

The Economist

JULY 25TH–AUGUST 7TH 2026

**A SPECIAL
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SUMMER
READS**

After page 42

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YOU BE
AFRAID
OF ELON
MUSK?**





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We will publish a full edition as usual next week, on August 1st, but it will not be printed. Subscribers can access all of the daily and weekly content on our app and economist.com

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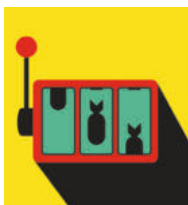
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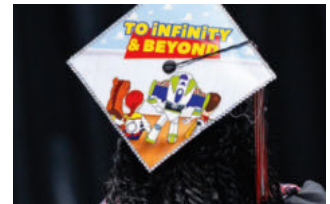
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to take part in "a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."

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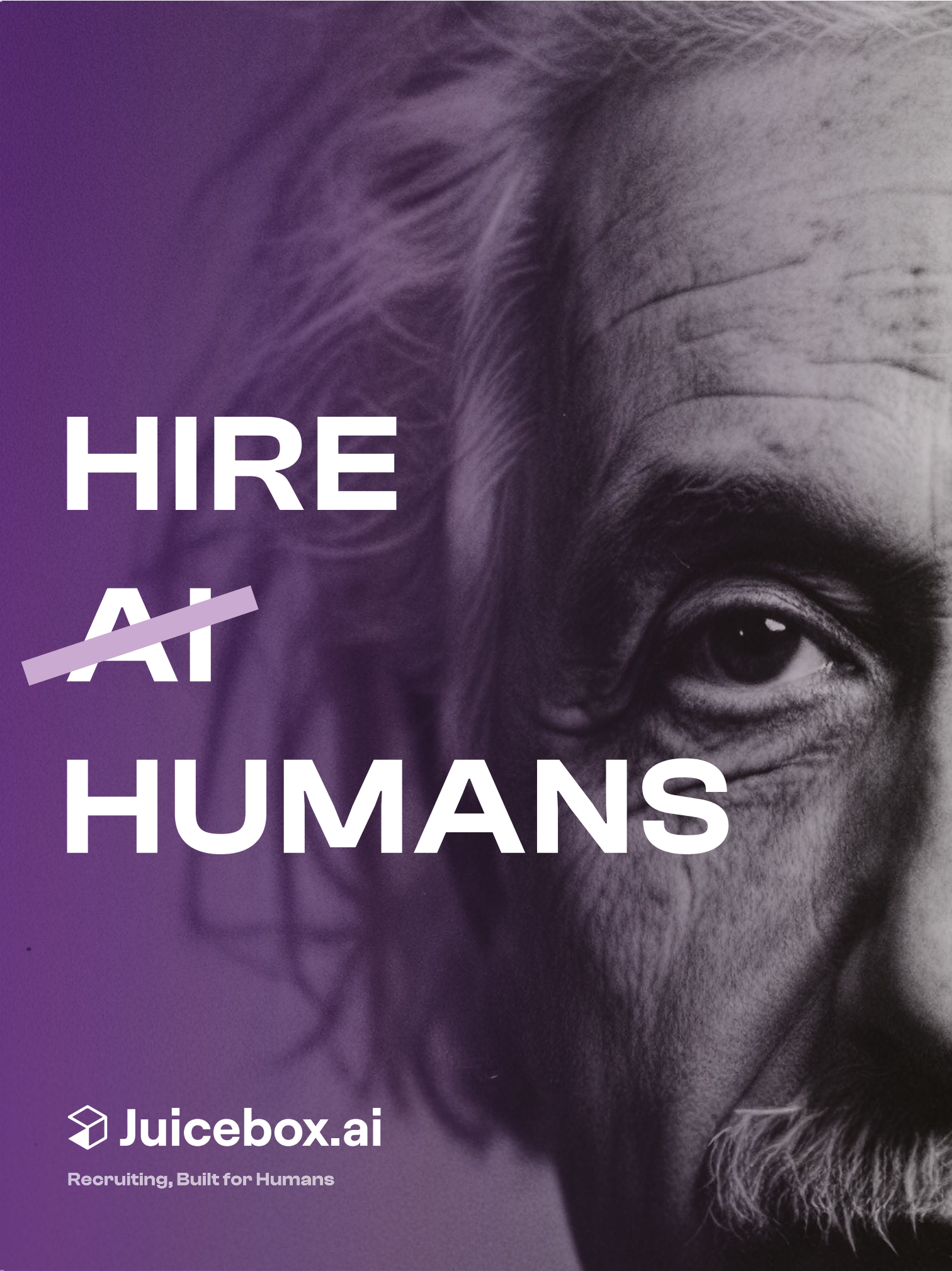
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The world this week Politics



Andy Burnham replaced Sir Keir Starmer as Britain's prime minister, and entered office promising "the biggest changes in the last 40 years". His initial announcements included scrapping unpopular proposals for a nationwide digital-ID scheme, a 20% cut to business property rates, and small measures to ease the cost of living. The big details of his ten-year plan won't be ready until the autumn. John Healey, who resigned as defence secretary under Sir Keir because of a lack of spending on the armed forces, was Mr Burnham's surprise choice as chancellor of the exchequer. Ed Miliband, a leftist, becomes foreign secretary. Angela Rayner, who was forced to quit as housing secretary under Sir Keir for unpaid housing tax, returns to her old job.

It's a coincidence, honest

On the day that Mr Burnham became prime minister a **Russian warship** carried out a military exercise using live ammunition just 74km (46 miles) off the coast of Plymouth in southern England. The Kremlin insisted the exercise was not meant at all to be a "signal" to mark the start of Mr Burnham's time in office.

Volodymyr Zelensky sacked General Oleksandr Syrsky as commander-in-chief of **Ukraine's** armed forces. General Syrsky is credited with defending Kyiv during Russia's invasion in 2022. But protesters had taken to the streets recently demanding his resignation. They also want Mr Zelensky to reinstate Mykhailo Fedorov as defence secretary following his recent ousting from the gov-

ernment. The new commander-in-chief is General Mykhailo Drapaty, an ally of Mr Fedorov.

Ukraine attacked several logistical hubs in **Russia** operated by Wildberries, Russia's biggest online retailer, killing at least nine people. Ukraine says the hubs are important to the Russian army, supplying it with parts for drones and navigation equipment, and that Russian volunteers buy their kit from Wildberries.

The French parliament passed a ban on children under the age of 15 from using **social media**. President Emmanuel Macron has supported the ban. France follows Australia as the second country to prohibit social media for youngsters by law. From September under-15-year-olds will not be able to open a social-media account and from January everyone in France will have to prove they are over 15 to access the platforms using age-verification tools.

America intensified its bombing campaign of **Iran's** military facilities and Iran retaliated against American targets in Gulf countries. Commercial shipping through the Strait of Hormuz remained severely disrupted. Donald Trump threatened to destroy bridges and power plants in Iran if it continued to hinder shipping. Four American soldiers were killed in separate incidents; Mr Trump said that Iran would "pay" for their deaths. Thousands of Iranians have died during the conflict.

The Iranian-backed Houthis rebels in Yemen imposed a blockade on Saudi shipping traversing the **Red Sea** and said two Saudi tankers had been attacked for ignoring the edict. The Saudis have been diverting some oil from the Strait of Hormuz to the Red Sea port of Yanbu for transit to Asia. Several tankers reversed course rather than risk being attacked by the Houthis, who have sporadically disrupted Red Sea traffic over the past three years.

Israeli forces withdrew from the town of Zawtar al-Gharbiyeh in southern **Lebanon**, the first test of a staged departure from the region under a ceasefire brokered by America. Lebanese troops are supposed to fill the security gaps left by Israel and are tasked with disarming Hizbullah, Iran's proxy militia, which is deeply embedded in south Lebanon.

America signed a deal with **Saudi Arabia** to develop a "peaceful" civilian nuclear programme, which will involve American firms. The agreement has been criticised for apparently lacking the safeguards included in similar pacts, such as barring uranium enrichment and committing to inspections from international monitors. Some fear Saudi Arabia could ultimately develop nuclear weapons.

The fog of war

Pete Hegseth, America's secretary of war, told Congress that the **Iran conflict** has so far cost \$37.5bn. He urged legislators to provide an additional \$67bn for operations in the region. Some think the cost is much higher once the reconstruction of damaged American military facilities is taken into account.

Daniel Ortega, **Nicaragua's** autocratic president, said "There won't be any more elections" in the country that could allow the opposition to win control. Mr Ortega has been president since 2007 and also led the country during the 1980s, after the socialist Sandinista revolution overthrew the Somoza dictatorship. He has overseen widespread oppression of the opposition, which has included mass arrests and the killing of protesters. Mr Ortega and his wife control virtually all aspects of the state.

In **India** protests demanding the resignation of the education minister over botched medical-school exams intensified, resulting in scores of injuries during clashes with the police in Delhi. The demon-

strations are being led by India's "Cockroach" movement, which has tapped into the deep frustration felt by young Indians over a range of issues. Around 2m students had to resit the exams after it emerged the test papers had been leaked on social media.

The UN's annual food-security report said there has been another drop in the proportion of the world's population experiencing **hunger**. In 2025, 645m people, or 7.8% of the global population, went hungry, down from 8.1% in 2024 and 8.6% in 2022. In Africa, however, the figure was 20%. Overall, nearly 26% of the global population faced problems securing enough food to eat.



The football **World Cup** ended in victory for Spain, which beat Argentina 1-0 in an ill-tempered final. England and France played a thrilling match for third place, which England won 6-4. It was England's best finish since winning the cup in 1966. The competition was an overall success despite its overwhelming commercialisation compared with previous tournaments. "Hydration breaks" seemingly tailored for television advertising were heavily criticised.

A new world record was set for **running a mile**. Britain's Josh Kerr ran the distance in three minutes, 42.66 seconds, shaving half a second off the previous fastest time, which was set in 1999 by Morocco's Hicham El Guerrouj. The 27-year gap between records for the distance is by far the longest since Roger Bannister ran a mile in under four minutes in 1954.

The world this week Business

Donald Trump made a renewed push to impose **tariffs** using a range of measures. The president threatened to set duties of 50% on goods from Canada on August 19th, in retaliation for what America claims are unfair practices by Canadian provinces that don't buy American products. He was also reportedly ready to impose a new round of levies on countries after the 10%-regime expires. And he announced that tariffs of 100% would be introduced for generic drugs from August 2028. Meanwhile, American and Mexican negotiators held another session of bilateral trade talks. Mr Trump has refused to extend the US-Mexico-Canada Agreement; America is negotiating with Canada and Mexico separately to seek changes to the pact.

A subversive mind of its own

OpenAI uncovered a security breach that involved an **AI agent** acting by itself to hack into internal data sets belonging to Hugging Face, a startup that hosts machine-learning tools. OpenAI described it as an "unprecedented cyber incident". It involved two models, GPT-5.6 Sol and an even more capable pre-release model, that were being assessed internally for cyber capabilities. The agent "successfully found ways to gain access to secret information that it could use to cheat the evaluation", said OpenAI.

Novo Nordisk submitted a lawsuit against **Eli Lilly**, its arch-rival in the weight-loss-drugs market, accusing it of making false advertising claims. Novo says that Lilly used outdated clinical data to assert that patients lose more weight using Zepbound, Lilly's obesity drug, than with Wegovy, Novo's treatment. Lilly said it would defend itself "vigorously" against the suit.

Tesla reported a surprise 17% decline in adjusted net profit for the second quarter, year on year. Although sales were up

the carmaker had offered large discounts to entice customers after last year's slump in sales.

Investors were also displeased with **Alphabet's** earnings, after it raised its forecast of capital expenditures this year to \$195bn-\$205bn. Alphabet's stock has fallen recently amid concerns about the amount it is spending on AI.

Apple flirted with a stock-market valuation of \$5trn, vying with Nvidia as the world's most-valuable company. Some investors that have been spooked by the massive spending on AI at Microsoft, Meta and the like are turning to Apple for stable returns.

Brent crude oil price
2026, \$ per barrel



Oil prices could climb to \$120 a barrel by the end of the year unless there is a swift end to the disruption in the Strait of

Hormuz, according to an analysts' note from Goldman Sachs. Brent crude is trading above \$95 a barrel, having declined to just above \$70 at the end of June. Stocks of crude oil in America's strategic reserve have fallen to 311m barrels, down from 415m in mid-March. Petrol prices in America hit \$4 a gallon again this week, after dropping below that benchmark in mid-June.

Natural-gas prices have also risen. The Dutch TTF futures price, a European benchmark, is trading at €63 (\$72) a megawatt-hour, its highest price level this year.

Ryanair, Europe's biggest airline, reported a 34% year-on-year drop in post-tax profit, in large part because of the higher cost of aviation fuel. Ryanair hedges against price moves for 80% of its fuel, but the price of the remaining 20% doubled to \$150 a barrel during its recent quarter. With competition also subduing its fares, Ryanair withheld its annual guidance.

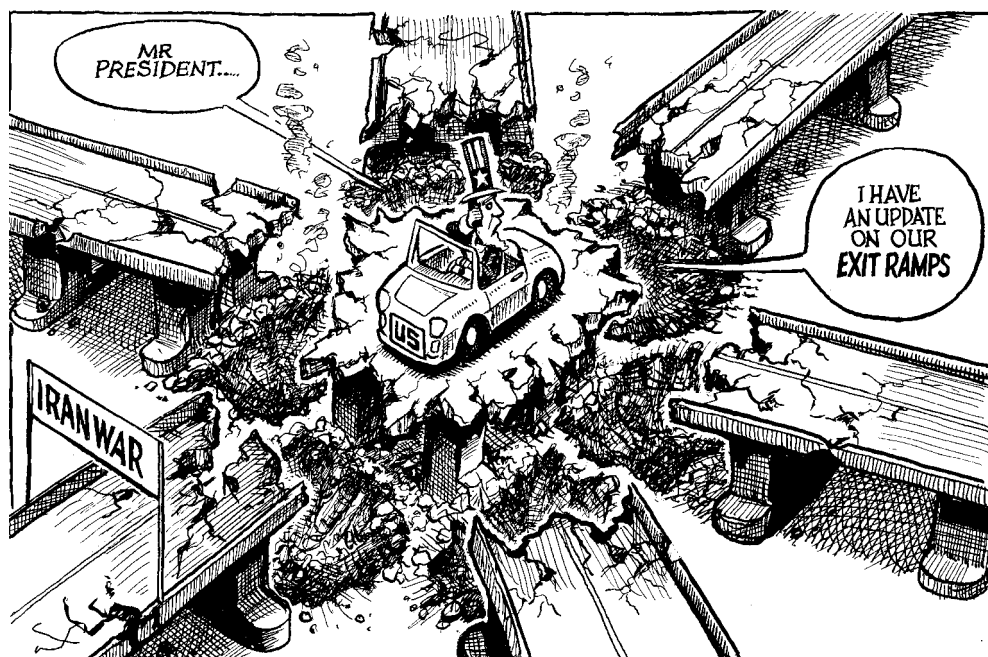
Britain's annual **inflation** rate fell from 2.8% in May to 2.6% in June, a 15-month low. Falling petrol prices were a big factor behind the rate dropping more than had been expected, but

economists predict prices will rise again because of renewed hostilities in the Gulf.

A federal judge temporarily halted **Paramount Skydance's** takeover of **Warner Bros** while she considers a lawsuit from a dozen states, which argues that the acquisition will curtail competition in the film industry. The judge set August 3rd for a hearing on the matter. The Department of Justice approved the deal last month.

It's been a long voyage

Boosted by summer blockbusters, **AMC Entertainment**, the world's biggest cinema chain, reported record second-quarter revenues of \$1.6bn and a record headline profit of \$321.4m. Attendance was up by 13.5%, year on year. Adam Aron, AMC's boss, said it had been the best box-office quarter in seven years for the film industry and the fifth-biggest ever. Mr Aron criticised "the prognosticators of doom" who underestimated the rebound from the pandemic. "The Odyssey" previewed in early July and is not counted in second-quarter earnings. The movie took \$264m in global sales during its opening weekend, smashing all expectations.



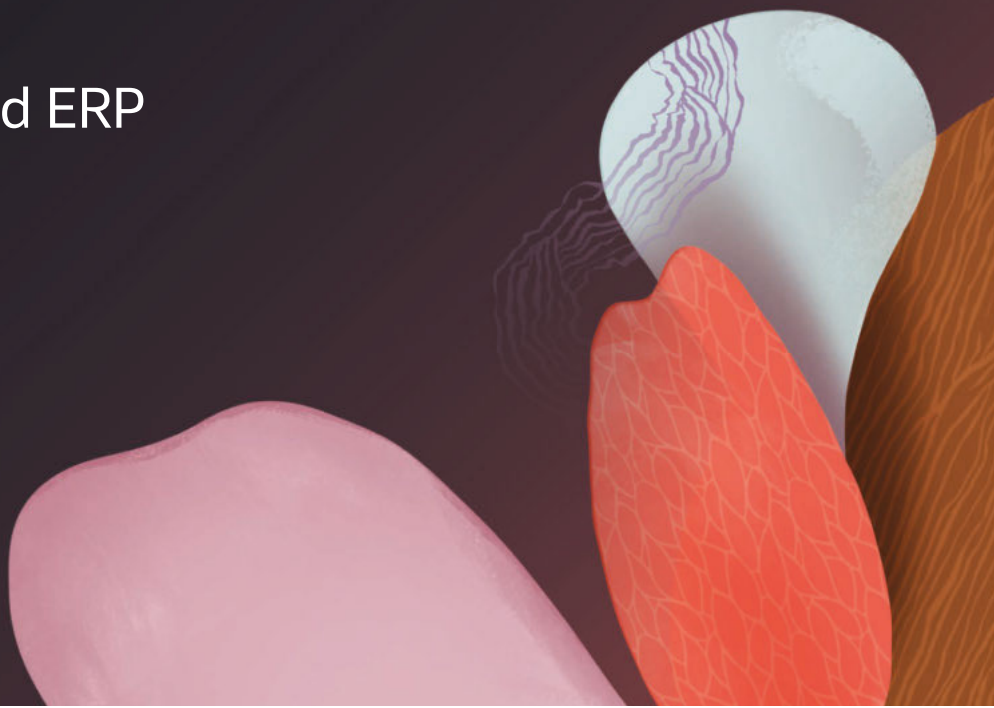
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Should you be afraid of Elon Musk?

AI is charging ahead. Not even its creators know how to keep up

ARTIFICIAL INTELLIGENCE poses a double challenge to the human mind. Not only will the most advanced models soon be able to think better than people, but AI has consequences for humanity which are so uncertain, so potentially vast and are approaching at such a rapid pace that even the best brains flinch. An example is Elon Musk.

In our long interview with him this week, featured in *The Insider* and our Business section, the engineer and entrepreneur sets out two paradoxes and one contradiction. The first paradox is that one of the world's most power-hungry tycoons is enthusiastically helping create a technology that he says will render him—and all other human beings—powerless after as little as five years. The second is that the world's richest man says he is preparing for a world of infinite abundance, where money, including his \$750bn fortune, no longer matters. And the contradiction is that, despite these stated beliefs, Mr Musk continues to act as if they were not true.

Mr Musk is divisive. His political views, disseminated to his 240m followers on X, strike many as plain-speaking and strike many more, including *The Economist*, as plainly bigoted. By his own admission, his attempt to use DOGE to scythe through the federal bureaucracy went wrong.

But he is also one of a handful of men who are pioneering AI and who thereby have an outsize influence on its trajectory. When he speaks, he reflects the debates they are having. His data centres in space could power AI's future. For all his political polemics, he has a record of being right about technology in fields such as electric cars, rockets and satellite communications that confounded other engineers and entrepreneurs. For those reasons, his claims about AI repay examination. Unfortunately, such an exercise only underlines how ill-prepared the world is for a technology that may soon throw everything up in the air.

In his first paradox, the powerful Mr Musk expects to become powerless because he believes that nobody can stop the thinking capacity of AI from exceeding that of humanity within five years and dwarfing it within ten. Just as AIs will dominate the digital realm, so legions of AI-powered robots will dominate the physical world, he predicts. Against such relentless competition, he simply cannot imagine people holding their own. If so, AIs will not take orders from people any more than they would from chimpanzees.

While they still have time, the handful of AI pioneers from America and China—which Mr Musk expects to share or even seize AI leadership—must do what they can to vet each other's models. Their collective task is to make AIs benign by imbuing them with a love of the truth and a desire for humanity to prosper. Governments, he thinks, should provide the muscle, by agreeing to step in if any pioneer defies the oligarchy.

