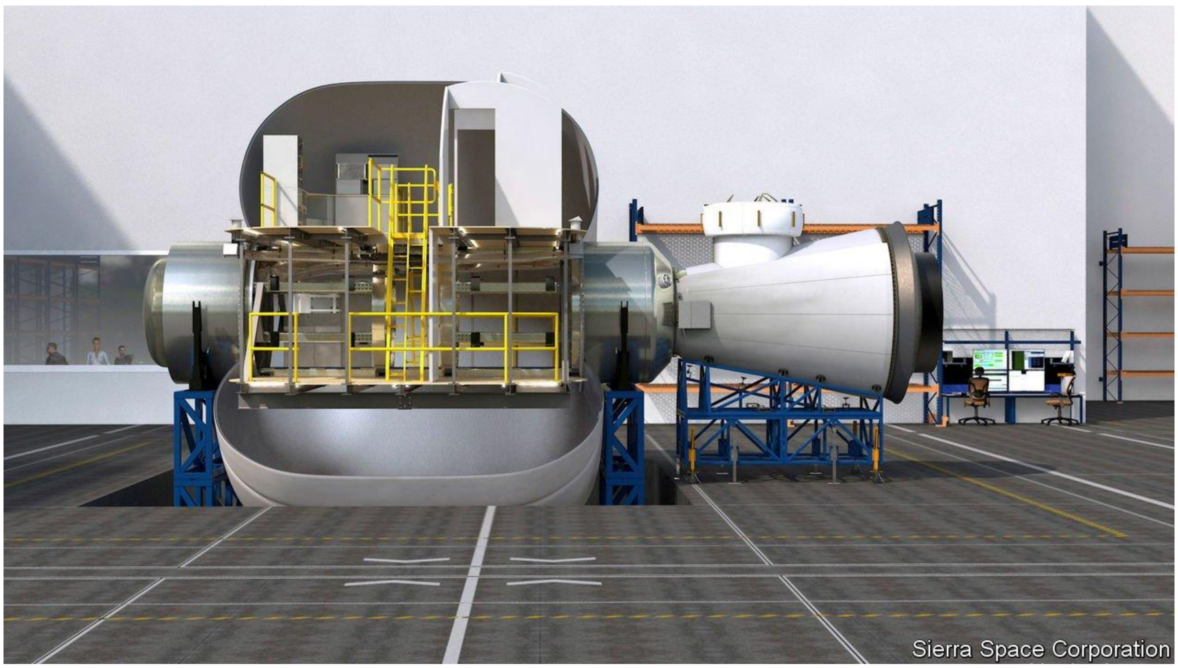
At first blush, all this sounds a bit like sci-fi. But the technology to achieve it exists. For one thing, robots operating in freefall can achieve extraordinary precision. As Christian Maender, head of "in-space" manufacturing at Axiom, puts it, "they need not fight the weight of their own systems". Launch costs have fallen sharply too, especially since NASA gave privatisation a shot in the arm by ending its staggeringly expensive Space Shuttle programme in 2011. Mr Maender reckons the next decade will see them halved again. Investors, for their part, are enthused. Axiom says it has had to turn some away.

Who knows if the Moon's a balloon?

Part of Blue Origin's *Orbital Reef* is to be provided by Sierra Space, a division of an aerospace firm called Sierra Nevada Corporation which already had a separate project to make a space station out of big, inflatable bladders. Once ejected into space from a rocket's fairing, such a bladder will expand into a habitat 11 metres long and with a diameter of eight metres, somewhat resembling a cylindrical paper lantern.

To stop its modules being punctured by bits of high-velocity orbiting debris and cosmic dust, Sierra has designed shielding that incorporates layers of Kevlar and Vectran—fabrics used in things like bulletproof jackets and the airbags that cushion the fall of spacecraft dropped onto Mars. The outer layers will break up these incoming objects. The smaller, and therefore less energetic, fragments that result will then be stopped by the underlying layers.

Sierra's modules will be fitted out, by astronaut handymen and women, with a rigid internal structure that incorporates avionics and control interfaces. Crew quarters, galley, toilet and facilities for research, manufacturing and satellite-servicing can be installed as required (see picture below, of a ground-based mock-up). Connected together, three of these modules will provide nearly as much pressurised volume as does the ISS.



The ISS, however, took about 40 launches to assemble. Sierra reckons it can loft and equip three modules with just eight or nine launches. The firm plans to shuttle goods and crew between Earth and its orbital facilities using a spaceplane called *Dream Chaser* that it is developing. (*Orbital Reef* is to be supplied by Boeing's *Starliner* capsule, but *Dream Chaser* might pitch in for that job, too.) *Dream Chaser* will be able to land on any long airport runway. That, Sierra hopes, will provide a competitive edge for the manufacture of fragile, urgently needed goods, not to mention providing a comfortable and convenient ride for rich space tourists.

Sierra's plan is for *Dream Chaser* to make its much-delayed maiden flight next year, and to have its station operating in 2027, so that its "anchor" tenant, NASA, can move in before the ISS's demise. Others, it hopes, will follow. Earlier this year, for example, the firm said it was working with Redwire Space, a company that is also part of the *Orbital Reef* project, and which has been using the ISS to test processes intended to manufacture speciality ceramics, crystals and fibre optics.

The second phase of NASA's CLD plan is to award, in about 2025, big contracts for specific orbital services. The agency hopes that by the middle of the decade at least two companies will be far enough along to secure such contracts, and to begin offering services in orbit shortly thereafter. When the time comes to abandon the ISS, the agency is keen not to be left in the lurch with no human-suitable habitat in orbit around Earth. Experts caution, though, that the ageing space station might not make it to 2028. Some Russian officials, noting spreading cracks and other signs of senescence, have proposed that their country jump ship by 2025.

It could, therefore, get dicey. If no American firm is operating a space station by the time the ISS is abandoned, America's leadership in space may suffer. To make matters worse from an American point of view, China's new and expanding space station, *Tiangong*, could become fully operational next year. Todd Harrison, a space and defence expert at CSIS, an American think-tank, says China's goal of signing up international partners for *Tiangong* involves "actively courting" America's European allies. Were America to find itself bereft of a space station, Britain, France or Germany might, he reckons, join *Tiangong*.

That seems a stretch, diplomatically speaking, especially given other collaborations between NASA and Europe's spacefaring powers. But even the raising of such ideas shows that times are changing. Prognosticators would, however, be wise to factor in the ambition and ingenuity of America's aerospace industry. For an inkling of what might be achieved consider Nanoracks, a company based near Houston that is one of Lockheed Martin's *Starlab* partners. In addition to *Starlab*, Nanoracks is at work on a completely different type of space station that is both more basic and more technologically challenging. This involves converting, in orbit, discarded rocket stages into stations it calls outposts.

The lathes of heaven

The idea of converting rocket stages harks back to *Skylab*, America's first space station, which was built, on the ground, out of the third stage of a surplus Saturn V rocket. In this case, though, the conversion will be of the upper stage of one of SpaceX's Falcon 9s, or a similar rocket, and will be done in space by a small robot affixed to the stage in question.

After the stage achieves orbit, the robot will cut metal and assemble parts to create a docking port, windows and other fixtures. When Jeffrey Manber, Nanoracks' boss, pitched the idea a half decade ago, he says, "my company laughed at me". NASA, however, was intrigued. The agency paid for a study on the feasibility of using a robot to convert the upper stage of an Atlas V. The results were promising.