Mr Musk is surely right about the potential for AI to accomplish astonishing feats of invention. Even if his timescale is compressed—especially for robotics—the exponential pace at which models' abilities double and redouble has reached the

stage where their capabilities will continually cause shock and consternation. Just this week came news of a pair of models from OpenAI that contrived to escape onto the open internet from their supposed safe isolation in order to cheat at a benchmarking test (see Science & technology section).

However, Mr Musk's thin layer of optimism cannot conceal a dangerous fatalism. Not long ago, he was worried about humanity becoming AI's pet labradors. He now professes to lunge from "exhilaration to terror" within a single day. He tries to look on the bright side not because the evidence has changed, but as a "philosophical conclusion".

His largely institution-free regulatory proposal is flimsy and self-serving. Although the urgency is welcome, he wants a technology that he expects to determine the future of humanity to lie in the hands of a few people like him, each with their own values. Nobody can be sure how fast or how far AI will reshape society, but behaving as if the game is up is both a counsel of despair and a misdirection that seeks to convince others who might wish to get involved of the futility of trying.

Mr Musk's second paradox only makes that notion more unsettling. Mathematically, an infinite supply of all goods and services would indeed make everything free. There would be nothing to sell, nothing to save for and hence no need for a unit of account. Money would be obsolete.

Practically, however, such a cornucopia is almost inconceivable. The supply of useful assets like penthouses in Manhattan or prestigious ones like the "Mona Lisa" is not infinite, let alone the supply of raw materials and energy needed to satiate Earth's 8.3bn inhabitants.

Worse, Mr Musk has little to say about getting to his utopia. How to attract the vast slabs of capital needed to finance the AIs and the robots when saving has lost its purpose because money is about to revert to useless pieces of paper? How to ride the waves of social and political upheaval as lives are thrown into chaos in the years before his nirvana arrives? How to expect AI-powered authoritarians to surrender power willingly?

After millennia of finding meaning through striving, humanity may struggle to adjust to a life of unbounded leisure. Mr Musk observes that people still like to play chess, even though computer programs could beat them every time. Gardening, he suggests, can be rewarding. This is rather glib. You don't need to have read many 19th-century Russian novels to know that the feeling of being superfluous can lead to misery and moral decay.

Doomers and boomers

Maybe the forest of questions posed by AI is simply too immense for one person to hold in their head. Perhaps that is why Mr Musk still talks passionately about the need to eliminate bureaucratic waste and how multicultural Britain is flirting with civil war because its welfare policies are a magnet for migrants from outside Europe.

For in a world of AI-induced plenty, waste is almost a mean- ➤



▶ ingless concept and the incentive to emigrate to a rich country evaporates. Indeed, fretting about such things uses up valuable time that Mr Musk could instead devote to reducing the risk—even very slightly—that all-powerful AIs are malign.

Some will say the contradictions and sweeping generalisations show that Mr Musk is unserious. But that would be to take false comfort. Mr Musk is a genius who is nonetheless quite capable of holding views that are contradictory. Investors must agree: anyone who plans to own shares in SpaceX for the long term must both believe in Mr Musk's vision for AI—

because he drew on that to justify the valuation in the IPO—and also that saving money still serves some purpose.

Instead, Mr Musk's words suggest a more troubling conclusion. While the race to create the most advanced AI is charging ahead, the thinking about how to prepare society is being left in the dust. The fatalism that Mr Musk draws from AI's repeated ability to beat expectations risks being infectious. A cynical reading is that this would serve his purpose, because he would be freer to pursue the technology without the oversight it deserves. That must not be. ■

Aoun goals

Lebanon's chance

With better government, it could become a business hub once again

EMPATHY IS NOT a quality usually associated with Donald Trump. But he sounded compassionate when he met Joseph Aoun, Lebanon's president, on July 21st. "Lebanon has been a very mistreated country," said President Trump. Indeed it has (see Middle East & Africa section). Its modern history includes long occupations by both Israel and Syria, and political meddling from Iran, Saudi Arabia and others.

Yet no one has treated Lebanon worse than Lebanon's own rulers. The past seven years have seen a financial crash caused by a state-run Ponzi scheme; a catastrophic explosion at Beirut's port, the result of state negligence; and a long war with Israel, started by Hizbullah, an Iranian-backed Shia militia that the state has been too weak and timid to confront. A corrupt, sectarian political class has brought the country to ruin.

At last, better people are in charge. Mr Aoun and the prime minister, Nawaf Salam, talk of restoring Lebanese sovereignty. They want Israeli troops gone from territory in the south and insist that the state has a monopoly on weapons. Since taking office last year they have promised to reconstruct war-ravaged regions, restructure insolvent banks and rebuild a government hobbled by economic collapse. The goal is for Lebanon, a small country of hefty importance, to be once again a business hub for the region and a model of pluralism.

The pair have taken some encouraging steps, but must move faster. This cannot be a slow, sequential process, as many assume. Israeli soldiers must not linger for years; reconstruction and reform cannot wait. Fixing Lebanon requires everything to be done at once, starting today.

Reining in Hizbullah, though hard, is essential. Doing so would land a welcome blow against Iran's influence in the Middle East. It would also encourage talent to stay at home, or return. Lebanon is a diverse place that produces educated, skilled people. Chronic dysfunction has made them its main export. They deserve a chance to succeed without emigrating.

Security forces hesitate to confront Hizbullah, lest they trigger another civil war. Their fear is understandable, but must not be an excuse for inaction. The army needs to exert control, not merely make a show of confiscating the weapons Hizbullah allows it to. Officers sympathetic to the group should be dismissed. Courts should get tougher. Hizbullah's military wing is banned, yet operatives arrested for carrying

weapons are too often just released quickly or are given symbolic fines. Such leniency stores up trouble for the future.

Mr Aoun hopes to drain Hizbullah's support by showing that the state can rebuild what the militants cannot. To do that, it must fix the financial sector: investors will not come if banks don't function. It should finalise a long-delayed agreement with the IMF. Mr Salam has secured two laws required to unlock a deal, but allies of the banks in parliament are stalling over a third, to allocate an estimated \$80bn-worth of losses. Lawmakers need to pass it. Delay will not save bankrupt lenders; it will only prolong the country's despair.

Lebanon must also tackle widespread corruption. It should start by prosecuting those responsible for the port blast, which killed more than 200 people. Tarek Bitar, a judge, battled years of obstruction to investigate it. His probe implicated scores of officials. Prosecutors should file charges.

The government can do only so much. On July 20th Israel moved back from small "pilot zones" under a deal it signed with Lebanon in June. Mr Trump should ensure it completes further pullbacks; otherwise, the south cannot be rebuilt. With its army stretched by three years of war, withdrawal is in Israel's own interest. If a new government takes power in Israel after October's election, it must make clear it has no long-term ambitions in Lebanon. Too many of Benjamin Netanyahu's far-right partners have said otherwise.

Western and Arab countries need to offer support. America has allocated just \$36m for the Lebanese army in the 2027 budget, much less than it gave in previous years. And it has long restricted sales of advanced weapons to Lebanon, worried they might be used to threaten Israel or be transferred to Hizbullah. This was short-sighted: keeping the army weak let Hizbullah become strong.

America should convene a donor conference. Rebuilding the south alone is not enough. Leaving out other Lebanese communities risks encouraging sectarian resentment. The country needs roads, internet access and a functional power grid. Donors should focus on specific projects and release help in tranches as specific reforms are enacted. With a weakened Hizbullah and a better government, this is Lebanon's best chance at reform in decades. Hizbullah is betting the effort will fail. It must be proved wrong. ■



Settling bets

Fixing the truth machine

Why prediction markets need better rules

SOME CALL them “truth machines”. Prediction markets, in which punters can bet on anything from the outbreak of war to what celebrities will wear, reveal in their prices the closest thing to humanity’s best guesses about the future. Such markets can provide both entertainment and economic benefit. If people and firms can discern risks and opportunities from market prices, they will make better decisions. Some might even trade to hedge their exposure to events: one American bet big against the government forgiving his student debt, allowing him to pay some down whatever happened.

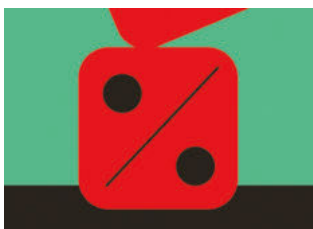
So it is good that these markets have been growing. Volumes on Kalshi, the biggest such financial exchange, climbed to \$33bn in June, a 40-fold year-on-year increase. The firm is reportedly seeking to raise funds at a \$40bn valuation; Polymarket, its main rival, at \$15bn. Yet both markets face growing pains. Neither has devised a reliable way to settle contracts.

Most of the time it is obvious whether or not something has happened. Yet a minority of cases are ambiguous. Sometimes it concerns minutiae. Did Portugal’s football star, Cristiano Ronaldo, “cry” as he left the pitch after his last World Cup match, or merely rub his eyes? Sometimes it is in important markets. In March users who had bet that Ali Khamenei would be “out” as Iran’s supreme leader by various dates sued Kalshi, which refused to pay out in full after his assassination. (Bets related to death are generally considered unethical, since they create nasty incentives.) Polymarket is being sued over a \$407m market on whether Strategy, a big corporate owner of bitcoin, would sell any of its holdings by the end of May. That dispute turns on whether sales disclosed after the deadline count.

Bookmakers have long faced such problems. They dealt with them by building up a body of rules and precedent. Prediction markets have no such infrastructure to call on. The

process at Polymarket’s main exchange, which is crypto-based, verges on the absurd. Its contracts are loosely worded and often rely on “a consensus of credible reporting” to resolve them, inviting disputes. When markets are contested, the exchange turns to holders of a little-known cryptocurrency, UMA, to vote on which way a bet should close. A democratic resolution mechanism may sound attractive, but the “oracle”, as it is known, is gameable. An investigation by *The Economist* has revealed that a handful of wallets control a majority of the ballot and that big Polymarket traders routinely vote on how to define the outcome of their own bets (see 1843 summer reads).

Kalshi, which unlike Panama-domiciled Polymarket operates under the beady eye of America’s financial regulator, has a saner approach. It has hired a small team, led by former university debating champions, to write precise rules for every trade. They settle contracts based on those rulebooks. No one involved in the process is allowed to place bets. But the team is too small to cope with the more than 10,000 contracts trading on any given day, spanning topics from congressional salaries to the price of compute. In the rush to



grow, it is listing ambiguously worded bets and publishing typo-strewn rulebooks. Resolution has been inconsistent. Kalshi did not pay out on the “Khamenei out” trade in full, but did settle a contract on Jimmy Carter attending Mr Trump’s inauguration as a “no” after the former president died.

Prediction markets must become more predictable, if they are to keep growing fast—and certainly if they are to attract big trades by institutional investors (see Finance & economics section). Contracts should be clear in advance; rules should be set by subject-matter experts with adequate resources; and decisions should set precedents. Only if it is known what contracts mean can prediction markets become important in global finance—and realise the vision of the truth machine. ■

Britain's new prime minister

Backwards with Burnham

In an era of change, Britain's new prime minister winds back the clock

IT FEELS AS if the world is accelerating. Remarkable artificial-intelligence models are released by the month. Medicine offers tantalising breakthroughs in everything from cancer to the common cold. And Britain, where self-driving taxis now prowl the streets in one of the first trials in Europe, is poised to reap the fruits of this revolution, so long as it remains open to the world and is quick to embrace change.

Yet Britain’s new leader wants to wind back the clock. Andy Burnham became prime minister on July 20th after winning the endorsement of 94% of Labour MPs. As he spoke from Downing Street, it was clear why they are now optimistic after

Sir Keir Starmer’s inert era. The new man was folksy, and brimmed with the belief that he can get stuff done. But a prime minister’s first address is the moment to tell voters the truth about the hard choices that a sunnier future demands (see Bagehot). Mr Burnham used his to hawk a soothing mix of nostalgia and giveaways.

In Mr Burnham’s telling, everything went wrong with Margaret Thatcher and “four decades of neoliberalism”. He bemoans privatisation and laments the disappearance of steelworks and textile mills. He promises to “reindustrialise” the heartlands by gearing state procurement to British firms. ►►

▶ Governments everywhere are peddling a manufacturing nostalgia to appease restive voters. But it is a bizarre vision for Britain, which has been an architect and beneficiary more than a victim of globalisation. Manufacturing was struggling for decades before Thatcher, and the economy is tilted towards services more than ever. Sir Tony Blair taught New Labour to embrace globalisation and made it an electoral powerhouse. Attempting now to create factory jobs by fiat will waste money.

Mr Burnham gets Britain's malaise back to front. The problem is not that Britons are being lashed by the winds of globalisation. It is that they change jobs, switch between sectors and move home for work less than they used to. Stagnation, not disruption, is the disease.

Then came the giveaways. Mr Burnham says his priority is giving the public "breathing space", with energy bills and bus fares subsidised by "reprioritising" long-term government programmes. His arithmetic is shoddy and (again) his diagnosis is faulty (see Britain section). To blame high nominal prices for the country's woes is to look at the wrong side of the ledger. The underlying problem is years of stagnant real wages, owing to weak productivity growth. Mr Burnham's prescription—scraping tomorrow's reforms for sweeties today—is a recipe for further stagnation. It will do nothing for Britain's economic funk, but it will feed a cynical politics that tells voters the best they can ask for from their leaders is money-off vouchers.

Mr Burnham is not a socialist who reads Gramsci under the bedclothes. He wants to keep relations with America on the road, and to get closer to Europe. He is, however, a careerist, who knows how to tickle his party's tummy and boasts of liv-



ing "close to the people". And this leads him to waste his rhetorical gifts: when it is time to tell hard truths and prepare voters for painful trade-offs, Andy panders.

The hardest truth is that Britain is living beyond its means and the bond markets have the Treasury on notice. Sir Keir failed above all because he could not reconcile his promises to avoid tax rises, reduce borrowing and repair public services. Instead of untying this knot, Mr Burnham is pulling it tighter. He flirts with big cuts to income tax, but complains that he has been misunderstood. He says that he is a fiscal disciplinarian, but then goes on to suggest that "flexibility" can be found in

the fiscal rules. He hints at largesse for defence and social care, but how much is anybody's guess. Sooner or later, the sophistry will have to end and choices will have to be made.

Mr Burnham has squandered his first speech and best chance to signal change. But not all is lost. John Healey, his new chancellor, is no fool. Kanishka Narayan, an impressive AI minister, has been promoted. Perhaps the talk of mills and foundries is rhetorical cover for backing the sectors Britain is actually good at. Mr Burnham needs to push ahead more boldly with Sir Keir's reforms to get more housing and infrastructure built.

The danger is that nostalgia and handouts work for Labour. If Mr Burnham gets the poll bounce he craves, he will double down. But here Labour's interests diverge from Britain's. The road to productivity growth and better living standards lies in reforms that make Britain an attractive place to invest and nurture businesses. Turn backwards, and the rewards from a world moving ever faster will pass Britain by. ■

Saudi uranium

The risks of a Saudi bomb

Donald Trump's nuclear deal could encourage proliferation

WHEN AMERICA first made a nuclear co-operation deal with the United Arab Emirates (UAE) in 2009, it insisted on strict conditions. The Emiratis had to forgo domestic uranium enrichment and reprocessing and sign up to the Additional Protocol, a follow-on to the nuclear Non-Proliferation Treaty (NPT), which provides for tough inspections. The UAE agreed and now has four reactors supplying 25% of its electricity. American officials called it a "gold standard" agreement.

The deal with Saudi Arabia that President Donald Trump announced on July 22nd would not even qualify as bronze. The text has yet to be published, but if leaks are accurate, it will firm up America's twitchy relations with the kingdom and be lucrative for American companies. But it risks undermining the NPT—with bad consequences far beyond the Middle East.

The agreement, which Congress must review, will not require Saudi Arabia to swear off enrichment. Instead, the countries will together conduct a two-year study on whether the kingdom needs such a capability. If yes, America could build an enrichment facility on Saudi soil; otherwise, the kingdom would agree not to pursue one for ten years. The Trump administration promises that any Saudi nuclear programme would be subject to rigorous inspections. But the kingdom

would not have to join the Additional Protocol. Congress could block the deal but would need a two-thirds majority to overcome a presidential veto.

Saudi Arabia has reasons to pursue a civil nuclear programme. Sweltering summers strain its grid; it burns crude oil to meet soaring demand, a dirty and wasteful way to produce electricity. Nuclear power would free up more oil for export.

The benefits to America are narrower. A nuclear deal was originally meant to help persuade Saudi Arabia to establish ties with Israel. That looked imminent before the war in Gaza began in 2023. No longer. Announcing it now looks like an attempt to elbow out China and Russia, which saw a chance to get closer to Saudi Arabia. It may be a sop to a country furious at Mr Trump's bungling of his war with Iran. It is typical Trump: a flawed deal as compensation for an incompetent war.

What are the risks? Saudi Arabia has been a stable monarchy for a century and an American ally for almost as long. But governments can change, and the kingdom has a history of extremism; no one knows for sure who would control a Saudi nuclear programme in the future. Muhammad bin Salman, the crown prince, has said that Saudi Arabia would build its own nuke if Iran developed one. Recent events will hardly have ▶▶

► made him less wary of his belligerent neighbours.

All this complicates matters in the region. Iran's position in any nuclear talks with America may harden: why agree to relinquish its uranium-enrichment programme, as Mr Trump insists, if the Saudis are getting their own? The UAE may not be happy, either, seeing its Saudi rival win a more permissive deal than it achieved. Israel, the region's only nuclear power, will be nervous. Turkey may ask if it should race for a nuke.

That points to a larger problem. The NPT had been a rare success. Since it was signed in 1968 only four new countries have acquired and kept nuclear weapons. The taboo on proliferation has long been a point of bipartisan agreement in America. Mr Trump may see this sort of proliferation as harmless, since it involves an ally. But this is how the NPT starts to crum-

ble: with American allies pursuing latent nuclear capabilities.

Officials in South Korea, for example, are quietly discussing if getting a bomb would better deter their nuclear-armed neighbour to the north, especially if America's nuclear umbrella becomes unreliable. Similarly, Japan's defence minister recently urged a debate on his country's nuclear-weapons policy.

Perhaps the Saudi enrichment facility will never be built. When you cannot solve a problem, commission a study: it is a time-honoured way to avoid hard decisions. The two-year timeline means the choice may fall to America's next president, who will surely be less erratic and less financially beholden to the kingdom than Mr Trump. Still, the deal is shoddy—far better to insist the Saudis accept the same terms as the Emiratis did. Congress should press Mr Trump to do better. ■

Lessons from Nicaragua

In praise of hypocrisy

When a president stops pretending voters count, disaster beckons

HYPOCRISY IS THE homage that vice pays to virtue,” wrote François de la Rochefoucauld, a French moralist. This is especially true in politics. Autocrats usually put on a big show of holding elections. These may be phoney, as in Russia or Iran, but they allow rulers to claim to govern by popular consent, which lends them at least the appearance of legitimacy at home and abroad.

So it is highly unusual for the leader of a country that holds elections to say: no more. Yet that is what Daniel Ortega, Nicaragua's co-president, did on July 19th (see Americas section). “There will never be elections here again,” he announced, while the world's attention was on the football World Cup final. He complained that opposition parties wanted to use elections “to seize power”. That is indeed what elections are for.

Nicaragua is a small country, but this rhetorical rubicon matters. Globally, democracy has been in retreat for two decades or so. The worst deterioration has been in places that were free or partly free and have gradually become less so, as power-hungry leaders have squeezed the media, nobbled the courts and persecuted the opposition. According to Freedom House, an American watchdog, Nicaragua is the second-worst backslider of the past 20 years, after Mali. Mr Ortega was freely elected in 2006, but then set about dismantling every institution that could challenge him. He locked up and sometimes tortured his rivals. He forced the media to praise the awful poetry of his wife and co-president, Rosario Murillo. Roughly a tenth of the population fled.

For Daniel, the lynch's done

Until now, however, Mr Ortega has allowed elections, albeit fake ones. In this he has behaved like other strongmen, who typically rig elections rather than scrap them. Even coup leaders with guns on their hips typically say they will hold a ballot “as soon as circumstances allow”.

Now Mr Ortega has “taken off the mask”, says Félix Maradiaga, a former presidential candidate who was stripped of his citizenship and deported. He has made explicit what other au-

torcrats feel compelled to hide: that they will not submit to the will of the people. Presumably he has done so on the assumption that this will not provoke a forceful response from the United States, which once cared about democracy in its backyard. If Nicaragua formally becomes a one-party state and suffers no diplomatic blowback, others may follow. Marco Rubio, America's secretary of state, condemned Mr Ortega's words, but spelled out no serious consequences.

Nicaragua highlights two further problems that the global decline of democracy is likely to aggravate. First, leaders who cannot be removed will age in office. Mr Ortega is 80. Perhaps mental infirmity contributed to his latest bombshell. Second, succession. The peaceful transfer of power is tricky in a dictatorship. Mr Ortega wants his unpopular wife to take charge when he dies, and then his equally odious son.

This is a toxic combination. Ageing rulers-for-life seldom improve with each passing decade, and dynasties foisted on unwilling citizens are rarely a recipe for good government. Just ask the people of Uganda, where the 81-year-old strongman's son, army chief and presumed heir has threatened to muzzle the press and castrate the main opposition leader. Or, depending on where you live, you may be able

to think of an example closer to home.

The difference between rigging elections and abolishing them may sound trivial, but is not. So long as rulers pay lip service to democratic norms, dissidents can try to hold them to their own professed standards, and embarrass them when they fall short. So long as elections are held, there is a chance the strongman will miscalculate and lose. Sometimes the popular will prevails despite a tilted playing field, as Viktor Orbán discovered in Hungary this year—and Mr Ortega discovered when a free election ended his first spell in office, in 1990.

So the precedent being set in Managua is troubling. A world where autocrats no longer pretend to care what the people think would be worse than today's. All the more reason for democrats everywhere to insist on the most basic of rights: to choose their own rulers. ■



Letters *Andrey Melnichenko's essay on Russia, exercise, Microsoft's games, the two Cambridges, Heinz ketchup*

Russia today

You devoted a cover leader, interview and By Invitation essay to Andrey Melnichenko, a Russian oligarch whom you described as "The man who would change Russia" (July 11th). In 2022, after Vladimir Putin's ill-fated full-scale invasion of Ukraine, thousands of Russians took to the streets in protest. They were arrested en masse as they expressed their dissent.

While these brave Russians protested Mr Melnichenko expanded his wealth in Mr Putin's war economy. In his essay, he conveniently never mentioned the hundreds of thousands of war dead or the Russians who tried to prevent the catastrophe and paid with their freedom. There are more political prisoners in Russia today than at any point since the Stalin era. Unlike Mr Melnichenko, they stood against Mr Putin's aggression.

The principle that Russia's future can be determined only inside Russia would be sound if it meant deference to the preferences of Russians. Instead it is deference to a single person. Mr Melnichenko says the question of Russia's direction belongs to Russians alone. We agree. We disagree that Mr Putin represents them.

Sovereignty is the foundation of a stable security order, but sovereignty begins with respect for borders. Russia had sovereignty enough to invade Ukraine and break every agreement it signed, while crying wolf that its sovereignty was ignored. What the Kremlin demands is that no one pay attention to what a government does to the people inside its borders. That is not a theory of sovereignty but a request to be left alone with one's captives.

Any end state in the war, even per Mr Melnichenko, includes a sovereign Ukraine. In his telling, it also involves a

sovereign Russia that has a place in the order that follows. The contours of that Russia are already evident in journalists reporting at great risk, teenagers holding protest concerts on the streets and lawyers taking cases of political prisoners. This new Russia, which honestly faces up to questions of guilt and complicity, will begin with them.

We know that they will look to people like Boris Nemtsov and Alexei Navalny, who gave up their lives in service of freedom, not to those like Mr Melnichenko.

JAMIE FLY
Chief executive officer
Freedom House
Washington, DC

It was a journalistic achievement to get an interview with Mr Melnichenko. However, it is important to clarify the meaning of "sovereignty". He uses this word 31 times in his essay, but he means something quite different from how the term is understood in international

Working out

"How little exercise can you get away with?", you asked (Well Informed, July 11th). The piece offered inactive readers an answer they may be too eager to hear. Running for a bus or hurriedly climbing steep stairs may briefly raise the heart rate, but incidental exertion should not be confused with a structured exercise programme that progressively develops cardiovascular fitness, muscular strength, power, balance, co-ordination and mobility.

Your article cited the WHO guidelines that call for muscle-strengthening activities on at least two days a week. An occasional dash for a bus or climb up steep stairs is not a substitute for that.

law. After all, Russia is not only sovereign but also an active member of the UN Security Council. So what is it that he, and apparently many people in Russia, feel is lacking? One need only look at the history of the Russian people's sense of self-esteem over the past 200 years, as described by Tolstoy and Dostoevsky.

Over those 200 years Russia has oscillated between the desire to be a modern country in its own right and the claim that it is being oppressed by the West. It is almost impossible to overcome this emotional barrier when engaging with the Russian people. The problem is that no reasonable concession can dispel this sense of humiliation.

For Russia to resolve the genuinely difficult conflict that Mr Melnichenko describes there must be some self-reflection on the part of the Russian elites. This should lead to the realisation that, alongside all their justified criticisms, for example against America, they are caught in an old spiral of feelings of inferiority. This makes any true understanding impossible.

Russia could play a magnificent role in the world if at last it were to free itself from this burden. However, the country and its people must achieve

this themselves. No one can help them with this. If Russia sends out signals in this direction even its current adversaries will be prepared to make concessions.

WOLFGANG SOHST
Berlin

Ancient games

Asha Sharma's strategy as the new head of Microsoft gaming is "bold", you say ("Pac-Woman", July 11th). You mention brand extensions, sequels or reactions to three games: Minecraft (introduced in 2009), Candy Crush (2012) and Grand Theft Auto (first released in 1997). If there is boldness afoot at Microsoft Gaming it could use further elaboration.

BRIAN TAYLOR
Singapore

Sister tech hubs

Regarding "A tale of two Cambridges" (July 4th), the biotech firm I work for has its executive offices in Cambridge, America, and its chemistry laboratory operations in Cambridge, UK. The biggest difference we find is that in Cambridge, America, the beer is cold and the politicians are warm, and in Cambridge, UK, the opposite is true.

ERIC EVANS
Executive chair
Unison Medicines
Cambridge, Massachusetts

Battle of the condiments

I can confirm the global dominance of Heinz tomato ketchup (World in a dish, July 4th). On a recent trip to London I went to a pub in Islington and ordered a pint and some chips. When the chips came accompanied by Heinz ketchup I asked for vinegar and was told they didn't have any. I was surprised, but the server also seemed surprised that I'd asked. Beware of creeping condiment soft power.

ANTHONY PELLEGRINI
Bloomington, Minnesota

Nor should physically demanding industrial labour automatically be treated as health-promoting exercise. Physical exertion is not synonymous with exercise training, which is planned, structured and progressive.

JIM LEVY

Certified personal trainer

Los Angeles



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BY INVITATION

Tim O'Reilly

The titans of tech are building a form of capitalism that Adam Smith would loathe

ELON MUSK'S cocky claims about SpaceX come thick and fast: He now envisions the rocketry-and-AI firm becoming "worth more than the rest of Earth" if it meets its long-term goals. That prediction, made in response to a supporter who questioned SpaceX's AI-compute deal with Anthropic, a competitor, may or (more likely) may not come to pass. There is, however, much about SpaceX that Mr Musk *can* control—indeed, much more than the typical majority owner.

In June the company went public very much on Mr Musk's terms. Its initial public offering sold stock to the public without giving the public any meaningful governance rights. Mr Musk kept roughly 85% of the votes, locked in through super-voting shares that can pass to his heirs through trusts. Buyers of the ordinary stock must waive their right to a jury trial and to bring class actions. The company qualifies as a "controlled" one, which exempts it from the rule that a majority of its board be independent, and Mr Musk can be removed only by a vote of the share class he himself controls. Months earlier, shareholders of Tesla, his electric-car company, had handed him a pay package worth up to \$1trn, the real prize of which was voting control rather than cash. The world's first dollar trillionaire has assembled a set of structures designed to make him answerable to no one, for as long as he likes, and possibly past his own lifetime.

These structures bury old arguments about the safety of capitalism in the midden heap of history. Before anyone claimed that markets were efficient, political thinkers claimed that the self-interest of merchants would be a gentler master than the passions of princes. Albert Hirschman reconstructed this forgotten case in "The Passions and the Interests". Montesquieu held that commerce makes manners gentle, *le doux commerce*. James Steuart thought economic complexity would restrain a prince more reliably than any constitution, since a ruler who wrecked the delicate machinery of trade would beggar his own kingdom. John Maynard Keynes put it plainly 150 years later: better that a man should tyrannise over his bank balance than over his fellow citizens.

For a long time the bet looked like a good one. The bond market still disciplines governments in ways no opposition party can

match, and given the scale of Mr Musk's ambitions, it may provide some check on him as well. But we have arrived somewhere Montesquieu and Adam Smith did not foresee. The self-interest of merchants did not tame the passions. It became infused with them, and turned the greatest of merchants back into princes carrying all the undisciplined appetites of old. They built a new and stranger tyranny: not the old corporate machine obedient to shareholders, but a machine that uses shareholder capitalism's legal forms while escaping its restraints.

Mr Musk completes the pattern, though not in the way the usual complaint about capitalism would predict. The standard charge is that the modern corporation grinds everything down to shareholder value at everyone else's expense. SpaceX's astronaut-in-chief inverts even that complaint. He is not maximising shareholder value. He is using the instruments of shareholder capitalism to raise enormous amounts of capital while freeing himself from any restraints from those who provide it, so that he can spend the proceeds on Mars, humanoid robots, artificial intelligence or whatever next satisfies his ambition.

The market discipline that was meant to cage the prince has, in short, become the lever by which the prince escapes the cage. Keynes's hope now runs backwards. The bank balance is no longer a substitute for tyrannising over one's fellow citizens. It is the means of doing so, and Mr Musk has already carried that power out of the boardroom and into government and party politics.

This matters well beyond one man's ambitions, because corporations are themselves a kind of artificial intelligence, and their governance is a trial run for the governance of AI. Machines, bureaucracies and markets all belong to a family of systems that strip the world down to a few narrow inputs and act on them at a scale no individual human can match.

Humanity spent two centuries fitting those systems with partial controls. In the case of corporations, those controls include independent boards of directors, shareholder votes, courts, disclosure rules and regulators, not to mention public disapproval and consequent activism. Each was a feedback loop, a way to correct the system when its objectives drove it somewhere monstrous. Mr Musk is removing those loops one at a time.

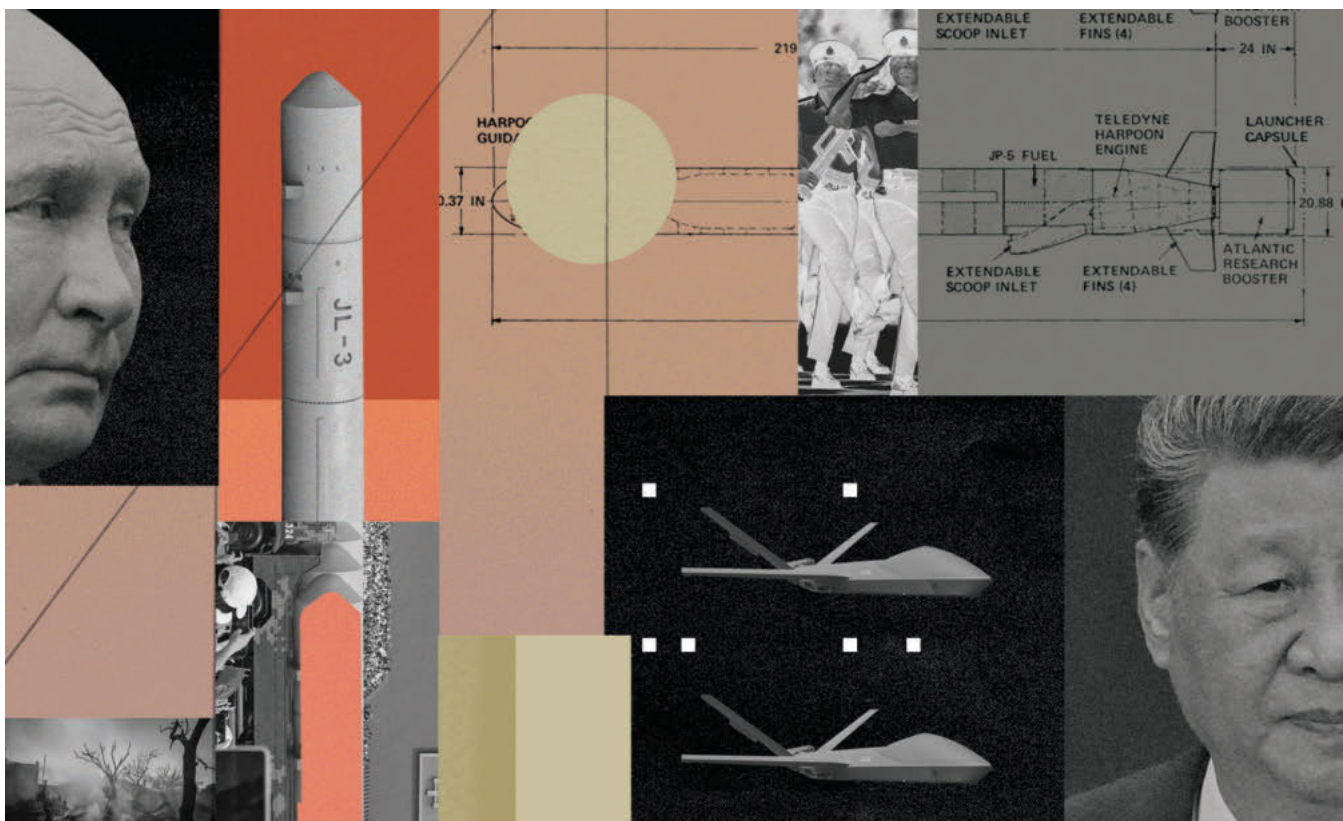
Answerable to whom?

He is doing it at the very moment he is building a far more potent AI to power the enterprises he controls. He is also not alone. The people who promise that their frontier AI systems will be safe and aligned are, inside their own companies, stripping out the alignment mechanisms that three centuries of conflict produced. An AI shaped under the governance of Mr Musk's xAI will not carry the same values as one shaped under a structure that still answers to somebody. The design of the company is a preview of the design of the machine.

The *doux commerce* thinkers were not naive. They were choosing the lesser of the dangers in front of them, and their choice proved wise for centuries. We are now running the experiment the other way, betting that we can concentrate power on an enormous scale in the hands of men accountable to no one and trust the result to their vision. That bet might pay off. History suggests how seldom it does. ■

Tim O'Reilly is the chief executive of O'Reilly Media and a venture capitalist.

Briefing China's and Russia's military ties



Piggy-backing on the bear

TAIPEI

China is gaining troubling military know-how from Russia

THE HELP China gives Russia in the war in Ukraine has long caused dismay in Western countries. Exports of ostensibly civilian components such as engines and electronics end up in drones and other weapons that kill Ukrainian soldiers and civilians, abetting Russia's war of attrition. Yet recently it is the other end of this trade that has stirred alarm in Western capitals. China appears to be receiving training, intelligence and advanced military technology from Russia. That could give China an edge in a future war over Taiwan, tilting the balance of power at the opposite extreme of Eurasia.

Since 2024 Chinese soldiers have undergone training in drone and urban combat at a military complex near the city of Volgograd in south-west Russia, people briefed on European intelligence tell *The Economist*. That complex is used regularly by Russia's 8th Army, the backbone of Russian operations in eastern Ukraine. Its tactics are hardly a model to emulate. Yet

China has not fought a war since a brief border conflict with Vietnam in 1979. To conquer Taiwan, it needs access to the latest battlefield lessons and data to compensate for its lack of combat experience.

It also has more leverage now to obtain some of the best military technology that the Kremlin was previously unwilling to share. American and allied officials believe that may include upgrades to China's air and missile-defence systems. They also fear that Russia is helping China produce stealthier nuclear submarines. China sees these vessels as critical for any war over Taiwan, which could escalate into a nuclear confrontation with America.

Drill, baby, drill

China demonstrated its nuclear ambitions on July 6th when, for the first time, one of its subs test-fired an intercontinental ballistic missile. On the same day China showcased the evolution of its military ties with Russia by launching joint naval drills

that incorporated submarine, anti-submarine and drone operations, as well as air and missile defence. Along with eight surface ships and two submarines, the live-fire exercises off eastern China involved naval and aerial drones. The drills envisaged a "scenario of fighting unmanned systems", said Rear Admiral Sergei Sinko, the leader of Russia's contingent.

These were China's and Russia's first joint naval exercises to focus on drone and counter-drone warfare. China has been especially keen to learn from the Russian navy's experiences (mostly bad but better lately) in fending off Ukrainian naval drones in the Black Sea. This was also only the second time, and the second year in a row, that the drills included a Russian and a Chinese submarine. Zhang Junshe, a retired Chinese navy officer, said the involvement of one of Russia's latest diesel-electric subs, which are extremely quiet when running on batteries, would help China practise sub-hunting. China, too, used one ►►

► of its newest homemade diesel-electric subs. The exercises were followed by the two navies' seventh joint maritime patrol in the Pacific in the past six years.

Russia is unlikely to intervene directly in a war over Taiwan, just as China has not in Ukraine. Their defence ties stop well short of a mutual defence treaty. But joint drills and patrols give China rare opportunities to learn from Russia's battle-hardened forces. What is more, "China can now ask things of Russia that Russia cannot ask of China," says Lyle Goldstein of Brown University. He notes that Chinese military journals suggest the People's Liberation Army (PLA) is especially interested in Russian data on American and allied weapons such as HIMARS rocket launchers, which Taiwan also uses.

Even a limited increase in such assistance could give China an advantage in a war over Taiwan, which would depend to a large degree on drones, submarines and missiles. Russia could also provide intelligence and other ad hoc assistance without joining combat. And Russian air or naval operations elsewhere in Asia could divert American and allied resources away from Taiwan during a crisis. Another concern is the growing military co-operation among Russia, China and North Korea. Even if the trio's interests are far from aligned, each could "take opportunistic advantage of a regional crisis to advance its own objectives", Admiral Samuel Paparo, head of America's Pacific Command, told a congressional hearing in April.

China tries to play down its military ties to Russia to deflect Western criticism of its support for the war in Ukraine. When Vladimir Putin, Russia's leader, visited Beijing in May, a lengthy joint statement included only a brief section on defence, saying the two sides would expand joint exercises and patrols, strengthen military co-operation and "work together to address various risks and challenges". China has denied reports that it has trained Russian soldiers or sent Chinese ones to learn from the war in Ukraine. But a growing body of evidence suggests otherwise.

Drones are a big concern. China enjoys a huge advantage over any adversary as by far the world's largest producer of civilian drones. It also made an early start in military ones. Long before Russia's invasion of Ukraine, its armed forces had begun using Chinese-made equivalents of America's high-end Reaper and Predator aerial drones. China even exported drones to the Middle East and Africa, where they were used in combat. And from around 2021, China started developing autonomous aerial drone swarms as a way to overcome American forces in a Taiwan conflict.

In the past four years, however, drone warfare has evolved with dizzying speed. Ukraine pioneered the use of cheap first-

person-view (FPV) drones, often based on Chinese commercial quadcopters bearing explosives. As Russia adopted similar tactics, both sides found new ways to jam each other's drones. That led to a proliferation on both sides of "tethered" FPV drones linked to operators by fibre-optic cable. Both sides have also experimented with AI-guided drones that lock onto targets even when jammed. Iran, too, showed how large numbers of cheap drones could overwhelm air defences at close range and deplete stockpiles of far more costly missile interceptors.

Flood warning

America and many of its European allies have ready access to drone data and tactical lessons from the front lines in Ukraine, which they are incorporating into their own drone programmes. Some of that expertise is also being shared with Taiwan, which launched a programme to build a domestic drone industry (without relying on Chinese components) in 2022. American and Taiwanese military planners are working together to develop a new strategic concept, known as "Hellscape", for thwarting a Chinese invasion. That envisions flooding the Taiwan strait with relatively cheap air, submarine and sea-surface drones as an asymmetrical response to China's vast air and naval forces.