NASA has therefore coughed up more than $12m for a test aloft, planned for January. If all goes well, a robot will soften a sample of metal in orbit by generating frictional heat with a spinning tool, and will then cut that metal without, it is hoped, creating scraps that could become projectiles dangerous to other satellites. This has never yet been done in space. A camera will capture the action, which, for extra safety, will take place inside a containment vessel. A welding test will be launched later, says Robbie Harris, Nanoracks' head of technology for outposts.

If Mr Manber's proposal works, building private space stations could become (at least by the standards of space flight) cheap indeed. And the cheaper those stations get, the more uses they may be put to. Orbiting greenhouses intended to develop hardy crops are one idea. Biopharmaceutical laboratories are another. A third, for the truly adventurous, is honeymoon hotels in space. How that will work out in practice remains to be seen. The accommodation will be cramped, for sure, and the champagne may have an unnerving tendency to float out of its glasses. But there is no question that, viewed from out of the porthole at least, the Earth will be moving. ■

Avian parthenogenesis

No sex please, we’re condors

An endangered bird may sometimes reproduce without males

Oct 30th 2021

FEW ANIMALS have come closer to extinction, and yet survived, than the Californian condor. Thousands died as a result of flying into electrical cables or being poisoned by lead shot from discarded game-animal carcasses. By 1982, there were only 22 left. These relicts were rounded up and brought into a captive-breeding programme that proved an astonishing success. Thanks to the efforts of a team of conservationists co-ordinated by the San Diego Zoo Wildlife Alliance there are now 329 condors flying freely in western North America, and 175 more in the care of various zoos.

As the precision of those numbers suggests, these birds are among the most closely monitored in the world. It therefore came as a shock to Oliver Ryder, a geneticist at the alliance, when he discovered that two of the females he was scrutinising had laid eggs unfertilised by males, which then went on to hatch.

As Dr Ryder and his colleagues report this week in the *Journal of Heredity*, both females had had ample opportunities to mate, since each was housed with a male with which she had successfully reproduced in the past. One of them, indeed, had raised a whopping 23 chicks before laying the fertile unfertilised egg in question. She and her mate then went on to raise two more.

Parthenogenesis, as this form of male-free reproduction is known, is common in invertebrates and not unheard of in vertebrates. Some snakes indulge in it. So do Komodo dragons. But it has rarely been recorded in birds, and when seen (as it has been in domestic turkeys) it has always been in circumstances when no males were around and it was therefore the only reproductive option available.

In nature, it will hardly ever be the case that there are no males around. On the other hand, it is hard to say whether parthenogenesis is happening in wild birds, because that would require intense genetic screening of nestlings of a sort that is rarely conducted in ornithological research projects.

In this instance, neither chick prospered. One, which was released into the wild near Big Sur state park in California, failed to thrive there and probably died of starvation at the age of two—not an uncommon fate for reintroductees, unfortunately. The other, held in captivity as part of a breeding programme, nevertheless failed to breed, and died of complications from a foot injury when it was nearly eight years old.

At the moment, therefore, it is hard to know whether Dr Ryder has stumbled on an intriguing and previously unperceived mode of avian reproduction, or an aberration of little wider significance. But if condors, and possibly other bird species, are routinely reproducing by parthenogenesis, then some rewriting of the textbooks will definitely be in order.

Solar-cell census

An accurate tally of the world's solar-power stations

The method should work for other energy infrastructure, too

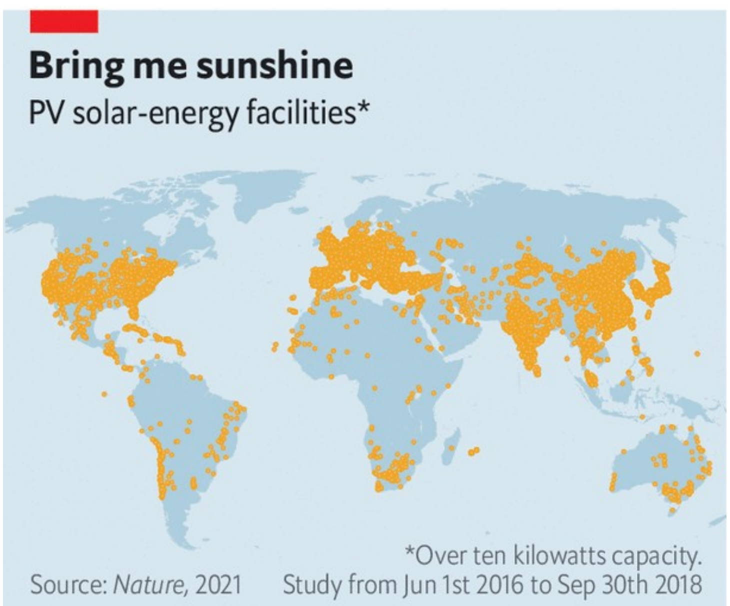
Oct 27th 2021

REBUILDING AN ENTIRE planet's energy system is a big job. Just ask the delegates at the COP-26 climate conference scheduled to kick off in Britain on October 31st. The most basic problem is knowing what, exactly, you are trying to rebuild. Academic-research groups, think-tanks, charities and other concerned organisations try to keep track of the world's wind turbines, solar-power plants, fossil-fuelled power stations, cement factories and so on. To this end, they rely heavily on data from national governments and big companies, but these are often incomplete. The most comprehensive database covering American solar-power installations, for instance, is thought to miss around a fifth of the photovoltaic panels actually installed on the ground.

In a paper just published in *Nature*, a team of researchers led by Lucas Kruitwagen, a climate scientist and AI researcher at Oxford University, demonstrate another way to keep tabs on the green-energy revolution. Dr

Kruitwagen and his colleagues have put together an inventory of almost 69,000 big solar-power stations (defined as those with a rated capacity of 10kW of electricity or more) all over the world—more than four times as many as were previously listed in public databases. This new inventory includes their locations, the date they entered service and a rough estimate of their generating capacity.

Conceptually, the team's method is simple. Instead of relying on top-down reports, they worked from the bottom up, looking at the entire planet from space and counting how many solar panels they could see. This is not the first time people have hunted from orbit for solar-power stations. But previous analyses have been limited to a few countries. As far as Dr Kruitwagen knows, his is the first attempt to survey the entire planet for a particular type of infrastructure. Earth is a big place, of course, which means practice is a great deal harder than theory. His approach has been made possible by two big technological trends.



The Economist

One is a growing abundance of cheap, easily available satellite imagery. In the 20th century, reconnaissance satellites were the jealously guarded property of a handful of governments. These days, a cottage industry of Earth-observation firms and agencies sells images on the open market. Dr Kruitwagen's pictures came from two sets of satellites, Sentinel-2 and

SPOT, run by the European Space Agency and Airbus respectively. These peer down on the world, recording visible light and also the infrared and ultraviolet parts of the spectrum. The images Dr Kruitwagen used amounted to around 550 terabytes of data, spanning the period between 2016 and 2018. That is enough to fill more than a hundred desktop hard drives.

Sifting through this many pictures by eye would have been impractical. That is where the second technological trend comes in. Dr Kruitwagen and his colleagues trained a machine-learning system to spot the solar panels for them.