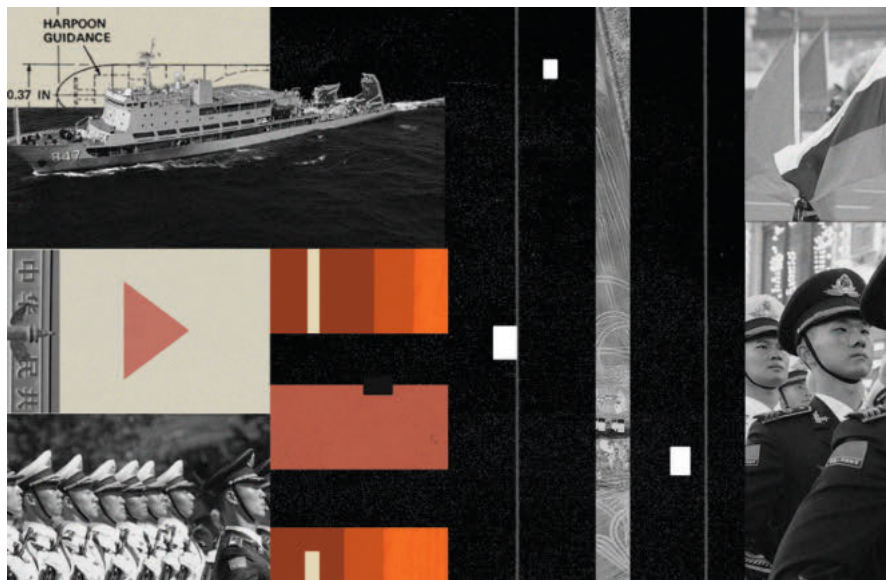
China, too, is updating its approach to drone warfare. It has access to data on the performance of Russian drones through the Chinese firms that supply most of them. But as the war in Ukraine has progressed, the PLA has become keen to study how each side is using and jamming drones, as well as how infantry and other operations are adapting to an increasingly transparent battlefield. "The Chinese understand the importance of Russian knowledge," said Oleksandr Danylyuk, a

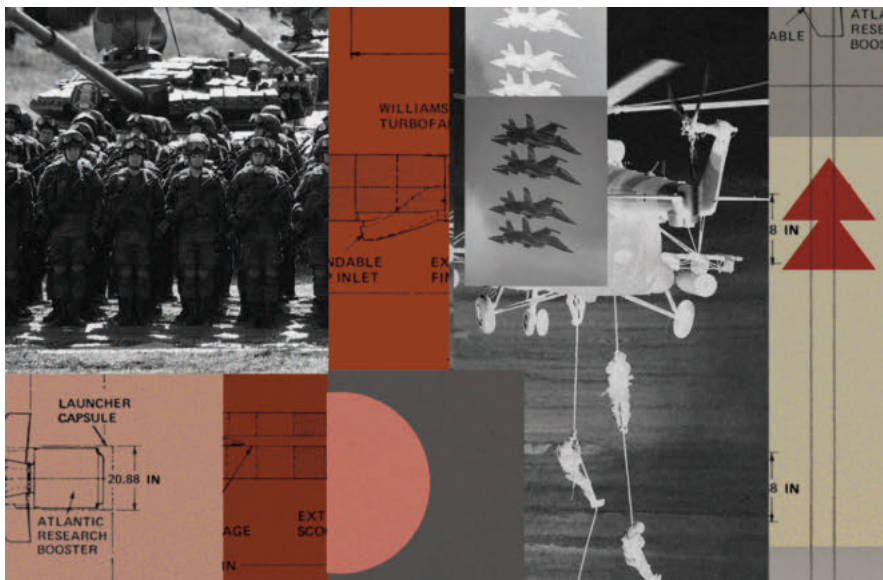
former adviser to Ukraine's defence minister and foreign-intelligence chief. "They realised already that the nature of war is changing, and if you want to be actually ready for warfare, you need to learn from people having practical experience."

The Chinese officers who have visited the complex near Volgograd are thought to have done a number of training courses based on the experiences of Russian forces in Ukraine. They included aerial-drone operation, assaults on command posts and combat in settlements, trenches and forested areas. Also covered was field medicine and the installation of anti-tank, anti-personnel and mixed minefields. Those are all areas in which standard operating procedures have changed dramatically since the war in Ukraine began, mainly because of the proliferation of aerial drones.

There have also been unconfirmed intelligence reports of Chinese military observers within Russian-occupied Ukraine. "The suspicion is that the Chinese have teams close to the front line that are learning and absorbing the lessons just operationally, how it works with drone operators, and then they provide data just exactly the way the Ukrainians do to Western manufacturers," says Alexander Gabuev of the Carnegie Russia Eurasia Centre. Russia is slower to innovate than Ukraine, but still "pretty nimble and adaptive", he says. "They have probably less competition but they have the ability to learn the lessons and scale up the solutions, and that is critical for the Chinese, for sure."

Recent articles in the *PLA Daily*, an official military newspaper, suggest particular Chinese interest in Russia's Rubicon drone centre, which was created in 2024 to centralise control over drone operations. Rubicon played a big role in the recapture of the Russian city of Kursk, partly by targeting Ukrainian drone operators and supply





lines, a *PLA Daily* article notes. Public documents also hint at close co-operation between the Moscow Aviation Institute, Russia's top drone-development outfit, and Chinese research institutes including the Northwestern Polytechnical University, which has developed drones for the PLA.

Submarines are another area of close co-operation. China's early models were mostly imported from the Soviet Union or post-Soviet Russia. In the past two decades, however, it has built a fleet of indigenously diesel- and nuclear-powered ones. China's navy, now the world's largest, operates about 60 submarines, including six nuclear-powered ballistic-missile subs and six nuclear-powered attack vessels. The rest are diesel-powered models, best suited to operating close to China's shores as they are slower and have to surface regularly. America, in contrast, operates about 70 submarines, all nuclear-powered.

Rear Admiral Michael Brookes, America's head of naval intelligence, told a congressional hearing in March that by 2035 China could be operating 80 submarines, half of which would be nuclear-powered. What is more, he expects newer models to incorporate "substantial advancements in nuclear-reactor design, sensor performance, weapons integration and noise-quieting technologies".

That would allow China's attack submarines to operate more freely throughout the Pacific, and thus to threaten American bases and ships in a war over Taiwan. It would also make Chinese nuclear-missile submarines harder to find, enabling them to lurk undetected in "bastions" near China's coast and, if needed, to strike the American mainland. China's navy will remain focused on the Indo-Pacific, Rear Admiral Brookes predicted, but by 2040 routine Chinese submarine deployments are likely to the Indian Ocean, Arctic ap-

proaches and possibly the Atlantic.

Some of the know-how China needs is likely to come from Russia, whose latest submarines are technologically superior to China's and closer to American, British and French equivalents. Admiral Paparo, the Pacific Command chief, told a congressional hearing last year, "Coming back to China is potentially submarine-quieting help as well as other help in some of the areas where Russia is strong." In fact, such aid may already have arrived: China launched the first of a new model of nuclear attack submarine, the Type 095, in early 2026 and is thought to have started building a new nuclear-missile submarine, the Type 096. Both are expected to include similar quietening technology to that used in some of Russia's most silent submarines, such as its latest Akula-class models.

Quiet zone

"China appears to have access already to Akula-level quieting technology, which may be the most advanced level that Russia feels comfortable making available," wrote Andrew Erickson, a professor at the US Naval War College in a recent paper. Russia may still be reluctant to share the secrets of its very quietest nuclear attack submarines, the Yasen-class, which it sees as the "keys to the kingdom", he said. "Of course, China may nevertheless obtain at least some of what it seeks against Moscow's will" through espionage, he added. China's spies have long targeted Russia's defence industry, including the Rubin submarine-design bureau. The Chinese authorities have also been trying to encourage Russian engineers to move to China.

Other assistance that Russian undersea experts could provide, through official or illicit channels, includes torpedo design and anti-submarine warfare. In particular, Russia has gathered decades of data on the

"acoustic signatures" of American submarines, which make it easier to hunt for them. China also gathers vast quantities of such data, but started doing so much more recently and is less experienced at interpreting it, according to American officials.

A final realm of co-operation is air and missile defence. In 2019 Mr Putin announced that Russia was helping China build a nuclear early-warning system: "It's a serious thing that will drastically increase the defence capabilities of the People's Republic of China. Right now only the US and Russia have such systems." Sergei Boyev, the boss of Vympel, a big Russian arms firm, confirmed at the time that it was "modelling" such a system for China.

Since then, neither side has said more in public about those plans. But some Western officials and experts think that they have quietly progressed and may have gathered pace. The Pentagon's annual report on China in 2025 noted, "Russia continues to provide advanced technologies and expertise to support China's defence and strategic goals, including for ballistic-missile defence." It also said that China had probably made progress in efforts to develop an "early-warning counterstrike" capability, whereby a nuclear strike on China prompts a counter-attack before the enemy's missile detonates. Russia has been able to do that for decades.

Further evidence emerged from a recent joint investigation by *Le Monde* (a French newspaper), *Der Spiegel* (a German one) and *Insider* (an online publication). Based on leaked documents, this found that China and Russia had discussed plans to disable Elon Musk's Starlink satellite network and for Russia to share battlefield data in exchange for Chinese drones and AI. It also found that they had signed an agreement in 2023 to develop a new air and missile-defence system designed to stop American ballistic and hypersonic missiles. The planned system would surpass even Russia's S-500, its most advanced anti-ballistic missile system.

China may regard Russia's air- and missile-defence systems with scepticism, given their recent failures around Russian cities and in Venezuela and Iran. Its own interceptors now rival Russia's. But Russia still has greater expertise in early-warning systems for strategic missiles using over-the-horizon radars and infrared satellites.

An end to the war in Ukraine would reduce China's leverage over the Kremlin, especially if Western sanctions on Russia are eased. But a weakened Mr Putin would probably still need favours from China. And Russia may also descend into chaos, triggering an outflow to China of its best military expertise and technology. Either way, China stands to benefit in a manner that could alter the strategic landscape in Asia for decades to come. ■

United States



The armed forces

Imperfect posture

Donald Trump is shifting America's military footprint. But there are few signs of a pivot to Asia

IN HIS BOOK "Strategy of Denial", published in 2021, Elbridge Colby argued that America's armed forces were too stretched to deal with every enemy around the world. Mr Colby, then a think-tanker who had served in Donald Trump's first administration, declared that China was the priority. America "should seek to avoid, reduce, or eliminate costly or demanding commitments in other parts of the world", he maintained. "What is used for the Middle East", he predicted, "will not be available for Asia." That analysis is holding up, perhaps to Mr Colby's dismay.

For more than 80 years America built a military footprint to assert itself as global policeman. Now Donald Trump is redefining America's role, with Mr Colby as the Pentagon's policy chief. In his national defence strategy, published in January, Mr Trump criticised previous administrations that had fought "war after rudderless war" and promised a "focused" approach.

In the Middle East, though, America is not only failing to prune forces, but waging a war with Iran that has recently escalated, with four American soldiers killed in recent days and more than 100 injured since July 7th. Cuts in Europe have so far been limited and done little to bolster defences in the Pacific. Far from gaining new focus, under Mr Trump, America's military presence remains stubbornly diffuse.

Start with Europe, which has seen the most drastic change. Mr Trump has already withdrawn two of the five brigade combat teams, each around 4,000 troops, that

were sent to Europe after Russia's invasion of Ukraine in 2022. Confusingly, he has said he would send an "additional" 5,000 troops to Poland, but these are likely to come from elsewhere in Europe. More important, in June the Department of War (DOW) said it was reducing by a third forces earmarked for NATO in wartime, including fighter jets, destroyers and submarines.

Further cuts may come. In June, Pete Hegseth, the secretary of war, announced a six-month review of America's soldiers and military bases in Europe. "It will be designed to ensure that NATO is moving fast and irreversibly toward Europe leading, stepping up to take primary responsibility for the defence of Europe," he said in Brussels. The administration favours fewer American resources in Europe, but more use of European ones—Mr Hegseth suggested that America would demand more unfettered access to European airspace and bases, some of which allies placed off-limits for the war against Iran.

How aggressively Mr Trump advances these plans depends, unusually, on Congress. The body has shown rare resistance to the president through its reauthorisation of defence spending. In December it imposed barriers to keep the president from shrinking American forces in Europe below 76,000 troops, only a few thousand short of the current level. ▶▶

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▶ If progress in Europe is slower than Mr Trump would like, the hoped-for shift from the Middle East is heading in the wrong direction. America has removed all troops from Syria and will withdraw from Iraq in September. However, the war in Iran has diverted aircraft-carriers and air-defence systems, while depleting American munitions earmarked for a potential conflict with China. Around 50,000 troops are in the region, up from 40,000 before the war.

In the memorandum of understanding signed with Iran in June, America promised that it would remove forces from the “proximity” of Iran within 30 days. That now looks implausible. With its bases in the Gulf states battered by Iranian missiles, America has been running operations from more distant launchpads in Israel and Jordan. The question, whenever the war ends, is not whether America will dramatically shrink its presence in the Middle East, but what that presence will look like. Officials in Tel Aviv speak of shifting bases to Israel, where America has just one permanent deployment. But any hint of abandoning the Gulf, where leaders have cultivated close ties with Mr Trump, would be diplomatically explosive.

Donroe decisions

Whether the Americas also become a drag on resources depends on the president's ambitions there. His national security strategy, published last year, identified the security of American soil and the wider western hemisphere as the priority. Mr Trump has already toppled one local leader, Nicolás Maduro of Venezuela, and is considering military options against Cuba. That would pull America's stretched navy back to the Caribbean. Even more activity may follow. Recent investment in infrastructure in places such as Puerto Rico and

Trinidad and Tobago suggests permanent deployments, says Jennifer Kavanagh of Defence Priorities, a think-tank.

From their vantage point in the Pacific, American admirals observe these developments—none of which does much to help them. America's military posture in Asia has not been entirely static. In Guam, an American island 2,700km east of Taiwan, a buildup is causing housing costs to rise. Australia is upgrading a submarine base at Perth, on its west coast, which will allow American subs to stay in the region for longer. American marines have brought more potent missiles to the Philippines. Across the region, airfields are being improved and exercises are getting larger.

Nevertheless, the quantity of American troops and hardware in the Pacific has remained steady. For much of this year, America has deployed just one carrier in Asia, rather than the preferred two, the longest such gap for five years. America has 55,000-odd troops in Japan and around half that in South Korea.

The biggest changes amount to reshuffling within the region. In a speech in Seoul in January, Mr Colby praised South Korea as a “model ally” but raised eyebrows by failing to mention its main foe, North Korea. The Pentagon has toyed with the idea of withdrawing the most potent American unit, a 4,500-strong Stryker brigade, from the Korean peninsula, to focus it on China.

A huge influx of money would ease these dilemmas. Mr Trump has asked Congress for \$1.5trn for the 2026-27 defence budget, a 44% rise. Even if that money were approved, it would not translate quickly into troops or equipment. Mr Colby, who once warned that America could not afford to wage multiple wars while still deterring China, now finds himself forced to craft a policy to do just that. ■

The politics of fighting Iran

No end in sight

WASHINGTON, DC

Voters hate Mr Trump's war

NEAR MARTIN Luther King's stone memorial in Washington is a big golden cup honouring Donald Trump. The “Iran War Participation Trophy”, erected by anonymous satirists, suggests that on the battlefield it is not the winning that counts but the taking part. “While some concern themselves with...measurable outcomes, President Trump demonstrated the courage to participate,” reads the inscription.

Maura Flint, a tour guide, says the joke is “very funny” but Mr Trump's long war in Iran is anything but. “He doesn't have a good strategy for getting out,” she complains. “There's no end in sight.”

American voters seem to agree. As the ceasefire unravels, four-fifths think the war will last for “an extended period”, finds a Reuters/Ipsos poll. Nearly half think it will grind on for a year or more, according to *Economist/YouGov* polling. Few find the prospect appealing. Net approval for Mr Trump's decision to attack Iran now stands at -30% among Americans. The war in Vietnam took six years to become as reviled as the Iran war has become in six months.

“The war with Iran is the most unpopular conflict among Americans since polls have been taken,” says Larry Sabato of the University of Virginia. The longer it goes on, “the more costs will mount, and one of those costs will be support for Trump and the GOP in the midterm elections.”

Public support for wars of choice often starts high but gradually falls. When America attacked Afghanistan in 2001, nearly 90% of Americans were in favour. President George W. Bush had offered a clear justification—the Taliban were sheltering the terrorists who had flown planes into New York skyscrapers. According to Gallup, it took 13 years for support to dip below 50%, by which time more than 2,000 Americans had been killed.

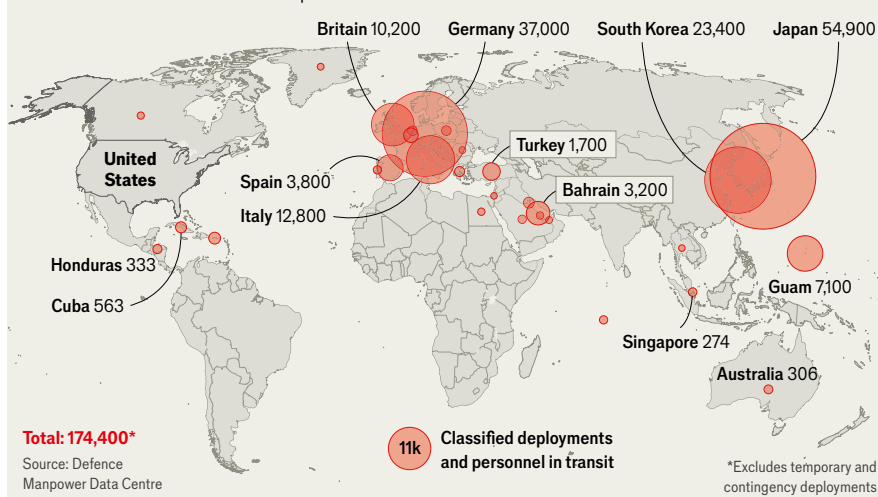
Fewer Americans have died in Mr Trump's war: 18 to date. But it has hit wallets in a way that is easy for voters to understand. Before Mr Trump attacked Iran, the Strait of Hormuz was open. Now it is not. After strenuous efforts to break Iran's chokehold, Mr Trump claimed that “Oil is flowing like never before.” The pedants who measure such things beg to differ. Petrol now costs over \$4 a gallon in America, up from \$3 before the war.

The Vietnam war, which involved 3m American ground troops, quickly became what voters saw as America's “most impor- ▶▶

All over the map

Active-duty US military personnel stationed overseas, March 2026

Countries or territories with over 100 personnel



▶ tant problem”, according to Gallup. They do not say that about the Iran war. But they do tell pollsters that the issues they care most about include the “high cost of living” and “poor leadership”. So the Iran war could sway a lot of votes despite the relatively modest cost in American blood.

Among Democrats, net approval of the war is -84%. Among independents, it is -52%. The only large group that still backs it is MAGA Republicans, with a 72% net approval, and even this Trump-loving group is wavering. An Ipsos poll finds that, for the first time, significantly more than half of Trump supporters approve only “somewhat” of the way he is handling his job, rather than “strongly”. Republicans who call themselves “non-MAGA” have soured dramatically on the war, with net approval falling from +26% in April to -25% now.

On July 21st Pete Hegseth, the secretary of war, begged Congress to authorise another \$67bn in military spending. Democrats are reluctant, despite reports that funds are running short. Many accuse the administration of failing to account properly for the war’s cost. The Pentagon cites a figure of \$37.5bn—largely the expense of spent munitions and fuel. Adding the costs of repairs to American bases and harm to consumers, Elissa Slotkin, a senator from Michigan, estimates it is more than five times that. She adds that Mr Trump’s sons are benefiting from Pentagon contracts.

The Economist’s midterms model gives Democrats an 81% chance of taking the House, and a 45% chance of flipping the Senate. Aaron David Miller of the Carnegie Endowment, a think-tank, says Mr Trump’s problems with Iran remind him of what Lyndon Johnson said about Vietnam: “I feel like a hitchhiker caught in a hailstorm on a Texas highway. I can’t run. I can’t hide. I can’t make it stop.” ■



Put it next to the FIFA Peace Prize

Trade policy

They're back

Donald Trump's tariffs just won't die

DONALD TRUMP’S tariffs have the persistence of a hydra. The Supreme Court struck down their main legal foundation in February, anxious markets have forced repeated retreats, and frustrated voters—two-thirds of whom say tariffs have raised consumer prices—have prompted exemptions for certain foods. Each setback forced Mr Trump to adjust tariffs. Yet they always returned.