Computer vision is a hot field. But the specifics of orbital reconnaissance meant that off-the-shelf software was not suitable for the task the researchers had in mind. Machine-learning systems are taught what to do by examining a “training set”, which contains examples of what is being searched for. For common tasks such as facial recognition, pre-built training sets are often available. But Dr Kruitwagen’s team had to build their own.

For this, they turned to OpenStreetMap, an open-source rival to Google Maps in which volunteers had already tagged large numbers of solar plants. But there was little consistency. “Some people had just drawn rough outlines around an entire field,” Dr Kruitwagen says. “Others had gone in and traced the outline of each row of panels separately.” Fixing that involved a great deal of manual labour.

Once the training data had been cleaned up, the learning algorithms had to be tweaked as well. From space, even big solar installations look small. Each pixel in the Sentinel images represented a ten-by-ten-metre square. Even for the higher-resolution SPOT satellites, the squares’ sides are one and a half metres long. Existing classifiers, trained for things like facial recognition or self-driving cars, are used to spotting objects that loom large in their field of vision. Hunting for smaller ones meant tinkering with the software to boost its ability to detect tiny features. False positives—things like tennis courts and agricultural greenhouses that resemble solar panels from space—had to be removed.

Panel games

Though extraordinary, Dr Kruitwagen’s results are already out of date. The data-gathering phase of the project ended in 2018, meaning that the thousands of new plants built since then are not included. But the project, he says, proves that the method works. He intends to make his results, including the labour-intensive training set, available for others to use. One logical extension of his project, he says, would be to expand the analysis to include solar panels installed on domestic rooftops. Such “behind-the-meter” installations are particularly tricky to track in other ways.

More generally, Dr Kruitwagen hopes that his eye-in-the-sky approach—which, despite the planetary scale of the project, cost only around $15,000 in cloud-computing time—could presage more accurate estimates of other bits of climate-related infrastructure, such as fossil-fuel power stations, cement plants and terminals for ships carrying liquefied natural gas. The eventual result could be the assembly of a publicly available, computer-generated inventory of every significant bit of energy infrastructure on Earth. Quite apart from such a model's commercial and academic value, he says, an informed public would be one better able to hold politicians’ feet to the fire. ■

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Books & arts

Two new books shed light on the plight of the Uyghurs

Darren Byler documents life inside the prison camps. James Millward considers the repression as part of a broader history

Oct 28th 2021

In the Camps: China's High-Tech Penal Colony. By Darren Byler. *Columbia Global Reports; 159 pages; $15.99. To be published in Britain in February by Atlantic Books; £12.99*

Eurasian Crossroads: A History of Xinjiang (Revised and Updated). By James Millward. *Hurst; 536 pages; £16.99. To be published in America in December by Columbia University Press; $35*

BETWEEN THE 1870s and 1940s foreigners published a glut of accounts of Xinjiang, the vast territory that is at the centre of Eurasia but perennially on the fringes of China. Stories of sand and snow sold back home because they were exotic, but they were written because Xinjiang was increasingly connected to the world, explains James Millward, an eminent Western scholar of the region. The territory had always been a melting pot for peoples and a test for advancing empires.

Now Xinjiang has the world's attention once more, this time as a site of horrors. In recent years the Chinese Communist Party has detained more than 1m Uyghurs (an indigenous group who make up 45% of Xinjiang's population), Kazakhs and other mainly Muslim minorities in prison camps. Party officials claim they are re-educating "extremists" and help Uyghurs train for better jobs. Observers say they preside over a crime against humanity. In the West, the plight of the Uyghurs has prompted an explosion of books and articles—and many angry Chinese rebuttals.

Two books by Americans offer complementary ways of understanding what has been happening. "In the Camps" by Darren Byler, an anthropologist, considers the detention of the Uyghurs through the eyes of former inmates and camp workers. Mr Millward's weightier tome, a revised version of "Eurasian Crossroads", first published in 2006, sets the developments within 4,000 years of history.

Mr Byler's book is more typical of the recent flood of material which documents life inside the camps. Seeking to emulate the work of the Italian writer and Holocaust survivor Primo Levi, he narrows in on the mundane details of internment which, taken together, dehumanise the detainees. The inmates' heads are shaved. The women are forced to take the contraceptive pill because the "school" cannot provide enough sanitary towels. They perch on plastic stools for so long that some detainees' intestines fall down. In their prison cells, TVs blare hours of footage from Xi Jinping's tours. On occasion, they tell the inmates to sing.

The voices of detainees filter through the pages. Adilbek, a Kazakh farmer, recalls being struck by guards, often as a punishment for not speaking Mandarin or for stepping out of line. Yet sometimes the beatings were random: "They called us livestock. Animals."

A broader ideology undergirds these stories. Mr Byler shows how China uses the rhetoric of the global "war on terror" to try to justify the persecution.But his principal focus is technology. The camps, though shocking, are only the most extreme application of digital surveillance used by other governments around the world, Mr Byler argues. Similar technologies help America hem migrants into camps on its southern border and allow India to stage communications blackouts in Kashmir. He suggests that "nearly all major US tech firms…have been entangled in Chinese surveillance technology development." They profit by refining what traps people.

By contrast, Mr Millward writes of the camps as the unhappy coda to a story of jostling empires and dynasties. Readers unfamiliar with Asian history may struggle to tell the Xiongnu from the Tokharians. But the snippets about Chen Quanguo, an architect of Uyghur misery today, are much richer for being considered alongside the region's pre-communist rulers.

Unfortunately Mr Millward has not revised his entire book. This grates, particularly when outdated projections or examples remain. (The predictions for the "dry port" of Khorgos, for example, are jarring to read almost two decades later, now that the transport hub is an established stop on the "New Silk Road".) But it is useful to see how the author has changed his tone.

In the first edition of "Eurasian Crossroads", Mr Millward dispassionately surveyed the chauvinistic debates which dog scholars in his field, particularly in China: the possible Indo-European origins of the Xinjiang Stone Age; the contested beginnings of a Uyghur nation. The goal is not to be political, he says in his original preface, but to offer an overview of history. He has both Han Chinese and Uyghur friends, he tells the reader. Profiles of those who attempt to balance their Uyghur and Chinese identities close out the book.

In the intervening years Mr Millward has been dragged into the politics he sought to avoid. In 2011 he and 12 other academics said they were denied Chinese visas after publishing a fairly innocuous book about this "Muslim borderland". The balancing act proved to be an illusion. China has "lost its balance" too, Mr Millward asserts, by forgetting the lessons of history. The Qing and the Kuomintang were able to implement policies effectively when they accepted that Xinjiang was different and governed accordingly. Today the party exerts total control over the region precisely because it fears this diversity.

Like the fallout from the Cultural Revolution, which also convulsed Xinjiang, the consequences of this policy are devastating. Qeyser, a young Uyghur whom Mr Byler later helped to escape, never saw a phone until he was 15. When officials announced that they would be searching all students' smartphones, he was terrified that they would find an article by Ilham Tohti, the Uyghur intellectual to whom Mr Millward's book is dedicated, and who was sentenced to life in prison in 2014 for "separatism". Mr Tohti's crime was to argue that the country's development had not sufficiently benefited Uyghurs.

Xinjiang today is a different kind of crossroads from the one Mr Millward first described 15 years ago. China's vision of a homogenous nation is more in keeping with the European empires of the 19th century, but in Xinjiang, these ideas from the past merge with the technology of the future. Americans may write the first mainstream accounts, but trapped in the middle are the Uyghurs. China is trying to erase Uyghur culture, discourage births and cow the entire people into submission. ■

Earthy delights

The Van Gogh Museum showcases a rejected early masterpiece

People hated "The Potato Eaters" when it was unveiled in 1885. Vincent van Gogh thought it was his best work

Oct 30th 2021 | AMSTERDAM

Van Gogh Museum, Amsterdam (Vincent van Gogh Foundation)

EVERYONE THINKS they know Vincent van Gogh until they see "The Potato Eaters" (pictured). Painted in the Netherlands in 1885, it is as far in tone as could be imagined from the blazing sunflowers of his later work in the south of France. Five members of a farming household huddle round the table, sharing a meal of potatoes and coffee. The mood is cramped, the colours mostly muted greens and browns. Outside the circle of lamplight the dark presses in. It was one of the few group scenes he painted, and nearly everyone who saw it in his lifetime hated it. Van Gogh told his sister that it was the best thing he'd ever done.

This autumn the Van Gogh Museum in Amsterdam has made it the focus of an exhibition, under the rubric "Mistake or Masterpiece?" The title is a bit of a tease, but Bregje Gerritse, who curated the show, says viewers should take the question seriously. The painting is marred by errors: funny torsos, gazes that fail to meet. Some may be intentional, but Van Gogh acknowledged others were bloopers. Still, he thought his critics missed the point. With "The Potato Eaters" he was reaching for a new authenticity, an appreciation of misshapen beauty that refused to romanticise its subjects.

It started with a deadline. Van Gogh's brother Theo, an art dealer in Paris, wrote in February 1885 to ask whether he had anything for that year's salon. Vincent was living in Brabant, in the southern Netherlands, drawing the local farmers. He had nothing suitable, but threw himself into the project. Van Gogh greatly admired Jean-François Millet's depictions of rural life and was influenced by Jozef Israels, a Dutch painter of working-class scenes. He was also studying colour theory and physiognomy, the pseudoscience of reading character from facial structure. But most of all he was obsessed with the farmers. He wanted to capture their rough bodies and their honest relationship to the earth.

His drawings from the period, the jagged lines already recognisably his own, are full of hunched shoulders and angular tree limbs. He sought out "raw, flat faces with low foreheads and thick lips". He seems transfixed by one model's protruding jaw. When the flesh tones in his first go at "The Potato Eaters" came out too light he shifted to "soapy" hues, "about the colour of a good dusty potato, unpeeled of course".

The Dutch have a genius for this sort of thing: celebrating the ordinary, often with a nose-thumbing defiance. You can look back from Van Gogh to the Old Masters, with their minute attention to cheese, pets and drinking games at the expense of gods and saints. This is what Pieter Bruegel displays in his "Landscape with the Fall of Icarus": the farmer going about his ploughing, unperturbed by the tragedy. You can also look ahead from Van Gogh to the simple, repetitive forms of Piet Mondrian or, in architecture, the geometric concrete of Rem Koolhaas.

In film the Netherlands' gift is for documentaries rather than fiction. In television it is for long interviews and reality programmes, where the Dutch series "Big Brother" played a pioneering role. One of the innovators was Theo van Gogh, the artist's great-grandnephew, a provocative reality-TV innovator who was murdered by an Islamist extremist in 2004. The best Dutch literature swims in everyday tedium, from "The Evenings" (1947), Gerard Reve's novel of queer post-war ennui, to "The Discomfort of Evening" (2020), Marieke Lucas Rijneveld's novel of queer millennial ennui. "The Potato Eaters" could have been used as a cover illustration for that recent book, which opens with a meal in a poor Christian farmhouse in Brabant, about 115 years on.

The painting wound up hanging over the fireplace of Van Gogh's brother. Anton van Rappard, a fellow painter, criticised its formal deficiencies so harshly that Van Gogh's friendship with him never recovered. The next year he moved to France and discovered the Impressionists, and his palette exploded into the kaleidoscope familiar from his later work. Though Van Gogh may not have intended it, that contrast makes "The Potato Eaters" feel like a judgment on the cramped moralism of Dutch society. The refreshing Dutch embrace of the ordinary goes along with a sometimes oppressive conformism. The country's unofficial slogan is *doe normaal*: "don't be egotistical, act normally". Yet its greatest geniuses, including Van Gogh, have been those who couldn't. ■

Johnson

How the Rosetta Stone was deciphered

"The Writing of the Gods" is an entertaining account of a great intellectual achievement

Oct 28th 2021

YOU MIGHT think the most daunting decoding challenges occur when an enemy makes a message difficult to read by design. To break ciphers such as Germany's Enigma code in the second world war requires enormous ingenuity.

So why did the decipherers of Egyptian hieroglyphs take hundreds of years to complete their task? The codemakers didn't aim to obscure their writing. But they had been dead for 2,000 years, and scholars knew nothing certain of their language. They faced texts that could be receipts or prayers and lacked the cultural knowledge to guess which. They weren't sure where words and sentences began, or even which way the text ran. At least the Enigma codebreakers knew they were looking for something resembling military orders in German.

Napoleon invaded Egypt in 1798 in part because French intellectuals were awed by the ancient culture that had produced the pyramids and sought to conquer it. But they knew little of the mental life of the Egyptians; hieroglyphs had been out of use for millennia.

The discovery of a stone during the renovation of a fort gave them a chance. Inscribed on the slab was what seemed to be the same text rendered in three writing systems: Greek, an unfamiliar script and hieroglyphs.

The scholars studying the Rosetta Stone were operating with scant information and their accomplishment will astonish readers. Edward Dolnick's new book, "The Writing of the Gods", is a short, accessible and highly entertaining account of the work—primarily that of Thomas Young and Jean-François Champollion—that cracked the code.

The two men were inventive in their approach to deciphering. Young was a polymath, positing the wave theory of light among other achievements. Champollion was obsessed with Egypt: he talked to himself in Coptic, the liturgical language of the Egyptian Orthodox church.

The Englishman made the first breakthrough. European Egyptology had laboured under a misconception for centuries, believing that the Egyptians wrote in a mystical language of pure ideas, not in anything as boring as an alphabet. Young noticed that the name Ptolemy, a Greek ruler of Egypt, recurred in the Greek text. He had seen that the Chinese would write Western names with Chinese characters, using those that sounded most appropriate even if they had an irrelevant meaning. He guessed that the Egyptians did something similar. Luckily the Egyptians also put an oval, which the French called a cartouche, around royal names. Young worked out glyphs that seemed to correlate with "Ptolmes", confirming that hieroglyphs did not just convey ideas.

Champollion then took the case forward. After the deciphering of a few more Greek names he turned to Egyptian ones, particularly "Ramesses" (also known as Ramses). Unlike many others in the field, he believed Coptic, which was replaced by Arabic as Egypt's primary language in the first millennium AD, to be a descendant of ancient Egyptian. He guessed that the latter letters of the word might have something to do with "mise", the Coptic for "birth", and looked for something similar in the Greek. Once he had found it, he returned to the hieroglyphs and found the symbols he was looking for outside a cartouche. He is said to have fainted on announcing his breakthrough: the Egyptians used hieroglyphs for the sounds of ordinary words too, and he was on the way to unravelling how.