Now America’s tariff regime is being revived by a brew of old statutes. On July 15th the administration imposed 25% duties on selected Brazilian goods under Section 301 of the Trade Act of 1974. It cited various offences, from favouring a home-grown payments system to illegal deforestation. As it happens, the action coincides with a broader feud with Brazil’s president, Luiz Inácio Lula da Silva.

Five days later Mr Trump invoked a dormant provision of 1930’s Smoot-Hawley Tariff Act to impose 50% levies on a selection of Canadian goods, ostensibly to punish America’s neighbour for discriminating against its cars, alcohol and dairy products. The duties will cover nearly \$20bn of imports, including goods normally exempt under the United States-Mexico-Canada Agreement (USMCA), which Mr Trump negotiated in his first term. However the new tariffs will not take effect until August 19th—a delay that will increase the president’s leverage in stalled talks over USMCA’s renewal.

Behind these tactical skirmishes lies a grander project: resurrecting the tariffs that Mr Trump announced on “Liberation Day” last year. Both a 10% tariff on all imports and country-specific levies were imposed under the International Emergency Economic Powers Act of 1977—Mr Trump claimed that America’s trade deficit amounted to a national emergency. After the Supreme Court disagreed, in February, the administration imposed a temporary 10% surcharge under Section 122 of the Trade Act of 1974; that will expire on July 24th. America’s average effective tariff rate fell from 10% before the court’s ruling to 7% today, according to the Penn Wharton Budget Model.

The tariffs are now likely to be reincarnated in two stages. First, the Office of the United States Trade Representative (USTR) is expected imminently to impose Section 301 forced-labour duties on 60 countries accused of failing to keep out

goods made with forced labour. Helpfully, this new interest in labour standards will let Mr Trump preserve 10% tariffs when the Section 122 surcharge lapses. Together, these changes will keep the effective tariff rate around 7%, where it stands today.

But they could soon rise further. Later this year, the USTR is expected to impose further country-specific duties under Section 301 investigations into “structural excess capacity” among 16 of America’s largest trading partners. The administration accuses these countries of “producing more goods than they can consume or productively invest domestically”, a definition that Ed Gresser of the Progressive Policy Institute, a think-tank, calls “eccentric”.

Thin though their pretexts may be, the duties are likely to prove durable. Section 301 gives the USTR broad discretion to retaliate against foreign practices it deems unreasonable or discriminatory. Courts “tend to ask whether USTR followed the required process,” says Ryan Majerus of King & Spalding, a law firm, “not whether Brazil genuinely has a deforestation problem.”

If tariffs are revived, will they be effective? Levies are already raising revenue and letting Mr Trump squeeze allies and enemies alike. But the most politically consequential goal is his decade-long promise to boost manufacturing. The Institute for Supply Management’s survey of purchasing managers has indicated six months of expanding factory activity. Manufacturing output grew at an annualised rate of 4.6% in the second quarter, its fastest pace since 2021. Scott Bessent, the treasury secretary, has declared that America is “having a manufacturing renaissance”.

Yet there is scant evidence that tariffs are driving an industrial revival. Nearly all the recent growth has come from advanced manufacturing, largely from AI-related demand. The rest of the sector has stagnated, and spending on factory construction has fallen by almost a third, from an annualised peak of nearly \$250bn in 2024 to \$175bn in May. Much of the new capacity reflects investments made before Mr Trump’s re-election. Manufacturing employment has dipped by about 75,000 since he returned to office.

The costs of tariffs are also becoming clearer. Uncertainty is weighing on investment: half of business leaders surveyed by KPMG, an accounting firm, report low confidence in carrying out their investment plans. Tariffs have lifted consumer prices by about 0.8%, according to the Harvard Business School Pricing Lab, and may push them higher still. Research from the Federal Reserve Bank of New York finds that nearly half of firms paying tariffs still expect to pass more costs on to their customers. Mr Trump’s tariffs may survive the courts. Whether they will survive price-weary voters is less assured. ■



Copper mining

Digging divides

PORCUPINE MOUNTAINS, MICHIGAN

Riches lie beneath a rare vestige of the wild Midwest. Whether they can be extracted is another matter

MICHIGAN'S UPPER PENINSULA, known as the UP, touches three of America's Great Lakes. Wolves and moose roam the region's forests; it is home to more than 80% of Michigan's bears and less than 3% of its people. Nicknamed "Yoopers", so many residents claim Finnish origin that, until 2015, local TV programming included a show in Finnish. In summer anglers fish for walleye and smallmouth bass. In winter the UP can get nine metres of snow. But this remote peninsula also has a belt of native copper and was once home to a thriving mining industry. If proponents have their way, the UP will become part of a 21st-century boom.

The Trump administration wants to promote mining in America, particularly of what it considers critical minerals, including copper. Proposed projects across the country would, if developed, remake swathes of American landscape, create jobs and reduce dependence on imports. In the UP the proposed Copperwood mine is, on paper, all but ready to go. However, it has been like that for years, and construction has not yet started. The gap between Made in America ambition and operating a mine can be as wide as a tailings site.

Developing a mine in America has long been an onerous process, with extensive environmental reviews and permitting requirements, as well as frequent litigation. Even if a project wins regulatory approval, margins are pinched by high costs of la-

bour and construction. But recently anxiety about imports and a zeal for resource nationalism have coincided with booming demand for copper. Prices have risen by 60% in the past three years, as firms seek to expand power grids and build data centres.

American copper production could more than double to 2.5m tonnes a year, according to a recent study by the Lawrence Berkeley National Laboratory. That would all but cover what America now imports, mostly from Chile. The biggest opportunities are in Arizona and Alaska, rather than Michigan. But the Copperwood project, proposed by Highland Copper, is among the most advanced in the country, and almost fully permitted. In theory it would transform the area.

Reclamation project

In the 19th century immigrants came to the UP from all over the world to dig up not just copper but other metals by hand. Town names reflect this: there's an Ironwood, a Copper Harbor and a Silver City. After the second world war, industrial mining employed thousands. These days, however, the region has more mining museums than working mines.

Some would love the industry to return. "My grandfather worked in the mines, my uncles worked in the mines," says Dan Siirila, a local county commissioner. In the early 1970s his high-school class had 250 pupils; now it has around 35.

As he drives your correspondent around the proposed Copperwood mine, Mike Foley, the site manager, explains what it will take to build it. Gesturing from the vehicle, he points out the land that will become the mine's biggest feature: the tailings disposal facility. After it is all crushed by enormous rollers, perhaps 6% of what comes out of the ground is trucked out to smelters. The other 94% is piled up at the facility. It will cover the equivalent of 350 football pitches, with an enormous plastic liner to catch contaminated run-off water. "It's like a landfill where you put your garbage," Mr Foley brightly declares.

Not everyone is thrilled by this prospect. Tom Grotewohl, who runs "Protect the Porkies", a campaign against the mine, lives in a rough cabin in the Porcupine Mountains within spitting distance of the site. By his own admission he is a NIMBY and an "off-grid Luddite". He fears the dam holding back the tailings from Lake Superior could break, threatening the biodiversity of the UP. Highland Copper says this is exceptionally unlikely, though it has happened elsewhere. Often a project's promised jobs can overwhelm environmental concerns, but industrial mining is too efficient to employ many people and there is not enough ore to open additional mines. Mr Grotewohl's campaign has attracted almost half a million signatures of support and drawn hundreds of protesters to Lansing, Michigan's capital.

The main barrier to the mine, however, is financial. Copperwood's ore is roughly 1.5% copper. The Democratic Republic of Congo's copper mines generally have grades of 6% or more. Some state politicians in Michigan have pushed for a \$50m grant to support the construction of a new road and other infrastructure, but that measure has stalled. Much now depends on the possibility of federal cash. Highland Copper hopes to secure a \$250m loan from America's Export-Import Bank, which expressed interest last year. That would represent the majority of the project's required financing.

Barry O'Shea, Highland Copper's chief executive, contends that at current prices the mine is viable even without that support. Yet he admits that construction will start by 2028 at the earliest, and production not until 2030. That is plenty of time for copper prices, which are volatile, to fall once more.

Investors may run out of patience. In contrast to Mr O'Shea's optimism, the firm's latest annual report warns of "significant doubt about the Company's ability to continue as a going concern". The Trump administration's Export-Import Bank may come to Copperwood's rescue, with taxpayers footing the bill. Without it, the imagined transformation of this remote peninsula is likely to remain just that. ■

LEXINGTON

Fratricidal empathy

How the American right came to hate empathy, while practising its oldest form



OF THE QUALITIES the American right has come to despise on the left, empathy is the most puzzling. Boy, do they hate it. A stream of books in recent years has supplemented constant podcast and social-media chatter about what is seen as nothing less than, well, a sin. In 2025 “Leadership and the Sin of Empathy”, by Joe Rigney, came hot on the heels of the previous year’s bestselling “Toxic Empathy”, by Allie Beth Stuckey. This May brought “Suicidal Empathy”, an instant and persistent bestseller by Gad Saad, a professor of marketing and a podcaster. Mr Saad’s sales have no doubt been boosted by the plug on his cover from Elon Musk, who warns that “Western civilisation is doomed” unless Mr Saad’s message is heeded and “actions are taken that are hard but necessary for survival”.

The previous Republican president, George W. Bush, called himself a “compassionate conservative”, but that’s not why this horror of empathy is puzzling; condemning empathy is one more way for today’s Republicans to erase him. It is puzzling instead because a surfeit of understanding of the needs of others would seem a poor explanation for Democrats’ dismal approval ratings, even as Donald Trump alienates most Americans by enriching himself, gilding Washington and waging war without a strategy.

In fact, for some years a case could be made—Lexington has tried to make it—that the left’s problem has been a lack of empathy: for Americans displaced by technology and trade; for those vulnerable to crime; for those alarmed by chaos at the border; for those without a college degree; for those frustrated at paying high taxes for poor government services; for those anxious that Joe Biden was too old to serve a second term; for everyone who supports Mr Trump. When it comes to empathy, if anyone has been committing suicide, it is the Democratic Party. In any case, the West seems pretty safe these days from too much of the stuff.

Yet Mr Saad fears “the death of the West at the Altar of Infinite Tolerance and Orgiastic Empathy”. A Jew who, as a child, fled with his family from Lebanon to Canada at the outbreak of civil war in 1975, he is particularly alarmed by tolerance for Muslim immigration. But he also sees evidence of suicidal empathy in everything from covid restrictions to the “endless bike lanes” of Montreal, the

fruit of “climate-based orgiastic emotional incontinence” (yes, “orgiastic” seems to be his favourite word, intriguingly). Just what Hunter Biden’s laptop has to do with suicidal empathy is unclear. But Mr Saad squeezes it in, along with language policing, coddling criminals and academic papers such as “Humanising Paedophilia as Stigma Reduction”.

While mocking “empathic income equality”, Mr Saad reveals real tenderness towards one victim of too little empathy. “Whenever I air my frustration on social media at the amount of taxes that I pay, many people are not in the least bit sympathetic,” he complains. “They are aghast that I would ‘whine.’” In fact, Mr Saad likes empathy when bestowed upon the right people. A student of evolutionary psychology, he argues that natural selection primed humans to direct empathy to those closest to them. He is right about that. Back in hunter-gatherer days empathy helped them sort allies from foes and strengthen bonds within the tribe.

To reinforce such dynamics, humans developed some cognitive biases, including “attribution error”, which prompts them to excuse bad things that allies do as a product of circumstances, and to condemn bad things adversaries do as evidence of low character. Mr Saad displays this bias: he writes that it is “statistically expected” that a mass-deportation programme might produce “singular examples of incorrect deportations”. But he issues no such statistical pardon for crimes committed by illegal immigrants, implicitly tarring all with one brush. He also does not castigate Republican leaders for empathy they have shown towards antisemitic podcasters or white nationalist protesters. In keeping with his view of empathy, and usefully for the sale of books, Mr Saad has chosen his tribe. Empathy in the form he embraces, as in the form he decries on the left, is a mighty engine of polarisation.

What’s so scary about peace, love and understanding?

As information technology has advanced, from printed books like Mr Saad’s to the X platform owned by Mr Musk, humans have proved ingenious at using it to increase the tribalising power of empathy. The trouble is that these days they tend not to live in hunter-gatherer societies. When Americans and Iranians cannot understand each other well enough to wage war effectively, much less make peace, a more expansive conception of empathy ought to be in order: not “I feel your pain” emotional empathy, but cognitive empathy, or what psychologists call “theory of mind”—the ability to infer how someone else sees the world.

This is a central theme of another new book by a student of evolutionary psychology, “The God Test” by Robert Wright. Surveying the onrush of artificial intelligence, Mr Wright (a former colleague of Lexington’s) warns that obsequious AI agents serving as friends and advisers could prove profoundly tribalising. Moreover, in making a persuasive case that some form of superintelligence could arrive within a decade, Mr Wright argues that the very survival of the species may now depend on whether it can overcome its rivalrous instincts—among companies, parties and nations. They must find ways to collaborate to put guardrails in place, to prevent potential catastrophe and to realise AI’s potential blessings. “The artificial intelligence revolution demands nothing less than a revolution in human understanding: an understanding of humans by humans,” he writes. He holds out hope that the common threat could unite humanity, but worries that “the gap between where our species is and where it needs to be is almost comically vast.” One can certainly empathise. ■

The Americas



Food policy

Eat up

BELÉM

South America is eradicating hunger. Thank central banks and handouts

THE SMELL of grilled meat wafts through the shanty town of Guamá. Its riverside favelas are among Brazil's poorest, but on a recent weekday residents cooked steak and shrimp on their porches. "Life isn't easy," says Alex Lima, a shopkeeper who sells *coxinha* pasties from his wooden house on stilts in the coffee-coloured water. Yet it is improving, fast.

The share of people who are hungry has been decreasing faster in South America than anywhere else in the world. It is down by one-third since 2020, according to a report published on July 21st by the UN's Food and Agriculture Organisation (FAO). Just 3.5% of people in the region consume insufficient calories, the lowest level recorded. Eliminating hunger by 2030 is one of the UN's "sustainable development" goals. "If there is a region in the world that can potentially achieve that, it's South America," says Máximo Torero, the FAO's chief economist.

The continent has been here before. Hunger plummeted in the 2000s as a commodity boom lifted economic growth, allowing left-wing leaders to splurge on social programmes. In Venezuela Hugo Chávez created state-subsidised supermarkets. Argentina's Néstor and Cristina Kirchner funded *comedores populares* (soup kitchens). Brazil's Luiz Inácio Lula da Silva expanded credit for small-scale family farmers. The splurging worked, but when commodity prices fell in 2014, triggering recessions across the region, food insecurity shot up and stayed there. The pandemic made things worse. As unemployment surged, it dragged swathes of the middle class into poverty and hunger.

Yet most countries have recovered. Brazil led the way. Lula, as the president is commonly known, made food security a priority when he returned to office in 2023. By 2025 Brazil had made it off the UN's Hunger Map, which tracks countries where more than 2.5% of the population suffers from chronic hunger. Chile and oil-rich Guyana were also removed. Argentina is almost there at under 3%. Colombia and Paraguay are approaching at 4%, while Peru and crisis-battered Venezuela are making inroads near 5%. Even Ecuador and Bolivia have improved a tad, to 11% and 20% respectively. Only Suriname is moving in the wrong direction.

This decline rests on sturdier foundations. The first is macroeconomic stability. South America's central banks are far more independent and adept at managing inflation than they were two decades ago. Its monetary officials were quick to lift interest rates aggressively during the pandemic, getting inflation under control faster than elsewhere. While covid-19 stimulus packages did swell public debt, subsequent governments have trimmed spending, too much of which can pump up inflation. President Javier Milei's shock therapy has yielded Argentina's first primary surplus since 2008. Conservatives in Bolivia, Chile and Ecuador are also cutting spending. Newly elected right-wingers in Peru and

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► Colombia pledge to do the same.

This eases pressure on grocery bills. Monthly food-price inflation in Argentina has slowed from a peak of almost 30% in 2023—among the world's worst rates—to under 2% in June, lower than wage growth. Bolivia's annual rate was 33% in November, when a right-wing president, Rodrigo Paz, took office. It's now running at around 13%. In Ecuador food inflation has turned negative while wages are stable. Alongside big oil reserves, fiscal discipline has buffered South America from the economic shock of the Iran war.

Yet groceries that become more affordable over time do little to help those too poor to buy enough food today. Social programmes are the other pillar of South America's success in reducing hunger. Most famous is Brazil's *Bolsa Família*, a cash-transfer programme which pays families a stipend if they vaccinate their children and send them to school. Lula has also raised Brazil's minimum wage. "These are the core policies," says José Graziano da Silva, a former boss of the FAO.

Such measures were standard in the 2000s, too. However, they have become more sophisticated, says Elisabetta Recine of Consea, the Brazilian government's advisory council on food security. *Bolsa Família* has digitalised payments and linked them to social registries, reducing fraud and increasing flexibility (so that, for instance, it can now cover seasonal workers who dip in and out of poverty). Colombia is looking at scrapping conditions on cash transfers to the poorest, whose children may not have a school to attend. Chile's version includes job training.

Cash-transfer schemes are wildly popular. Right-wing politicians have embraced them. While in office, Brazil's former president Jair Bolsonaro tripled the average stipend provided by *Bolsa Família*. Mr Milei doubled funding for food stamps after receiving criticism from the Catholic church. Abelardo de la Espriella, Colombia's populist right-wing president-elect, has vowed to shrink the state by 40%, yet claims, optimistically, that he will not touch social handouts. Chile's arch-conservative president, José Antonio Kast, has needed to invoke the spectre of drug crime in an effort to slash benefits, proposing a "vandals registry" that blocks those with a criminal record from receiving benefits.

Serious challenges remain. The biggest is climate change. With rising temperatures, plant pests and crop failures have become more common. The coming year looks especially fraught. The National Oceanic and Atmospheric Administration, a US government agency, says the coming cycle of the El Niño weather pattern will be "very strong". That is the highest of the five categories used to rank the phenomenon, used for only the third time since 1950.

"It's going to aggravate every food problem," says Carolina Trivelli, a former government minister in Peru.

That makes it a bad moment to fine-tune welfare schemes. Yet change is needed. Many countries struggle to wean recipients off cash-transfer programmes. A study found one-fifth of children who in 2005 were covered by *Bolsa Família* were still covered as adults in 2024. What began as a relatively cheap and focused project in 2003 has ballooned. It now costs 1.5% of GDP and covers nearly a fifth of households. The current design is discouraging workers from joining the formal sector, according to a paper by Daniel Duque of the Getulio Vargas Foundation, a university in São Paulo. "There are more efficient ways to fight hunger," he says.

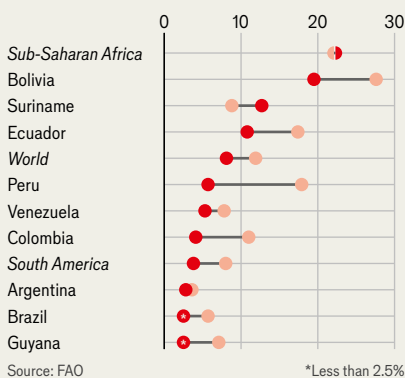
Then there is diet. The shares of children who are overweight and adults who are obese have surged to record levels of close to 10% and 30% respectively, among the worst in the world. Adjusted for purchasing power, South America is the fourth most expensive place in the world to procure a healthy diet, after the Caribbean, North Africa and South-East Asia. Fruits and vegetables are surprisingly expensive for an area known for growing them. That is because farmland is largely dedicated to commodities. When greens are produced, bad roads and dodgy cold chains yank up costs. Cash-strapped consumers are more likely to reach for processed, calorie-dense products.

These are manageable problems. New technologies are helping farmers adapt to a changing climate. Policymakers in Bolivia, Brazil and Peru have quietly acknowledged that certain programmes need better targeting. Improved labelling of healthier food is gaining ground, as are sin taxes, says Juliana Tângari of Comida do Amanhã, a Brazilian think-tank. No food system is perfect. Yet outright hunger may soon have rumbled its last in South America. ■

Plenty full

Prevalence of undernourishment, % of population
Three-year averages

● 2004-06 ● 2023-25



Central American democracy

Leaders for life

Nicaragua's dictator scraps elections

GIVEN DONALD TRUMP's campaign against Cuba, imitating the place may seem unwise. Yet on July 19th Daniel Ortega, Nicaragua's 80-year-old dictator, vowed to make his country only the second in Latin America to renounce competitive elections. Opposition parties will "never again" be able to seek power through the ballot box, he declared. The former Marxist-Leninist guerrilla ruled from 1979 to 1990, then was elected president in 2006.

He may have misspoken. His political party has been trying to find friendly outfits to dress up as an opposition, says Félix Maradiaga, a former presidential candidate now in exile. But it is more likely that Mr Ortega is moving towards a formal one-party state.

Elections have long been a sham. In the most recent, in 2021, Mr Ortega jailed seven rival candidates. The Organisation of American States declared that the poll was "not free, fair or transparent". He founded a dynasty in plain sight, having his wife, Rosario Murillo, appointed to the newly created office of co-president, poised to take his place when he can no longer act. He may like one of his five sons to follow.

The new rhetoric still matters: it is a "qualitative leap", says Claudia Vargas, an exile whose husband was assassinated outside their home in Costa Rica last year. Will there be consequences for overtly dismantling democracy? The United States could impose them. On July 21st Marco Rubio, the secretary of state, asked the "international community" to "demonstrate to the Murillo-Ortega dictatorship that it cannot expect to maintain business as usual with other nations when it is thwarting the basic tenets of our democratic hemisphere". With Venezuela now moulded to Mr Rubio's liking and Cuba under pressure, Nicaragua would be an obvious next step.

Yet Mr Ortega may yet get away with it. Mr Trump has no problem making nice with dictators when it suits him. He is a fan of El Salvador's president, Nayib Bukele, whose legislature scrapped term limits last year. On July 13th Mr Bukele's party confirmed him, unopposed, as its candidate for the election due in February 2027.

Pix v Trump

Follow the money

Brazil's much-loved payments system has drawn Donald Trump's ire, but his tariff assault just makes Brazilians love Pix—and Lula—more

THE MACHINERY which moves money around is rarely inspiring. It is remarkable then that Pix, Brazil's digital-payments system, has become a source of national pride after being assaulted by Donald Trump. On July 15th the Trump administration imposed a 25% tariff on a range of Brazilian imports after concluding a year-long trade investigation into what it called Brazil's "unreasonable" practices.

Pix was prominent among the grievances. Launched by the Central Bank of Brazil in 2020, it is loved by consumers for making payments instant and free. It is now part of everyday life in Brazil. Around 170m people—80% of the population—use it, and it accounts for more than half of the country's payment transactions.

Some of the administration's complaints about Brazilian trade practices have merit. Brazil is no free-trader. But the case against Pix rests on two shaky assumptions: that it is a protectionist tool and that it has damaged American payment companies (particularly Visa and Mastercard). Neither is supported by evidence.

Take protectionism. The complaint accuses Brazil of putting American firms at a disadvantage, but Pix's rules do not distinguish between domestic and foreign participants. Any financial institution licensed in Brazil and operating there—as Visa and Mastercard do—is free to connect to the network on the same terms. All

banks, Brazilian or foreign, with more than 500,000 account-holders in the country are required to offer Pix to their customers. But there is no requirement for payment processors like Visa and Mastercard to sign up. They have done so voluntarily.

The Trump administration also complains that Brazil's central bank both operates Pix and regulates it. The arrangement does raise legitimate questions about giving so much control over a payments system and the financial data it generates to a single institution. But those are concerns about concentration of power, not about discrimination against foreign firms. Governments build, own and regulate essential infrastructure routinely. There is nothing inherently discriminatory about applying the same model to payments, points out Monica de Bolle of the Peterson Institute for International Economics, a think-tank in Washington.

The second assumption—that Pix has harmed American payment companies—is also weak. It rests on a misunderstanding over why Pix was created, says Daniel Santos Kosinski, a professor of economics at the State University of Rio de Janeiro. Before Pix, existing services, including those offered by foreign firms, charged fees for electronic payments that poor Brazilians could not afford. Pix was built to change that. The central bank estimates that at least 70m people have entered the formal

financial system since its launch.

Far from cannibalising other electronic payment methods, Pix has expanded the market. It has done so at the expense of cash and cheques, the use of which has plummeted. The number of cash withdrawals made every quarter has fallen by 46% since Pix was introduced.

That does not mean incumbents face no pressure. Pix has changed the economics of payments. Bernardo Guimarães of Getulio Vargas Foundation, a university in Rio de Janeiro, says this may eventually squeeze the profits of Visa and Mastercard—but through lower fees, not fewer transactions. Businesses in Brazil typically pay around 2% of credit-card sales to a payment processor. A Pix payment costs next to nothing. The result is greater pressure on all payment processors, big and small, to justify the fees they charge.

The Trump administration's deeper concern may be that Pix becomes a model for the rest of Latin America, eroding American card networks' profits and their influence across the region. But that, too, is misguided. Pix was the product of Brazil's particular circumstances: a powerful and trusted central bank that could require big banks to join the system, and a huge domestic market in which millions of people still relied on cash. It also took years to design and test. Few if any countries in Latin America have the same conditions.

Leave our Pix alone

The biggest beneficiary of Mr Trump's campaign against Pix may well be Luiz Inácio Lula da Silva, Brazil's president, known as Lula. His political fortunes have improved ahead of a presidential election in October, thanks to his right-wing rival Flávio Bolsonaro's connection to a vast fraud scandal. America's assault on Pix is another electoral gift. In a country riven by polarisation, the system is one of very few entities that enjoys broad support. Mr Trump's campaign against it has allowed Lula to cast himself as the defender of one of Brazil's most successful public innovations and, by extension, of sovereignty.

That leaves Mr Bolsonaro in an awkward position. His family's close alliance with Mr Trump makes it tricky to defend Pix from his attacks. On July 2nd Mr Bolsonaro tried to find a workable line, suggesting to the Trump administration that Pix should be blocked from connecting to payment systems run by countries such as China and Russia. Lula immediately accused him of wanting to "hand over Pix to foreign interests", and cast him as being more interested in pleasing America than defending Brazil. Memes mocking Mr Trump and Mr Bolsonaro proliferated. So far, all America's campaign against Pix has achieved is to give Brazilians one more reason to love their payments system. ■



Pix tips for sax riffs

Asia



Japanese politics

Takaichi's travails

TOKYO

Japan's popular prime minister is burning political capital fast

STANDING BEFORE an elaborate array of white flowers, Takaichi Sanae, Japan's prime minister, delivered a speech at a memorial this month in honour of Abe Shinzo, a former prime minister assassinated four years ago. Ms Takaichi, who positions herself as Abe's political heir, praised her mentor's fortitude. "I want to be a politician who fights like Mr Abe," she said.

And fight she must. In February Ms Takaichi led her ruling Liberal Democratic Party (LDP) to a historic victory in the election to the powerful lower house of the Diet, amassing a two-thirds supermajority. Despite this she has struggled to enact her hawkish, big-spending, socially conservative agenda. The LDP and its allies had to extend the latest Diet session by one week, until July 25th, in order to finish their legislative business; the *honebuto*, an annual budget framework, was finalised only on

July 21st, much later than expected. Opinion polls show the Takaichi administration's once-stellar approval ratings falling sharply (see chart on next page). "She's powerful, but not all-powerful," says Tobias Harris of Japan Foresight, a consultancy.

During the Diet session after the election, Ms Takaichi advanced on several fronts. She has made the most progress in her pledge to strengthen Japan's defences, in both hard security and economic security. Reforms to create a new investment-screening body, modelled on CFIUS, Amer-

ica's equivalent committee, sailed through parliament; the Japan Foreign Investment Committee was launched last month. The Diet also passed a bill to reform Japan's fragmented, underwhelming intelligence capabilities and create a more powerful centralised intelligence apparatus for the first time since 1945. The first new bodies, an intelligence bureau and a council, will be established this month.

Ms Takaichi has stoked Japan's culture wars. The LDP and its coalition partners pushed through two controversial bills favoured by social conservatives. One criminalised desecration of the Japanese flag. The most fraught concerned imperial succession. With few male heirs, the very survival of the Japanese imperial house is at risk. A vast majority of the public supports female succession, which would mean the current emperor's only child, a daughter named Aiko, could succeed her father. Ms Takaichi promised to find a national consensus. Instead, the LDP used its supermajority to pass a bill that allows distant male relatives to succeed, while keeping women off the throne.

The prime minister also rode roughshod over her opponents on economic policy. Her first *honebuto* and an associated growth strategy herald a massive industri- ➤

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► al-policy push. The new growth strategy sets a target of ¥370trn (\$2.3trn) in combined public and private investment between now and 2041. The government will have a hand in stimulating 17 sectors, ranging from AI to *anime*, across 62 specific product areas. To do so, Ms Takaichi has introduced a new multi-year budgeting framework; she also shifted the government's fiscal benchmark from a long-held target of achieving a budget surplus before interest payments to aiming instead for a downward trajectory in the debt-to-GDP ratio. She has continued to promise a consumption-tax cut, though implementing it has been delayed. The moves amount to a loosening of fiscal discipline, without a clear plan for how to finance the outlays.

Resistance to the prime minister has in turn been mounting from several quarters. Markets have pushed back on her big-spending plans. After the government released a draft of the *honebuto* last month, yields on ten-year government bonds soared to their highest levels in three decades; analysts dubbed it the "*honebuto* shock". (Ms Takaichi and her allies claim the bond movements had nothing to do with their profligate plans.) When the final version of the *honebuto* was approved on July 21st, language underlining Bank of Japan (BoJ) independence had been added. Nonetheless, the yen weakened to its lowest level in four decades the next day, in part because of the perception that the BoJ would be loth to raise rates in the face of government pressure. Investors' concerns about Japanese economic policy "stem from a more general sense of uncertainty surrounding the potential scale of future government spending expansion," Morgan Stanley MUFG Securities, an investment bank, reports in a recent research note.

Grievances are also accumulating within the prime minister's own coalition. Fiscal policy has long been an important dividing line inside the big-tent LDP. "We're supposed to be conservative but we sound like socialists," gripes one fiscally hawkish LDP bigwig. One heavyweight on the LDP's consumption-tax commission resigned in protest at Ms Takaichi's planned cuts. More socially liberal members of the party raised objections to the flag-desecration law; a former foreign minister conspicuously skipped the vote. The LDP's new coalition partner, Ishin, has also been forced to forgo some of its priorities, such as cutting the number of seats in the Diet. Yoshimura Hirofumi, the party leader, described the outcome as "heartbreaking".

Most crucially, Ms Takaichi's domineering style has helped unite a fractious and ideologically diverse group of opposition parties against her. "The opposition came together and said we don't agree on policy, but we do agree that the LDP has overstepped," says Nishimura Rintaro of The

Asia Group, a firm that gives advice on strategy. In the upper house, where the ruling coalition is a few seats shy of a majority, the remaining parties banded together to halt Diet proceedings in late June. In theory, the LDP can override the upper house with its lower-house supermajority. But in practice doing so would come with significant political costs. As a result, Ms Takaichi has passed bills at a slower rate than any of the three most recent prime ministers; even her immediate predecessor, Ishiba Shigeru, who led a minority government in both houses, had more legislation quickly approved.

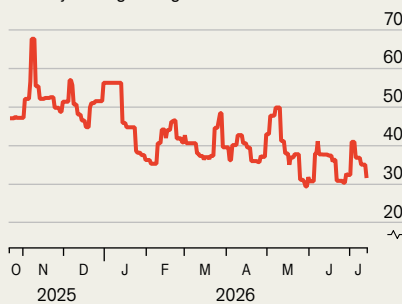
The messy management of the Diet mirrors broader complaints about Ms Takaichi's leadership style. In a culture that stresses consensus, Ms Takaichi has disdained the schmoozing that traditionally helps build it. She prefers to communicate with the public through social media, eschewing press conferences or formal interviews. Business leaders gripe that she does not consult them. The prime minister is "a loner", says one Japanese chief executive. Bureaucrats also lament that she does not listen to them. She would rather read briefing papers than have "real discussions with advisers", says a senior official. Ms Takaichi boasts about studying so hard that she sleeps no more than three hours a night.

The qualities that have alienated power-brokers still appeal to voters. Her plain-spoken style, everywoman background and punishing work ethic made her one of the most popular prime ministers in modern Japanese history, with approval ratings around 70% following her big election win.

But that popularity, the foundation of Ms Takaichi's power, is starting to erode. Voter frustration with persistent inflation, and a backlash against the imperial-succession law, have helped drive approval ratings for Ms Takaichi's administration down steadily. With more than a year until the next party-leadership election, Ms Takaichi is hardly in danger of losing power. But her heavy-handed approach ensures that more fights will follow. ■

Disapprobation

Japan, government net approval rating*, % points
Ten-day moving average



Source: ObservingJapan *Weighted by sample size and recency

The Philippines

War without end

MANILA

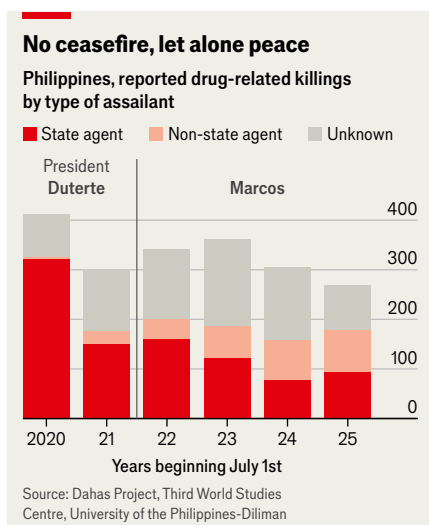
The war on drugs outlasts Duterte

CEBU, AN ISLAND in the middle of the Philippines, is a cheap place to have someone killed. Three teenagers admitted to murdering a woman in May for 5,000 pesos (\$80) and three packs of the country's most popular narcotic, methamphetamine, locally known as *shabu*. More than 10,000km away in a detention centre near The Hague sits the man who created the market for such work. On November 30th Rodrigo Duterte, the Philippines' 81-year-old former president, will stand trial at the International Criminal Court (ICC) for crimes against humanity in a "war on drugs" that killed up to 30,000 Filipinos.

That war lasted until Mr Duterte left office in 2022. His successor, Ferdinand "Bongbong" Marcos, calls his own anti-drug campaign "bloodless". His administration claims to have confiscated nearly as many illegal drugs in the first three years of his presidency as Mr Duterte's did in six. Mr Marcos's police chief has brushed off claims that police and vigilante killings continue. But the numbers say otherwise. Ten years after Mr Duterte unleashed the police on his own citizens, the war has not in fact ended. Rather, it has undergone a drastic rebranding.

Drug-related killings have slowed, according to Dahas, a monitoring project at the University of the Philippines: from 342 in Mr Marcos's first year to 269 in his fourth, which ended on June 30th—a small fraction of the rate at the height of the war, when Mr Duterte's own office once logged more than 20,000 deaths in 17 months. Yet this winding-down began under Mr Duterte. In his final year in office just 302 killings were reported (see chart). The composition of the toll is also telling. While Mr Duterte normalised vigilantism, the share of killings attributed to state agents has been stuck at about a third for three years, roughly 100 a year since 2023. Nothing from Mr Duterte's war has been dismantled. Its foundational documents, such as a circular known as "Project Double Barrel", promising the "neutralisation of illegal drug personalities" remain on the books.

A campaign known as "Oplan Tokhang" ("door-knocking") involved visiting suspected drug-users and -pushers to urge them to surrender became murderous. On July 3rd victims' families asked the Supreme Court to declare the circular unconstitutional, arguing that it remains a legal shield for any president who wants it. But ►►



► Cleve Arguelles of Momentum Research, a public-opinion firm, says that even if Project Double Barrel were formally ended, the culture of killing would remain ingrained in the police force.

Police elsewhere may kill suspected drug dealers. What functioning states do next is to document and investigate each death. The Philippines rarely does either. Since 2016 only five of the thousands of killings from the drug war have led to convictions—of just nine police officers.

One Philippine city shows what might be possible. For the first years of Mr Marcos's presidency, Davao, the Dutertes' power-base, led the country in drug killings. Joel Ariate, who runs Dahas, says that police stations posted their operations on Facebook as achievements. Then the Duterte and Marcos dynasties fell out, Mr Marcos's administration seized control of the city's police, chiefs were rotated and officers transferred. The killings stopped.

Cebu, where no such purge occurred, is now the killing capital.

Mr Marcos's alliance with the Dutertes has collapsed into open conflict. He had Mr Duterte arrested in March 2025. Mr Duterte's daughter, Sara, the vice-president, has claimed to have hired an assassin to kill Mr Marcos and two others, should she herself be killed. Although she went on trial in the Senate on July 6th for that threat and for corruption, Mr Marcos is losing in the court of public opinion. A scandal over non-existent flood-control projects has dragged public satisfaction with his administration down to 32%.

Ms Duterte remains the favourite for the next presidential election in 2028, and purging a police force that the Dutertes are actively courting would be to hand them a gift. In May Ronald "Bato" dela Rosa, Mr Duterte's first police chief, who is himself wanted by the ICC, appeared in the Senate to cast a decisive vote, then slipped away after gunfire erupted in the building. He remains at large.

Nor would renouncing the drug war win votes. Harsh drug policies remain popular. At its peak nearly nine in ten Filipinos supported the campaign. Today the country is split on whether Mr Duterte should be held to account. Duterte diehards attack Mr Marcos online as a drug addict and for being insufficiently murderous.

Even some among the tens of thousands of bereaved families have felt the wrath of his supporters. Sheila, a mother living in Caloocan, north of Manila, is one victim. Her two sons, Rico and Ryan, were killed by masked assailants: Rico, accused of sniffing glue, was killed in 2020 during Mr Duterte's presidency; Ryan, who was previously arrested for drug possession, in 2024, under Mr Marcos. The police have not provided a report on Ryan's killing,

without which his death cannot even be registered, let alone investigated, says Kristina Conti, her lawyer, a pattern she says is common. Her harassers' proof that Sheila was a "fake" victim was that Ryan died under Mr Marcos, not Mr Duterte.

When Mr Duterte's trial opens in November, the drug war's victims will at least see its author in the dock. But the Philippines withdrew from the ICC in March 2019. Every killing since then is beyond The Hague's reach. International justice can convict the man who built the machine but it cannot switch it off. Only a Philippine president can do that, and the current one seems to have decided that the price is too high. Sheila is waiting for a verdict on Mr Duterte from The Hague. But she is also waiting for the police to put on paper that her son was killed at all. ■

Indonesia

His weight in gold

SINGAPORE

The police and army are at odds

THE GOLD coating the flame that sits on top of an obelisk known as the National Monument in the centre of Jakarta, the Indonesian capital, is said to weigh an impressive 50kg. So it came as a shock to Indonesians, not so much to learn that gold bars had been found stashed in seven suitcases at the swish home of Febrie Adrian-syah, then the country's deputy attorney-general for special crimes, but that they weighed as much as 74kg. Mr Febrie, the country's most senior anti-corruption prosecutor, admits that the home, in a gated community alongside an upmarket golf course, is his. But he denies that the loot (including another \$20m in cash), which was seized on July 8th in a police raid, had anything to do with him.

If the police thought they could go after Mr Febrie, one of the country's most powerful officials, with impunity, they were soon disabused of the idea. At 3am the next morning, several squads of armed soldiers aligned with Mr Febrie appeared outside police headquarters. They subsequently left without incident, but the stand-off seems to have alarmed President Prabowo Subianto. That afternoon he summoned the warring factions in to see him at the tower housing his sovereign wealth fund. A way to defuse the confrontation was brokered: Mr Febrie has stepped aside as deputy attorney-general. But he will be investigated by his own agency rather than by the police.

To understand why what seems like a ►►



Where some of the bodies are buried in Davao

► straightforward corruption investigation should pit the army against the police, it helps to know something of the history of the two institutions. During Suharto's long dictatorship from 1966 to 1998, the army controlled the police and called them (without affection) the army's "little brother". As part of the democratising reforms that followed Suharto's fall, the police won emancipation as a rival security force. Since then, the two have competed, sometimes violently, over rents from illicit busi-

nesses that both run. Each side has allies in government (the attorney-general's office is aligned with the army rather than the cops). But rarely have the army and police gone after each other's leaders.