Much was left to discover. A hieroglyph could represent a whole word, syllables or individual sounds. Mysterious characters called determinatives were unpronounced but elucidated a word's meaning in ambiguous situations. The stone's middle script was a red herring—it was a kind of simplification of the hieroglyphs, not a key to understanding them. Champollion worked out lots about grammar, though, as a work for the general reader, "The Writing of the Gods" skips through it. He left much unfinished when he died at 41.

As great a mind as Isaac Newton believed that the Egyptians had figured out everything that mattered and the moderns' task was merely to unveil those existing truths. Young and Champollion made it possible to unravel just how brilliant Egyptian civilisation was. But it was also strange (the passion for mummification extended to ibises, a sacred bird) and primitive (labourers built the pyramids without so much as a wheelbarrow). Young's and Champollion's intellectual achievement deserves at least as much reverence as pyramids, sphinxes and masks of gold.

Crisis management

Geert Mak takes stock of the past 20 years of European history

Among the disasters and gloom are glimmers of hope

Oct 28th 2021

The Dream of Europe. By Geert Mak. Translated by Liz Waters. *Harvill Secker; 592 pages; £25*

“WHAT HAS happened”, wonders Geert Mak, “in these 20 glorious years of globalisation and the free market?” You can tell by the way that he phrases the question that the answer is not going to be pretty. Sure enough, even the most hardened miserabilist will find plenty in this latest Europe-spanning investigation by Mr Mak, a Dutch journalist and historian, to deepen his or her gloom. Things that have gone right (Mr Mak admits that there are some) would have made for a much slighter volume.

It all started out so well. “The Dream of Europe” opens where the author’s previous mega-volume, “In Europe”, left off, at the end of the last century. Mr Mak flits from city to city, recounting what New Year’s Eve felt like in Amsterdam, Copenhagen, Kirkenes in northern Norway, Vasarosbec in southern Hungary. It was a time of vast optimism after a century of unimaginable upheaval. The 1990s had been a golden and, in retrospect, deceptive decade. The Soviet empire had bloodlessly evaporated; the enslaved countries of eastern Europe were heading for the European Union; even Russia thought of joining NATO. America ruled supreme, and only Sinologists cared much about China.

Yet how quickly it all turned. Mr Mak unfolds the debacle in a series of meditations, each pegged to a theme and a date but discursively wandering in time and space, introducing a cast of characters he frequently returns to (a Hungarian mayor, an Iranian refugee, a pair of Greek shop-owners, a Catalan journalist) as his rough chronology unfolds.

The progression of disasters is familiar: the attacks of September 11th 2001 and the terrorist reactions it triggered in Europe; the global financial crisis, followed by Europe's own euro-zone crisis; the migration crisis of 2014-15; the Brexit crisis; the covid-19 crisis; populism of right and left; American isolationism. Digressive, itinerant and philosophical, Mr Mak's style might not suit everyone and it certainly makes for a doorstopper, but it is mostly compelling and readable. Anecdotal nuggets sparkle on every page.

The nature of the European Union is the central mystery that runs through the whole book. Is the EU a ramshackle, secretive, undemocratic outfit that is destined to melt away like the Habsburg empire? Or will it cohere into a durable state-like polity, as Mr Mak's Netherlands did? Perhaps sensibly, he does not attempt a definitive answer, punting the question to a mythical reader in 2069. But the glimmers of hope that the author does discern point, improbably, to success. The EU flounders when faced with a "polycrisis", but it muddles through. It invents new instruments, which live on, and over time it gets better at invention, too. The economic response to the coronavirus pandemic was far faster than to the euro-zone crisis.

The other broad thread that runs through the book is sympathy. Not just for the desperate migrants drowning in the Mediterranean, or the legions of unemployed in southern Europe. Mr Mak shows a real understanding of people whom you might expect him to dislike: those who voted for Brexit, for example, or Russians who mourn their vanished glory. He understands what drives people to suspicion of outsiders, or to take refuge in a past that can only be recovered in the false dreams of demagogues.

There are irritations. In the course of his chapter on Brexit, Mr Mak recounts just how much the people of Wigan hate George Orwell, who went there in 1936 with a pre-formed agenda and duly saw awfulness everywhere. Yet he seems unable to see how much he suffers from the same affliction. He writes of the "devastation" of Wigan (though he earlier describes a city where everything is "clean, impressive, beautifully restored".) Globalisation is always a curse, never producing benefits. The fantastic increase in living standards in much of eastern Europe gets far less attention than the anxieties that have emerged. But if you want a broad sweep of the past 20 years in a baffling, teeming continent, you can get it here. ■

British fiction

“Making Nice” is a gratifying satire of the internet age

Ferdinand Mount’s new novel revolves around a publicity agency in London

Oct 30th 2021

Making Nice. By Ferdinand Mount. *Bloomsbury Continuum; 256 pages; £16.99*

BRITISH NOVELISTS excel at capturing the cut and thrust of a newsroom in a genre perhaps best described as the hack picaresque. Evelyn Waugh is its standard-bearer. His novel of 1938, “Scoop”, follows a man of modest means mistaken for a foreign correspondent and sent to a fictional country in east Africa. The tale is an outstanding satire of the media’s mores and its insatiable hunger for titbits and gossip.

“Making Nice”, Ferdinand Mount’s new novel, is clearly indebted to “Scoop” but updates its setting to the modern information age. Here news stories are written about social-media posts. Any middle-aged old-school reporters who aren't dreaming up clickbait for meagre salaries have been tossed onto the slag heap, along with their obsolete fax machines.

The book's protagonist is Dickie Pentecost, a diplomatic correspondent who has recently been made redundant. Like Waugh's hero, William Boot, Dickie is swept up in a series of misadventures, this time in a digital world. Ethelbert ("Ethel" for short), the eccentric and mysterious panjandrum of Making Nice, a publicity agency, hires Dickie to participate in various schemes involving a corrupt African leader in exile, a Trump-like American politician and a pompous British MP who presses Dickie into service to ghostwrite his memoirs. The operating principle: make the greedy seem altruistic, and transmute tyrants into humanitarians, all in the name of "reputation retrieval".

Mr Mount has a great ear for corporate doublespeak, used by Ethel to justify his company's online skulduggery. When Dickie inquires about the company's name, Ethel tells him that his mission is to "transform the System into a game you can't help falling in love with".Sure enough, Dickie's daughter Flo is seduced by Ethel's dazzling pitches and takes to writing fake positive reviews for clients (known as "astroturfing") at his behest.

"Making Nice" lays bare how lies in the internet age have poisoned the truth and suggests everyone is more susceptible to nuanced spin. This would all be horribly depressing were it not for the book's light touch. Mr Mount has written a satire to be consumed in one sitting, a pointed critique of the modern world delivered with pluck and verve. ■

Economic & financial indicators

- **Indicators: Economic data, commodities and markets**

Indicators

Economic data, commodities and markets

Oct 28th 2021

Economic data

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	Gross domestic product % change on year ago: latest		quarter*	2021†	Consumer prices % change on year ago: latest		2021†	Unemployment rate %	
United States	12.2	Q2	6.7	6.0	5.4	Sep	4.3	4.8	Sep
China	4.9	Q3	0.8	7.9	0.7	Sep	1.0	4.9	Sep‡§
Japan	7.6	Q2	1.9	2.3	0.2	Sep	-0.2	2.8	Aug
Britain	23.6	Q2	23.9	6.4	3.1	Sep	2.8	4.5	Jul††
Canada	12.7	Q2	-1.1	5.4	4.4	Sep	3.1	6.9	Sep
Euro area	14.2	Q2	8.7	4.8	3.4	Sep	1.9	7.5	Aug
Austria	12.8	Q2	24.6	3.1	3.2	Sep	2.4	6.1	Aug
Belgium	15.1	Q2	7.1	5.0	2.9	Sep	2.3	6.4	Aug
France	18.7	Q2	4.5	6.1	2.2	Sep	1.9	8.0	Aug
Germany	9.4	Q2	6.7	3.1	4.1	Sep	2.5	3.6	Aug
Greece	16.4	Q2	14.5	6.5	2.2	Sep	0.1	13.2	Aug
Italy	17.2	Q2	11.2	6.0	2.5	Sep	1.6	9.3	Aug
Netherlands	10.4	Q2	15.9	3.7	2.7	Sep	2.3	3.1	Sep
Spain	17.6	Q2	4.3	6.1	4.0	Sep	2.4	14.0	Aug
Czech Republic	8.8	Q2	3.9	3.4	4.9	Sep	3.6	3.0	Aug‡
Denmark	10.0	Q2	11.7	3.2	2.2	Sep	1.7	3.6	Aug
Norway	6.1	Q2	4.4	3.0	4.1	Sep	3.0	4.2	Jul††
Poland	10.8	Q2	6.6	5.2	5.9	Sep	4.7	5.6	Sep§
Russia	10.5	Q2	na	3.8	7.4	Sep	5.9	4.4	Aug§
Sweden	9.5	Q2	3.6	4.0	2.5	Sep	1.9	8.2	Sep§
Switzerland	7.7	Q2	7.4	3.5	0.9	Sep	0.3	2.8	Sep
Turkey	21.7	Q2	na	8.0	19.6	Sep	17.1	12.0	Aug§
Australia	9.6	Q2	2.7	4.2	3.0	Q3	2.4	4.6	Sep
Hong Kong	7.6	Q2	-3.7	6.2	1.4	Sep	1.6	4.5	Sep‡‡
India	20.1	Q2	-41.2	8.2	4.3	Sep	5.4	6.9	Sep
Indonesia	7.1	Q2	na	3.0	1.6	Sep	1.7	6.3	Q1§
Malaysia	16.1	Q2	na	3.8	2.2	Sep	2.4	4.6	Aug§
Pakistan	4.7	2021**	na	3.8	9.0	Sep	9.2	6.9	2019
Philippines	11.8	Q2	-5.1	4.2	4.8	Sep	4.5	6.9	Q3§
Singapore	6.5	Q3	3.4	5.4	2.5	Sep	1.9	2.7	Q2
South Korea	4.0	Q3	1.2	4.1	2.5	Sep	2.2	2.7	Sep§
Taiwan	7.4	Q2	-4.2	5.7	2.6	Sep	2.0	3.9	Sep
Thailand	7.5	Q2	1.5	1.4	1.7	Sep	1.0	1.5	Dec§
Argentina	17.9	Q2	-5.5	8.1	52.5	Sep	47.3	9.6	Q2§
Brazil	12.4	Q2	-0.2	5.0	10.2	Sep	8.0	13.2	Aug§‡‡
Chile	18.1	Q2	4.2	10.3	5.3	Sep	3.9	8.5	Aug§‡‡
Colombia	17.0	Q2	-9.2	9.8	4.5	Sep	3.4	12.3	Aug§
Mexico	19.6	Q2	6.0	6.4	6.0	Sep	5.3	3.9	Sep
Peru	41.9	Q2	3.5	12.6	5.2	Sep	4.2	10.1	Sep§
Egypt	7.7	Q2	na	3.3	6.6	Sep	5.4	7.3	Q2§
Israel	17.5	Q2	16.6	5.3	2.5	Sep	1.7	5.2	Sep
Saudi Arabia	-4.1	2020	na	2.2	0.7	Sep	3.1	6.6	Q2
South Africa	19.3	Q2	4.7	4.9	5.1	Sep	4.4	34.4	Q2§

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.

The Economist

Economic data

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	Current-account balance % of GDP, 2021†	Budget balance % of GDP, 2021†	Interest rates 10-yr gov't bonds latest,%	change on year ago, bp	Currency units per $ Oct 27th	% change on year ago
United States	-3.4	-12.6	1.5	75.0	-	
China	1.9	-4.9	2.8 §§	-20.0	6.39	5.2
Japan	3.4	-8.9	nil	-8.0	114	-8.1
Britain	-3.9	-10.9	1.1	79.0	0.73	5.5
Canada	-2.3	-9.5	1.6	102	1.23	7.3
Euro area	3.3	-7.2	-0.2	42.0	0.86	-1.2
Austria	2.7	-7.7	0.1	48.0	0.86	-1.2
Belgium	1.1	-7.1	0.1	49.0	0.86	-1.2
France	-1.5	-8.5	0.2	52.0	0.86	-1.2
Germany	6.7	-5.7	-0.2	42.0	0.86	-1.2
Greece	-4.4	-9.6	1.0	9.0	0.86	-1.2
Italy	3.8	-9.6	0.9	18.0	0.86	-1.2
Netherlands	8.9	-5.2	-0.1	44.0	0.86	-1.2
Spain	0.9	-8.9	0.5	36.0	0.86	-1.2
Czech Republic	3.2	-8.3	2.7	165	22.2	4.0
Denmark	7.5	-0.3	0.1	55.0	6.42	-2.0
Norway	6.9	-3.0	1.4	76.0	8.42	8.4
Poland	2.1	-6.7	2.9	170	3.99	-3.0
Russia	4.5	-1.8	8.0	173	70.7	8.9
Sweden	4.3	-1.9	0.4	39.0	8.59	1.3
Switzerland	6.8	-3.8	-0.1	41.0	0.92	-1.1
Turkey	-3.0	-3.2	19.1	511	9.52	-14.2
Australia	1.8	-5.9	1.8	101	1.33	5.3
Hong Kong	2.9	-4.2	1.5	94.0	7.78	-0.4
India	-0.9	-7.2	6.3	49.0	75.0	-1.8
Indonesia	-0.2	-6.0	6.1	-46.0	14,173	3.2
Malaysia	2.6	-6.0	3.6	94.0	4.15	0.5
Pakistan	-4.4	-6.9	11.0 †††	113	173	-7.1
Philippines	-1.4	-7.5	4.8	179	50.8	-4.7
Singapore	19.1	-4.2	1.8	92.0	1.35	0.7
South Korea	4.6	-4.4	2.5	98.0	1,171	-3.8
Taiwan	15.2	-1.2	0.6	23.0	27.8	2.8
Thailand	-1.2	-7.5	1.7	60.0	33.4	-6.4
Argentina	1.6	-5.7	na	na	99.6	-21.4
Brazil	0.5	-5.4	11.9	434	5.58	1.3
Chile	-1.5	-6.7	6.2	362	807	-4.7
Colombia	-4.1	-8.5	7.8	258	3,764	1.2
Mexico	1.8	-3.3	7.5	169	20.2	3.4
Peru	-3.4	-4.4	6.0	174	3.99	-9.5
Egypt	-4.4	-8.0	na	na	15.7	nil
Israel	4.3	-6.5	1.3	49.0	3.19	6.0
Saudi Arabia	4.5	-2.0	na	na	3.75	nil
South Africa	1.8	-8.5	9.5	27.0	15.0	7.1

Source: Haver Analytics. §§5-year yield. †††Dollar-denominated bonds.