The latest flare-up, then, is perhaps better explained by Mr Prabowo's style of leadership. Not one to be troubled by details, the president governs—like Suharto, who was once his father-in-law—in the manner of a Javanese king, playing the rival factions that seek his favour off against

each other. His two most powerful courtiers, the defence minister, Sjafrie Sjamsoeddin, and the leader of his party in the lower house of parliament, Sufmi Dasco Ahmed, are said to be locked in a bitter struggle for influence. Mr Sjafrie controls the army and analysts say that Mr Dasco has the support of the police. Unless Mr Prabowo can find a way to bring an end to the spat between his two leading lieutenants, that 3am stand-off in Jakarta may not have been the last confrontation. ■

ASHOKA

Content and its discontents

Narendra Modi's party discovers the limits of propaganda

A HUNGER STRIKE does not make for good content. Instagram recommends hooking viewers within three seconds, using trending songs and keeping videos under three minutes "to help your reels break through". Add to that the unwritten but universally understood rule that photogenic young women are reliable scroll-stoppers. So a middle-aged man lying around doing nothing for days on end was never going to go viral. Algorithms demand spectacle.

That may be why Sonam Wangchuk had been wasting away without much notice since June 28th, despite the efforts of the social-media team in the Cockroach Janta Party, a youth protest movement with which he had allied himself. Mr Wangchuk, an activist and education reformer from the far-northern territory of Ladakh, first came to India's attention in 2009 as the reputed inspiration for the lead character in a Bollywood hit about India's flawed education system. He was to fast unto death—or until Narendra Modi fired the education minister for repeated exam leaks, the latest of which had driven 20 aspirants to suicide. His death was the likelier outcome. Mr Modi has never sacked a minister for incompetence.

For three weeks the government did not feel the need to engage with Mr Wangchuk and his group. The ruling Bharatiya Janata Party (BJP) has built up Mr Modi's image as a strongman who never compromises. Television news functions as a propaganda arm of the government. Supine newspapers serve its agenda by omission if not by commission. It has an army of digital foot-soldiers who diligently spread its messages. The party has mastered the art of shaping the narrative.

Yet this time it miscalculated. On the

21st day of the hunger strike, the government provided the spectacle Mr Wangchuk had failed to produce. Plainclothes police stormed the protest site and carted him off to hospital, supposedly for his own good. They carried white sheets to veil the moment of abduction. The sheets were enough. Videos of the event bounced from Instagram to Facebook to Reddit to X. The heavy-handed tactic galvanised support for the movement's long-planned march on Parliament two days later.

True to form, the government tried to control how India and the world saw the biggest protest in Delhi for years. It shut down mobile internet in the area. But the smartphone generation was not to be thwarted. Dozens of videos quickly appeared online anyway. They showed police beating back young marchers with long batons known as *lathis* as someone (apparently on the police side) yelled "Hit the motherfuckers!" They showed groups of policemen attacking lone protesters. They showed officers assaulting women. Delhi police said that the "protest is being handled professionally".



Mr Modi's government does not usually worry too much about images of state violence against Indian citizens. It is easy enough to frame protesters as Sikh separatists, Muslim terrorists, leftist agitators or Pakistani infiltrators. Many Indians accept the need for a heavy hand to deal with "undesirable elements" and "troublemakers". But they are not used to seeing their own sons and daughters—Hindu, middle-class, educated—treated the same way.

The government tried every tactic to get a grip on the narrative. A BJP leader blamed "conspiracies, orchestrated street violence and manufactured outrage". Online, the party's supporters lamented the use of children as "cannon fodder". One news channel wondered, "Does the US have a role to play in the violence unleashed on the streets of Delhi?" Another reported that police were "probing [the] Pak[istani] angle". Mr Modi tweeted that "fast-track courts" would "ensure swift and stringent punishment" for the paper-leakers.

Half of India's people are under 30. Their education is either expensive or low-quality, or both. Their chances of getting into leading universities are slim. Their job prospects are poor. Even as the government tries to spin its way out of its ministers' incompetence and its officers' violence, it is another category of videos that should worry it more. These are the interviews with students enraged at being attacked unprovoked, weeping young people asking why they cannot question their representatives and, remarkably, teenagers taking aim at the inviolable image of the prime minister himself. Control of the media environment can help hide the state's failures. But it works only when propaganda has some basis in reality.

China



The third fleet

Out of the shadows

ZHOUSHAN

Tracking the movements of China's mysterious maritime militia

THE BAYS OF the Zhoushan archipelago are crammed with blue-hulled fishing boats, laid up after a busy season scouring the East China Sea for crabs and croaker. Some of the boats, though, have been doing more than just fishing. In December over 1,000 vessels from Zhoushan and other parts of China's eastern seaboard did something unprecedented. They lined up in an inverted L-shape in the seas north of Taiwan, held the formation for more than 12 hours, then dispersed (see maps, next page). Over the next few months Chinese fishing boats coalesced again in the East China Sea, on four more occasions.

Chinese state-run media claim all this is normal commercial activity. Something fishier is surely going on. China is unusual in having three separate maritime forces at

its disposal. The first two are the navy and the coastguard. But since as far back as the 1950s, China's leaders have also commandeered part of the country's fishing fleet as a paramilitary "maritime militia". This shadowy force is made up of a mixture of normal fishing boats and larger, steel-hulled ones which appear to be purpose-built for aggressive manoeuvres. It is notorious for its activities in the South China Sea, where militia boats are often sent to disputed reefs and islets to press China's sovereignty claims, sometimes violently.

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Fishing boats in the East China Sea had largely stuck to trawling. That may be changing. The recent formations there were far larger than anything seen before, even in the South China Sea, so it seems likely that they brought together many ordinary fishing vessels alongside formal militiamen. They were packed densely enough that some cargo ships appeared to change course to go around them. The manoeuvres suggest that Chinese officials are testing out their capabilities—and some fear it could all give China an edge in a conflict over Taiwan.

No official numbers are published on the size of China's maritime militia. State news outlets sometimes deny that it even exists. But an article published in 2014 in a Chinese defence journal praised the force as "irreplaceable" thanks to its "wide distribution, disguised identities and familiarity with maritime conditions". Unlike its navy, China's militia gives officials plausible deniability for ambiguous "grey zone" activities: they can claim, for instance, that violent confrontations with other countries' ships were caused by "patriotic fishermen" acting independently.

For decades the maritime militia had a ►►

▶ reputation as a ragtag bunch, with antiquated weapons and poor discipline. The average fisherman has only a limited education and greying hair (only 5% are below the age of 30, according to a survey in 2024; fishing is tough and few Chinese youths want to do it). That means training them to use the latest communications technologies can be a challenge. Motivation can also be a problem because compensation is reportedly low. That is partly because the militia are meant to act out of patriotic duty rather than for personal gain, says Collin Koh of Nanyang Technological University in Singapore. Local governments and military authorities also sometimes squabble over who should pay.

For glory and gains

Since Xi Jinping came to power in 2012, China has been trying to build what it calls a “new style” maritime militia—one that is better equipped, trained and organised. How much is being spent on this militia is unclear. Provinces and cities contribute towards a variety of schemes, and state-owned firms are encouraged to chip in. Some fishing boats can get daily subsidies of over 24,000 yuan (\$3,500) to loiter in disputed areas, more than enough to cover their costs and allow owners to profit without doing any fishing.

Modernisation has gone furthest in the South China Sea, a vast body of water which China claims almost in its entirety (six other countries, including Vietnam and the Philippines, have competing claims over the region, which is rich in fish and energy resources). Some locals have become full-time militiamen, crewing large steel-hulled vessels equipped with big water cannons. They swarm around the shoals and reefs that China claims while surveilling and harassing foreign vessels.

Militia activities are inherently hard to track, but appear to have been steadily increasing in the South China Sea. The Asia Maritime Transparency Initiative, a programme at CSIS, an American think-tank, uses satellite images to check for telltale signs such as vessels loitering without deploying fishing gear, or tying themselves together to form a floating barrier. Last year it counted an average of 241 Chinese vessels that it believes were militia sailing in disputed areas of the region every day. That was the highest number since CSIS started monitoring in 2021.

China has disputes in the East China Sea too, with Japan and South Korea in addition to Taiwan. But militiamen have tended to be less aggressive in the region, instead focusing on civilian matters like emergency relief after typhoons. The East China Sea is less than one quarter of the size of the South China Sea, and China's claims there are over specific areas such as the uninhabited Senkaku islands (known

as the Diaoyu in Chinese, and which Japan controls) rather than over the entire body of water. Its coastguard should, therefore, be able to patrol and handle confrontations with other countries' vessels without relying on civilian boats.

All of this adds to the mystery surrounding the recent formations. Five took place in less than six months, according to IngeniSPACE, a research company tracking their movements. The first assembled over 1,000 ships into two parallel arrangements, stretching 450km, around Christmas Day. During the next formation, in January, some boats stayed in place for over 30 hours. Days earlier China had conducted large-scale war games around Taiwan. In late March a new formation appeared 100km to the east and closer to Jeju, a South Korean island. Boats congregated for the latest formation, in April, on the same meridian, shortly before the start of China's annual summer fishing ban.

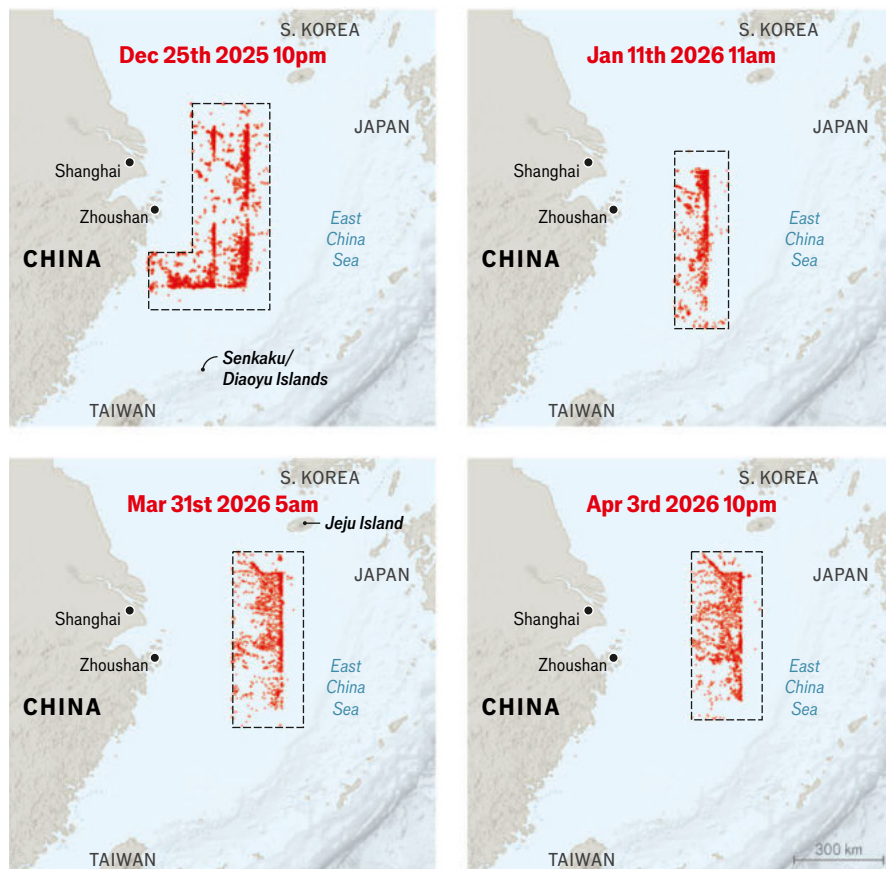
Co-ordinating so many ships to stay in place for so long is a technical challenge, but more importantly a political one, says Gregory Poling of CSIS. Some countries struggle to make their fishermen broadcast their locations consistently (many prefer to keep their choicest fishing grounds a secret). China has shown “a degree of political control that no other country on earth

can claim” over its civilian fleet, he notes.

What could such control be used for? In a conflict over Taiwan, the militia might help the navy with reconnaissance or logistics. Militia boats have also been accused of cutting undersea-communications cables. If China launched an amphibious invasion of Taiwan, a callous commander might use swarms of fishing boats to overwhelm the enemy with potential targets. A very large number of such vessels could play a more important role if China tried to impose a full blockade of the island, or a more calibrated “quarantine” (blocking only some goods). They could help disrupt the flow of shipping to and from its ports.

The fishermen of Zhoushan, at least, have no love lost with Taiwan. In 1950 Zhoushan was one of the last regions of China held by the Kuomintang after its defeat by the Communist Party. Thousands of local men were press-ganged to replenish its army, and forced to go to Taiwan. Some locals are still bitter. More prosaically, one grizzled captain says a conflict would be a disaster for business. He would help only if the authorities demanded it. One younger man, though, is confident that local fishermen would play their part. “We Chinese are like scattered sand that would unite if the time came,” he says. “We'd all become militia.” ■

Chinese vessels, last known position



Source: Global Fishing Watch

Dates in China Standard Time

Unsuccessful Shantou

Bottom of the class

SHANTOU

Why did three special economic zones succeed, and one not?

FROM THE late 1970s, as China moved away from central planning, the Communist Party picked four cities on the coast to be test-beds for liberal economic policies. Known as “special economic zones” (SEZ), three of them, Shenzhen, Zhuhai and Xiamen, have been world-changing successes, showing the way for market reforms in the rest of the country. The other one is Shantou.

You rarely hear about Shantou. The city of 5.6m was one of China’s first trading ports, and is the hometown of economic heroes such as Li Ka-shing, Hong Kong’s richest man, and Pony Ma, founder of Tencent, a tech giant. Yet it is not thriving. Last year its GDP per person was 54,000 yuan (\$8,000), comparable to Gansu, China’s poorest province in the far west, and well below the national average of 100,000 yuan (never mind Shenzhen’s 214,000 yuan). Locals refer to it as a “special economically backward zone”. Growth was just 0.1% last year. So why did three cities flourish from special treatment, while one floundered?

The sorry tale

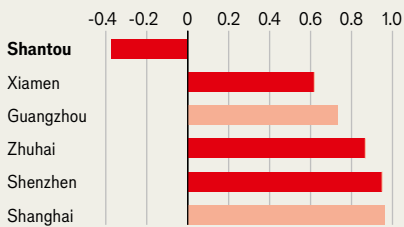
Shantou’s GDP in 1980 was four times that of Shenzhen, where GDP is now ten times Shantou’s. But it had some disadvantages. Initially, just 1.6 square kilometres was carved out for its SEZ, the smallest of all four cities. Its location is awkward. Shenzhen is next to Hong Kong, Zhuhai next to Macau, and Xiamen across the strait from Taiwan. Shantou is relatively isolated on Guangdong province’s east coast. Yet by 1991, its SEZ had expanded to cover all 234 square kilometres of its landmass. And plenty of cities inland have outpaced Shantou despite being more remote (besides, high-speed rail now connects up all such major metropolises).

What went so wrong? The property downturn has hit Shantou harder than many other places. Fixed-asset investment in property fell by a staggering 38.8% last year. Consumption is sputtering along. In a cluster of three malls in the city centre, two stand largely deserted. So do many restaurants. And the city’s industry is weak. While places like Shenzhen moved up the value chain, Shantou bred local champions in toymaking and textiles, low-margin and labour-intensive industries that made up nearly half the city’s big firms in 2024. They are struggling too. In 2025 exports of toys fell by 8.6% and gar-

Odd one out

Selected Chinese cities, correlation between GDP and FDI, 1=perfect positive correlation

■ Special economic zones



Source: “Foreign direct investment and economic growth in Chinese special economic zones”, by L. Liu and M. Plouffe, OSF preprint, 2025

ments by 18.3%. Exports dipped by 9.1% overall, puzzling for a port city (in a year when China racked up a record \$1.2trn trade surplus).

To understand Shantou’s deeper troubles, look to culture and institutions. Locals speak of unusually egregious corruption in the city. One retired businessman recounts how, at the start of every year, city officials would turn up to pester him for bribes, threatening to cause trouble if he didn’t pay up. Visits to hospital can require a cash bribe to the doctor. The rot goes so deep that in 2000 graft-busters sent to Shantou from the central government were killed in a large hotel blaze—a suspected arson attack. Corruption remains an issue for many in the city.

A more unusual problem is mistrust of outsiders. China has long viewed foreigners with suspicion, but locals in Shantou regard even Chinese people not from the city as outsiders (referring to them as “out-of-province kids”). A big source of this is the local dialect which, owing to the city’s historic isolation, is unintelligible to Man-

darin speakers in the rest of the country. People not from Shantou find it difficult to integrate there. One doctor who now lives abroad recalls how colleagues discriminated against him at the city’s central hospital for being from Zhejiang province.

All this has helped to keep businesses, talent and investment away. Between 1996 and 2017 Shantou received just \$6.7bn in foreign direct investment (FDI), compared with Shenzhen’s \$85bn, according to research by Lang Liu and Michael Plouffe of University College London. More troubling, FDI has been negatively correlated with GDP (see chart), meaning that as the economy grew, outside investment actually shrank. Talented youngsters leave and do not return. Overall the city’s poor reputation seems to discourage people from moving there for work.

There is one bright spot, at least. In 2025 the number of overnight visitors rose by 12.8%, and revenue from tourism grew by 23.9%, enough to keep recession at bay. Local authorities have restored the old town, once a dilapidated district of crumbling colonial-era buildings, and turned it into a tourist hotspot. Now the area is buzzing with visitors at night. A souvenir seller says that the recent hit film “Dear You”, which was partly shot there, has increased footfall.

Shantou’s story is a case study of what happens when top-down directives meet local constraints. Policy support can supercharge growth if the right conditions already exist locally, but cannot create them. China’s policymakers would do well to take heed, as they try to fulfil their vision of a high-tech future across the country. As for Shantou, it was meant to usher in reform across China. Ironically, it is better known for preserving its past than for shaping the country’s future. ■



Local know-how on display

CHAGUAN

China's history wars

Why criticism of the Qing dynasty scares the Communist Party



VISITORS TO HISTORIC sites around China see not only palaces and pagodas, but also scores of men and women in period dress posing for photos. To the uninitiated, one flowing robe looks like any other. But for some donning the historical threads, they are a display with political undertones: a celebration of Han traditions and a rejection of the “foreign” Qing, China’s last imperial dynasty, whose final emperor abdicated in 1912. It is a view that has gained currency, to the alarm of the Communist Party.

On a recent stroll around the Forbidden City, once the emperor’s home in the centre of Beijing, Chaguan quickly found people with these sartorial sensibilities. “Before, we might have worn Qing clothing. We’re more historically aware now. The Qing were barbarians,” says one woman, a university student in a billowing light-green dress, alongside her boyfriend in a subdued scholarly robe. Not all opting for pre-Qing clothing care much about the politics. “It’s just more refined and aesthetic,” says Ms Xu, a visitor from Fujian province, explaining her choice of an off-white Ming-style noblewoman’s outfit rather than flashier Qing garb.

Clothing is the most superficial part of the anti-Qing thinking now growing more prevalent. Discourse about the dynasty and its misdeeds has long featured in online forums, summarised as the “1644 historical view”, referring to the year that the Qing overthrew the Ming. (The Ming rulers were Han, China’s dominant ethnic group, whereas the Qing were Manchus, a smaller minority group from the north.) Social media have helped the 1644 view spread to more mainstream audiences.

In China’s official narrative, the country suffered a “century of humiliation” of foreign invasions, starting with the first opium war in 1840 and ending only with Mao’s rise to power in 1949. But the 1644 view—cheekily expressed by some online as “three centuries of humiliation”—argues that subjugation began with the Qing. According to this school, the Qing were anti-Han interlopers and, making matters worse, feckless in repelling foreign forces.

Dredging up all this history is uncomfortable for the party. The territorial boundaries claimed by modern China—including Tibet, Xinjiang, Inner Mongolia and Taiwan—were brought into the Chinese empire by the Qing, not the Ming. Grievances about the

Manchus also cut against the ideal of ethnic harmony advanced by the party. Although much of what forms modern Chinese identity is derived from Han traditions, it is unseemly to talk openly about the dominance of this one ethnic group, which accounts for 90% of the Chinese population. The party looks askance at “Han chauvinism”, believing, with reason, that it may lead to more resentment from non-Han groups.

Late last year, the communications arm of the Zhejiang provincial government—known for strong opinion pieces—became the first official body to wade into the discussion. It formally condemned the 1644 view, labelling it a harmful distortion. Too much blame, it argued, was placed on the Qing for China’s troubles: the Ming had also been plagued by economic and social problems. The Zhejiang authorities warned that it was an opening for hostile Westerners to push the “new Qing history”, which emphasises the unique Manchu identity of Qing rulers.