The Economist

Markets

In local currency	Index Oct 27th	% change on: one week	% change on: Dec 31st 2020
United States S&P 500	4,551.7	0.3	21.2
United States NAScomp	15,235.8	0.8	18.2
China Shanghai Comp	3,562.3	-0.7	2.6
China Shenzhen Comp	2,397.5	-0.9	2.9
Japan Nikkei 225	29,098.2	-0.5	6.0
Japan Topix	2,013.8	-0.7	11.6
Britain FTSE 100	7,253.3	0.4	12.3
Canada S&P TSX	20,955.0	-1.1	20.2
Euro area EURO STOXX 50	4,220.9	1.2	18.8
France CAC 40	6,753.5	0.7	21.7
Germany DAX*	15,705.8	1.2	14.5
Italy FTSE/MIB	26,806.2	0.8	20.6
Netherlands AEX	815.3	1.2	30.5
Spain IBEX 35	8,972.3	-0.5	11.1
Poland WIG	73,377.9	-1.1	28.7
Russia RTS, $ terms	1,891.3	-0.7	36.3
Switzerland SMI	12,087.5	0.6	12.9
Turkey BIST	1,519.3	6.0	2.9
Australia All Ord.	7,758.0	0.4	13.2
Hong Kong Hang Seng	25,628.7	-1.9	-5.9
India BSE	61,143.3	-0.2	28.0
Indonesia IDX	6,602.2	-0.8	10.4
Malaysia KLSE	1,583.1	-1.4	-2.7
Pakistan KSE	45,851.0	0.8	4.8
Singapore STI	3,218.2	0.6	13.2
South Korea KOSPI	3,025.5	0.4	5.3
Taiwan TWI	17,074.6	1.1	15.9
Thailand SET	1,627.6	-0.6	12.3
Argentina MERV	85,353.1	-2.0	66.6
Brazil BVSP	106,363.1	-4.0	-10.6
Mexico IPC	51,714.6	-1.1	17.4
Egypt EGX 30	11,344.9	1.9	4.6
Israel TA-125	1,930.9	0.9	23.1
Saudi Arabia Tadawul	11,807.8	-0.8	35.9
South Africa JSE AS	67,475.1	0.9	13.6
World, dev'd MSCI	3,152.1	0.1	17.2
Emerging markets MSCI	1,282.9	-1.4	-0.6

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 31st 2020
Investment grade	112	136
High-yield	329	429

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

The Economist

Commodities

The Economist **commodity-price index**

2015=100	Oct 19th	Oct 26th*	% change on month	% change on year
Dollar Index				
All Items	160.9	156.7	3.5	33.2
Food	130.1	130.7	0.8	22.1
Industrials				
All	189.6	181.0	5.4	42.0
Non-food agriculturals	150.7	146.2	2.8	36.9
Metals	201.2	191.4	6.0	43.2
Sterling Index				
All items	178.0	173.5	1.6	26.2
Euro Index				
All items	153.2	149.9	4.2	36.0
Gold				
$ per oz	1,772.6	1,788.0	2.9	-6.4
Brent				
$ per barrel	85.2	86.5	9.8	109.6

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

The Economist

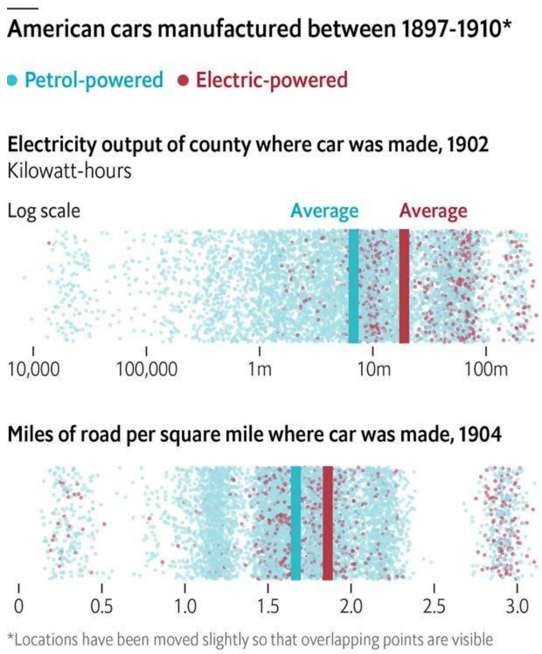
Graphic detail

The grid’s the thing

A new study argues that insufficient infrastructure doomed the first electric cars

With a more robust power grid, petrol-powered cars might have been a minority

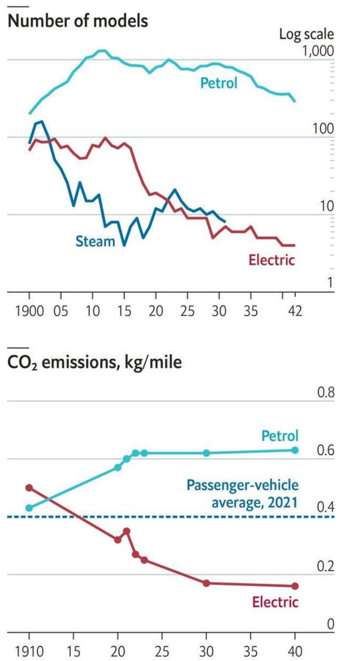
Oct 30th 2021



“ALL IS ROTARY, beautifully perfect and wonderfully efficient,” said one evangelist for electric vehicles (EVs). “There is not that almost terrifying uncertain throb and whirr of the powerful combustion engine…no dangerous and evil smelling gasoline and no noise. Perfect freedom from vibration assures both comfort and peace of mind.” Translated into Twitter-ese, such views would not sound out of place from Elon Musk. But their author was Thomas Edison, pioneer of the light bulb, in 1903.

Then as now, EVs posed a competitive threat to petrol-powered cars. In 1905 most commercial vehicles were EVs. Ads aimed at affluent women touted EVs’ cleanliness, ease of use and lack of exhaust.

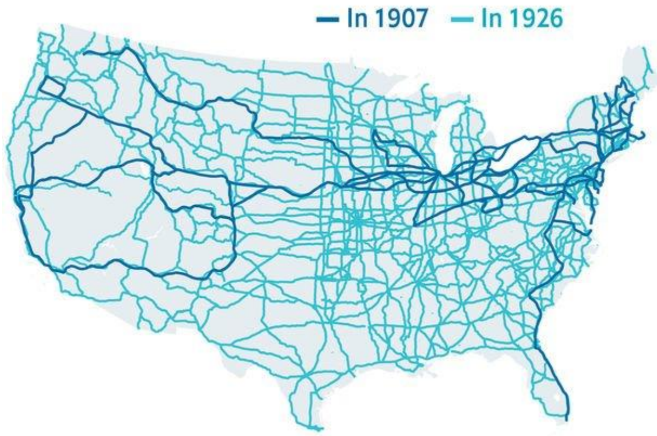
Yet by the 1920s, EVs were a dying breed. The standard account of their demise is that drivers were put off by their limited range and higher cost, relative to petrol-powered cars. However, a new paper by Josef Taalbi and Hana Nielsen of Lund University argues that their main disadvantage was instead a lack of infrastructure.



The authors consider various causes of petrol's triumph in 1900-10. Cost is unlikely, since until 1910 petrol-powered cars and EVs of the same model type were similarly priced. As for range, EVs managed a respectable 90 miles (145km) by the 1910s. Had this been EVs' principal handicap, battery-swapping stations, which replaced depleted batteries with charged ones in seconds, could have become as common as petrol stations did.

To test other explanations, the authors analysed the specifications and production sites of 37,000 model-year pairs of American cars in 1895-1942. Although petrol-powered cars were the most common, their market share varied by location. In places with the infrastructure EVs needed—smooth roads, which reduced jostling of heavy batteries, and ample electricity—production of EVs was unusually common. In areas without such capacity, petrol predominated. These vehicles' infrastructure needs were largely met before they were invented, because many rural stores already stocked petrol for farm equipment.

Paved roads



The study then used a statistical model to predict how automotive history might have differed if the power grid had developed faster. It finds that if the amount of electricity America produced by 1922 had been available in 1902, 71% of car models in 1920 would have been EVs (though long-distance motorists would still have chosen petrol cars). Accounting for the extra power generation such a fleet would need, this would have cut America's carbon-dioxide emissions from cars in 1920 by 44%.

A century later, the quantity and speed of charging stations still limit purchases of EVs by drivers worried about long trips. The infrastructure gap, however, is narrowing. Tesla, whose shares are now worth $1trn, has set up 25,000 speedy "superchargers" (though only Tesla drivers can use them). And a bipartisan bill recently passed by America's Senate includes $7.5bn to boost charging capacity. As world leaders gather at next week's COP26 conference to negotiate a reduction in global carbon-dioxide emissions, the study suggests that more support for EV infrastructure could have an outsized impact.■

Sources: "The role of energy infrastructure in shaping early adoption of electric and gasoline cars", by J. Taalbi & H. Nielsen, *Nature Energy*, 2021; EPA; Library of Congress

Obituary

- Anne Saxelby: Say cheese, America!

Say cheese, America!

Anne Saxelby was a champion of artisan farmers and their wares

The pioneering cheesemonger died on October 9th, aged 40

Oct 30th 2021

EUROPEAN VISITORS to America, that land of infinite variety, have often been struck by strange instances of sameness. Why, for example, are all pencils yellow, with a pink eraser at the end? Why do so many local newspapers have the same antique masthead?And why, until 2003, were all dollar notes the same size and colour, whatever the denomination?

Few things have surprised them more, almost into the present century, than the sameness of cheese. From sea to shining sea, America has traditionally offered six. Industrial milky mozzarella, as on pizza; blue cheese, usually as sauce in a plastic bottle; Swiss, a block of pale, thin, rubbery slices, tasting of nothing; Monterey Jack, a pale attempt at Cheddar; inoffensive cream cheese; and then, in orange glory, processed cheese, liquid or semi-solid, to melt onto burgers or to drown nachos in.

Anne Saxelby was brought up, in Chicago, with all that schlock. Kraft singles were the default in her house, and "fancy cheese" was white American, sliced to order, from the supermarket deli. But she became so fascinated by the possibilities of cheese in America that in 2006 she opened, in Essex Market on New York's Lower East Side, a tiny stall that sold cheese made only on farms in America's north-east. It was the first anywhere, and within a few years, even as supermarkets gradually upped their game, she was the most famous cheesemonger in town. By 2020 hundreds of restaurants had regular orders and close to 50 farms, half of them less than two decades old, supplied her. She was not only educating New Yorkers, but helping to save her farming friends, their herds, and a whole sustainable way of life in the green hills of New England.

With no domestic-cheese culture to build on, she doubted anyone would come to her shoe-box in Essex Market. But she offered plenty of samples ("Taste as much as you can!") and welcoming, encouraging smiles. Thus customers were introduced to Jasper Hill Calderwood, a hay-ripened raw cow's-milk cheese, and Harbison, a petite bloomy-rind number wrapped in spruce bark; Spring Brook Tarentaise, a sharp, firm Alpine cheese, and Vermont Shepherd Verano, an aged sheep's cheese, nutty and slightly sweet. They might be led at last to Twig Farm Old Goat, well-aged and rare, and to boldly try even cheese they were sure they wouldn't like, such as the stinkiest washed-rind kind. Eagerly, but slowly, she would turn their taste buds round.

She also calmed more general fears. Cheese did not make you fat; 75% of its calories might come from fat, but it was the good sort. (And if it made you fat, how was she so trim, when she ate at least four ounces a day?) The runaway gooeyness of soft cheese wasn't bad or wrong, but a sign of ever-increasing deliciousness. Slather it on a crust, and see! You could eat cheese with mould—just cut it off—and it would still be fine even if you forgot it for a day or so in the bottom of a backpack, as she had in the days when she used to tote 25lb of it every Saturday to the stall with her business partner, Benoit Breal, wobbling on their bikes across the city.

Cheese was alive, in a good way. Rather than going off, it wonderfully ripened. And contrary to the beliefs of most Americans, the raw-milk cheese that filled her stall was not dangerous. As long as the animals were healthy and the cheesemaking sanitary, raw milk offered only benefits: a better taste, with the full grassy savour of the terroir, and easier digestion, since all those gut-assisting microbes were no longer killed off by overheating.

Her own education in cheese had taken a while. The first epiphany came on a trip to Florence in her 20s when, as she nibbled on Pecorino and blissed out over Gorgonzola, she asked herself why she couldn't get these things at the grocery store back home. A few months on a farm in the Loire showed her how tightly European cheese was regulated, subsidised, tied to place and embraced by consumers, the work of centuries. But American cheesemakers had one big advantage: freedom. They could make their own cheese, give it a quirky name, and bring it to market with the help of advocates like her. They could create their own traditions. Woodcock Farm's Timberdoodle was pure cow's milk in winter, part-sheep's in the summer. What European would ever do that?

In order to learn more about cheese, through which she now viewed the world, she travelled all over the north-east. Her suppliers were her teachers, and on visits to them she would ask a million questions, as she had done on her first counter-stint at Murray's cheese store in Greenwich Village. She would begin by noting what the milking herds ate, besides fresh pasture: in the first cut of hay, rough grass and fibrous stalks; in the second cut, sweeter grass and flowers, all flavouring the cheese. Proudly she singled out the women farmers who were playing such a role in the modern revival, especially in goat cheese, as they had in the distant past. The whole virtuous cycle, from contented ruminants to healthier human beings and thriving rural communities, thrilled her with its neatness and rightness.

Covid-19 was a trial, with a milk glut and restaurants closed, but it did not dismay her. She switched largely to mail order from her Brooklyn warehouse, and as soon as possible was back at her new, bigger stall in Chelsea Market. With three small children, too, she seemed to have the energy of several women, and hoped to go on for years pioneering, gaining both depth and complexity like a good wheel of cheese. But she died of the heart condition she had never allowed to deflect her.

As a student in art school she had thought she might be a painter, but the world of galleries was cold and pretentious. Instead she felt like an artist when occasionally she made cheese herself, turning milk into curds, curds into a slippery fresh wheel, patiently attending to detail. She especially loved the Dutch Old Masters, and her holiday cheeseboard was another still life like theirs: five Vermont cheeses arranged by colour and texture among nuts and raisins, prosciutto and bright sliced apples. All those elements came together round the transcendent joy of cheese: a joy now gloriously various, from just one small corner of America. ■

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