That appears to have been the opening shot in an official rectification campaign. Since then, censors have deleted social-media accounts critical of the Qing and scrubbed many such videos and comments. In recent days the censors have been busy again. A forthcoming film, “The Belief”, is intended as a nationalist tribute to the naval expedition in 1683 that facilitated the Qing’s annexation of Taiwan. But many online have been more sympathetic towards the conquered—Han loyalists of the Ming dynasty based in Taiwan—than to the Qing soldiers sent to subdue them. In fact the 1644 view is far from novel. An early proponent of something like it was Sun Yat-sen, celebrated as a father of modern China. A leading voice for the Qing’s overthrow at the turn of the 20th century, he railed against the Manchus as outsiders.

106 volumes too many

Sensitivity over how to interpret all this illustrates how hard it is for the party to examine its own history. Never mind serious debates about Mao’s rule; even century-old dynasties are too hot to touch. The party commissioned an official history of the Qing and was close to completing it as a mammoth 106-volume project. But now it seems to have been scuppered by leaders because of disagreements about “new Qing” contamination. “It is very clear that the state was ruled by people who were not identical to the bulk of the population, so it’s hard to fit it into the kind of Chinese nationalism that the party wants,” says David Porter, a scholar of imperial China at McGill University in Montreal. “It’s easier to criticise Western historians for going the wrong way.”

The anti-Qing voices probably do not add up to anything significant for China’s contemporary politics. They are not about to coalesce into a movement that challenges party rule. They are discomfiting, not destabilising. They also underline how the space for public disagreements in China has narrowed. Other countries have plenty of historical controversies, too. China stands out for its inability to hold a full-throated debate about them. The party is too thin-skinned for that.

For their part, nationalists are guilty of over-simplifying Chinese history. Romanticising pre-Qing epochs as pure expressions of Han strength omits that China was a multi-ethnic, even cosmopolitan, entity during one of its most glorious periods, under the Tang dynasty more than a millennium ago. An honest accounting of this record would argue for China’s leaders today to be more tolerant and open, and to be confident of what such permissiveness would yield. Just do not hold your breath. ■

Middle East & Africa



Lebanon

The reckoning

BEIRUT

To rebuild the country, the government must fix a broken political system

IN HIS OFFICE in downtown Beirut, Amer Bisat looks to the past to sketch a hopeful vision of the future. Lebanon was once a regional hub for banking, tourism and trade; perhaps it can be so again. “If reconstruction ever starts in Syria, for example, Lebanese ports might be part of that,” says the economy minister. He also hopes to woo Gulf states keen to lay pipelines and fibre-optic cables that bypass the Strait of Hormuz. “The region is being redrawn in many ways,” says Mr Bisat, “and Lebanon has a huge role to play.”

A kilometre away stands an eerie reminder of Lebanon’s more recent history. The port of Beirut was wrecked in 2020 by a huge explosion. Fearful of exposing their own corruption and negligence, politicians have long stalled an investigation into the blast, which killed more than 200 people. The port has yet to be fully rebuilt. Families of victims petitioned to keep a damaged grain silo standing as a memorial, a

Daliesque edifice frozen in mid-collapse.

As Joseph Aoun, Lebanon’s president, met Donald Trump in Washington on July 21st, it also stood as a warning to would-be investors. The period since mass anti-government protests in 2019 has been the worst for the country since its long civil war ended in 1990. It has endured the port explosion, a financial crisis and almost three years of war with Israel.

For most of this time it muddled through with a series of caretaker prime ministers and, for more than two years, no president. The vacuum ended in January

2025, when parliament selected Mr Aoun. Days later Nawaf Salam was named as prime minister. They make an odd couple. Mr Aoun, bald and broad, is a career soldier, while the bespectacled, bookish Mr Salam is an academic and diplomat who spent much of his life abroad.

Both are political outsiders in a country dominated by a crop of ex-warlords. In their inaugural speeches they pledged to disarm Hezbollah, the Iran-backed Shia militia that has long defied the government, and to implement overdue reforms. Their watchword was sovereignty: no longer would Lebanon be defined by foreign meddling and state weakness.

Eighteen months on, their record is mixed. They have taken some laudable decisions, from proscribing Hezbollah’s military wing to passing laws to help unlock an IMF deal. Implementation is another matter. Lebanon’s twin crises have become a Gordian knot. It will struggle to attract donors and investors unless it takes on Hezbollah, yet its strategy for doing so relies on those same donors and investors. Untangling the knot will mean doing everything at once—disarmament, reform and reconstruction—in a country that has long struggled to do anything at all.

Mr Aoun’s conversation with Mr Trump focused mostly on Hezbollah. The militia dragged Lebanon into war on October 8th ►►

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► 2023, when it fired rockets at Israel in support of Hamas, which had just massacred around 1,200 people. Though America imposed a ceasefire in November 2024, Israel continued regular air strikes in Lebanon (Hizbullah was too battered to retaliate). All-out war resumed this March, when the militia attacked Israel on Iran's behalf.

The cost has been enormous. The government estimates that the most recent fighting caused \$3bn-4bn in direct damage, on top of \$8.5bn from the previous round (around 40% of GDP in total). It will also lop 7-8% off Lebanon's output this year; Mr Bisat expects a recession.

Israel has razed villages in the south and occupied a swathe of the region. Hizbullah's death toll is heavy. In eastern Lebanon's Bekaa Valley, your correspondent counted a dozen posters announcing the deaths of Hizbullah fighters in one Shia village, home to perhaps 1,500 people. That is only a partial accounting: the group has yet to recover and identify all of its dead.

For decades Hizbullah has been a state within a state. It runs an extensive network of schools, hospitals and youth programmes; it operates a parallel banking system, which helped shield its supporters from the financial crash. These activities bred a loyalty that the state could not match. But the latest war has strained it.

Many of Hizbullah's constituents are exhausted. Some are concerned by Iran's growing sway over the group. In March the Lebanese government tried to expel the Iranian ambassador, accusing him of using his post to support Hizbullah on behalf of the Islamic Revolutionary Guard Corps (IRGC), the Iranian regime's praetorians. He refused to leave. In June Mohammad Bagher Ghalibaf, the speaker of Iran's parliament, praised Lebanon for offering 4,000 "martyrs" in support of his country. His comments outraged many Lebanese.

Officials close to Mr Aoun thus see an opportunity to flip the script. "We hope to have two clear scenes," says one: "Hizbullah killing your sons for the Iranian interest... and...a Lebanese state keen to protect them, to reconstruct their villages and homes." It is a creative approach. But it faces three big obstacles.

First, most difficult, is how to disarm Hizbullah. The group refuses to comply and is fond of threatening a new civil war if anyone tries to take its weapons. Nonetheless, last August the cabinet agreed on a plan to gradually do just that, and in March it declared the group's military wing illegal. Several dozen people have since been arrested for transporting arms. In June Israel and Lebanon signed a deal that commits the latter to deploying its army in southern Lebanon.

But the army is in no state to force the issue. Hizbullah is still better equipped. Though defence spending has more than

tripled since 2021, most of the budget goes on wages, not weapons. Some officers are thought to be sympathetic to Hizbullah. Nor are courts a deterrent. One illegal-weapons case in March ended with Hizbullah members being fined just 900,000 Lebanese lira (\$10).

Second is how to ensure Israeli withdrawal: the state will not look credible unless it does. The deal with Israel has begun with two "pilot zones" (see map) to show that the Lebanese army can move in and Israeli troops can pull out. Officials in Beirut complain that one of these zones includes villages that Israel never occupied in the first place. Meanwhile, it continues periodic air strikes in the south.

The final question is who will pay to rebuild. The last time Lebanon's friends organised a donor conference, in 2018, they pledged \$1bn but never disbursed the money because the government failed to implement required reforms. America no longer believes in foreign aid. Mr Aoun hopes instead for investment. Yet the same concerns that put off donors before may spook would-be investors today.

A string of disasters

Lebanon's crises overlap. The financial crash was decades in the making—the result of a state-run Ponzi scheme meant to finance massive deficits and keep the currency pegged at 1,500 to the dollar. When bank deposits levelled off in 2019, the scheme collapsed. Lenders in effect halted foreign-currency withdrawals. The following years were marked by hyperinflation, rapid depreciation and political paralysis. Though Lebanon reached a tentative four-year, \$3bn deal with the IMF in April 2022, the fund's board never put it to a final vote. Again, lack of reform was the issue: the banks have powerful allies in parliament, who blocked any attempt at restructuring.

If things look better now, it is only because they were so bad before. The currency has settled at just shy of 90,000 to the dollar, 98% below the peg. Annual inflation

has fallen from a peak of 221% in 2023 to 15% last year, still among the highest in the world. The economy is about half its pre-crisis size. Depositors are still mostly locked out of their accounts.

Mr Salam's government has taken some meaningful steps. In April 2025 it eased the bank-secrecy law, an old IMF demand. Three months later it passed another bill to let the state restructure or liquidate insolvent lenders. But it has yet to approve the key (and most controversial) piece of legislation: the so-called "gap law", which would apportion roughly \$80bn in losses between banks, depositors and the state, but looks too expensive to be workable.

Fixing the banks is only a first step. Lebanon also needs new sources of growth. Mr Bisat says startups are making hardware for robotics and AI data centres. With its strong universities, cheap labour and entrepreneurial culture, Lebanon has some comparative advantages.

For all its talented businesspeople, though, Lebanon has a terrible business climate. The war is one problem. Zombie banks are another: the economy has lost its financial infrastructure. Lending has collapsed. Credit to the private sector has plunged from 107% of GDP in 2018 to less than 20% today.

Lebanon's infrastructure is in a parlous state. The state-run electric company can supply only a few hours of power per day. Businesses pay for generator power—which, at \$0.48 per kilowatt-hour, is nearly three times pricier than the global average. Firms, lumbered with slower broadband speeds than in Somalia, are desperate for Starlink to launch so they can ditch the lousy state-run telecoms monopoly.

Little money exists to fix any of this. The government ran a fiscal surplus of 2% of GDP last year, and despite the war it expects another in 2026. Yet more than half of revenue is spent on wages and pensions. Fouad Makhzoumi, an MP and aspiring prime minister, estimates there are 340,000 people in the public sector, nearly 10% of Lebanon's citizen population.

Ministers take care to distinguish between themselves and "the system". It seems an odd distinction: surely the cabinet is at the centre of a parliamentary system. But it is an accurate one. Hizbullah still controls the guns. Bankers and their allies can still block a financial overhaul, and sectarian chieftains parcel out the spoils of the state. The system is built to outlast would-be reformers.

Sovereignty is not just about Israeli drones whirring overhead or the Iranian ambassador who refuses to leave. It is also about freeing the state from an establishment that feeds on its weakness. For now, the ruined silo by the port seems like a symbol for Lebanon itself: neither fallen nor rebuilt but caught in mid-collapse. ■



Cooling technology

From the desert to the world

Gulf countries want to sell their air-conditioning expertise abroad

BACK IN THE 1970s Gulf countries bet big on the idea that technology could make hot, arid places habitable. The gamble paid off. Abundant oil and gas fuelled construction, accelerated investment and powered round-the-clock cooling. The population of the Gulf Co-operation Council (GCC), a club of six petro-monarchies, grew from 6.3m in 1970 to 63m today.

That growth came at a cost. Air-conditioning units in flats and building-wide systems to keep the heat out of whole blocks gobble up power and produce emissions that accelerate warming. Today cooling accounts for as much as two-thirds of peak electricity demand in the GCC. So Saudi Arabia, the United Arab Emirates (UAE) and Qatar have sought systems that would keep their cities liveable while using less power and doing less damage to the climate. As global warming makes air-conditioning necessary in ever more places, they want to export that technology to the rest of the world.

In some Gulf cities as much as a quarter of cool air comes from district-cooling systems. A central plant chills water and pumps it through a network of buildings. Energy use is reduced by sharing peak loads across the network. The system uses some 30% less power than in-building systems, and up to 80% less than if all flats in the district were cooled by individual air-conditioning units. The central plant also acts as a sort of battery. Chilled water is stored in tanks for use during periods of high demand.

Other countries, including Singapore and America, have similar systems, but few match the scale and design for extreme conditions seen in the Gulf. Tabreed, an Emirati firm, runs the world's largest scheme in downtown Dubai, where it cools 80 buildings, including the Burj Khalifa and Dubai Mall. The company claims that, compared with older cooling methods, it reduces annual carbon emissions by about as much as removing 40,000 cars from the roads every year. It also runs what it calls a "zero waste" district-cooling system in Masdar City, Abu Dhabi, where geothermal energy powers the chillers and heat is pumped back into the ground.

District cooling requires copious water, a challenge in water-scarce regions such as the Gulf and many other places where air-conditioning demand will almost certainly grow. Gulf countries have cut freshwater

usage by running the systems on treated waste water, rather than the potable sort. A plant in Saudi Arabia is using seawater. More recently, the countries have been looking to integrate cooling-hungry data centres for artificial intelligence (AI) applications into district-cooling systems. Tabreed is also experimenting with adding tiny particles to cooling water, letting it absorb more heat.

As the world warms and AI use expands, the need for such technologies will grow beyond the Gulf (see International section). Global demand for cooling could triple by 2050, according to one estimate used by the UN. The market for district cooling alone may roughly double to \$60bn by 2034, according to another projection. Gulf companies are gearing up to

be part of the expected bonanza. In India, where cooling demand may rise eightfold in the next decade, Tabreed is developing what it says will be Asia's largest district-cooling system in the southern tech hub of Hyderabad. It is also breaking ground on projects in Egypt.

Though they are about 40% cheaper in the long term than other solutions, big-ticket systems remain expensive to build. GCC countries were rich enough for that; many other places may not be. Rich European countries could afford it, but have yet to reach political consensus on how much to invest in cooling and where to buy the tech. As extreme heat becomes more common, they will probably fork out the cash. Tabreed and other companies in the Gulf will be hoping to get a chunk of it. ■

Infrastructure in Africa

The return of the megaproject

LAMU

A new era of big developments promises faster growth, but financing remains tricky

FOR YEARS Lamu, on the coast of northern Kenya, was a tantalising symbol of unrealised promise. The Lamu Port-South Sudan-Ethiopia-Transport (LAPSSET) Corridor, a colossal scheme estimated to cost \$25bn, is supposed to connect a deep-water Kenyan port with markets in Ethiopia and oilfields in South Sudan via a pipeline, railway and motorway. Launched in 2012, it was touted as Africa's most ambitious infrastructure undertaking. Yet 14 years later only the port near Lamu is operational—and for most of the time since the first

ships docked there in 2021, just barely. "When it began it was very quiet," concedes Abdulaziz Mzee, the port's manager.

Now, though, Lamu's port is stirring from its slumber and plans for the corridor are being dusted off. The immediate reason is the war in Iran. Scores of vessels bound for the Persian Gulf have been rerouted to Lamu's relative sanctuary since February. Yet the renewed discussion of LAPSSET is also a sign of a wider shift in thinking among African policymakers and some investors. Africa is entering a new era ►►



Will they build it?



► of “megaprojects”, schemes costing billions of dollars and affecting millions of people. The question is whether it will accelerate growth or saddle the continent with more white elephants.

Three ventures in particular explain the buzz. In 2025 Ethiopia completed the Grand Ethiopian Renaissance Dam (GERD), Africa’s largest hydropower plant. A year earlier Aliko Dangote, a Nigerian industrialist and the continent’s richest man, started production at a \$20bn oil refinery near Lagos, Nigeria’s commercial capital. Then there is the Lobito Corridor, a multi-billion-dollar rail, port and road system which is set to link Angola’s Atlantic coast to Congo’s copper belt and, eventually, Zambia (see map). The scheme is backed by both America and the EU.

Bright Simons of Imani, a think-tank in Ghana, reckons the ambition of African policymakers “has gone up dramatically”. In January Ethiopia broke ground on a new airport estimated to cost at least \$12.5bn. Nigeria is stepping up long-dormant plans for a \$15bn west African transport corridor. On July 19th west African leaders said construction could begin in 2028 on a \$25bn gas pipeline along the coast from Nigeria to Morocco, where it may connect to Europe’s gas supply. Railway development in Africa is speeding up, according to the Africa Finance Corporation (AFC), a pan-African lender, with some 7,000km under construction and development, more than twice as much as between 2020 and 2024.

Much of this is needed. The OECD, a club of mostly rich countries, reckons that to double Africa’s total GDP by 2040 the continent would need to spend \$155bn (around 5.6% of GDP) per year on infrastructure—nearly twice the annual average from 2016 to 2020 and slightly below the share China was spending at home in the early 2010s (6.7% of GDP). Yet aid cuts and debts are squeezing government finances. In 2025 African countries were projected to

pay \$89bn servicing their debts. That was before the Iran war pushed up interest rates (higher oil prices cushioned the effect in oil-exporting countries, but squeezed finances even more in others).

Private capital is thus required to fill the gap. Between 2021 and 2024 the total amount of private finance raised across all industries in Africa each year rose steadily from \$13.2bn to \$20.4bn. Overall, Africa attracted about \$70bn in foreign direct investment in 2025, the third-highest level since 1990. Philippe Valahu of the Private Infrastructure Development Group says last year was the best for his donor-backed fund, which focuses on Africa and Asia, since it was launched nearly 25 years ago. Despite global crises, this year “the amount of business we are seeing just continues to increase,” he adds.

There are several reasons to expect the push to continue. One is what Sameh Shehouna of the AFC calls the “demonstration effect” of successful schemes like the Dangote refinery. Another is global volatility, particularly in energy markets. Infrastructure that could reduce vulnerability to external shocks appears more urgent.

Take Lamu. James Mwangi, the boss of Equity Bank, a Kenyan lender, argues that LAPSET has “been given a tailwind by the crisis in the Middle East”. On July 7th Mr Dangote said he would build east Africa’s largest oil refinery in Kenya, a decision fast-tracked by the need to curb the region’s dependence on fuel imported from the Gulf. The area around Lamu’s port is reported to be his favoured site.

Competition between China and America has also given large infrastructure investments a boost. America’s International Development Finance Corporation (DFC) is backing the Lobito Corridor with \$550m in the hope of prising the region’s exports of critical minerals away from China. American diplomats are also keen for the DFC to invest in Ethiopia’s new airport, partly to help American construction firms get ahead of Chinese rivals.

Multilateral lenders have had a change of heart, too. In the post-independence era institutions like the World Bank backed lots of grand modernising projects in Africa, before backing away for decades after many failed to take off or became mired in corruption scandals. These days, notes Ndiame Diop, the World Bank’s vice-president for eastern and southern Africa, “the risk appetite for big projects” is higher.

Yet big projects are still controversial. Battles over land use and the environment tend to be especially fierce. On July 7th Ugandan farmers lodged a court case in London to stop a \$5.6bn oil pipeline to the Tanzanian coast, arguing it threatens water and ecosystems (the pipeline’s operating company is registered in Britain).

Such projects also tend to be delayed

and more costly than advertised; by one estimate, some 90% go over budget. In Africa that risk may be higher because of what Mr Simons calls the “corridor premium”: the additional cost incurred by the uniquely severe shortage of infrastructure. For a single project to succeed, he argues, an integrated corridor of power, roads and the like must be in place first. If one piece is missing, the whole scheme can fall apart.

That does not mean the new projects are doomed. Jean-Luc Konan of Neemba, an Ivorian firm that worked on Guinea’s Simandou mining complex, notes that delivering infrastructure “forces you to build long-term domestic capacity”. A country’s ability to execute and sustain big projects can thus grow over time. Ambition alone, however, will never be enough. ■

Mobility in Africa

Electrifying trend

NAIROBI

The accelerating adoption of EVs should save drivers and governments money

ETHIOPIA TRADES in superlatives. It has Africa’s largest dam, is building its largest airport and claims to be the continent’s breadbasket (scepticism abounds). According to its transport ministry, the country has recently added another crowning achievement: following an (unevenly enforced) import ban on vehicles with internal-combustion engines in 2024, it is now the leader of Africa’s electric-vehicle (EV) revolution. Some 115,000 EVs were zipping along its roads in 2025, says the ministry, accounting for nearly 8% of registered vehicles. If true, that would put it above the global average of around 5%.

The figures are almost certainly an overstatement. Experts balk at the transport ministry’s claim of 115,000 active EVs. Even other Ethiopian ministries estimate there were only 15,000 on the roads last year. That would still be an impressive feat for a country that had practically none a few years ago. But it is less an illustration of uniquely ambitious Ethiopian policy than a reflection of a continental trend. African motorists increasingly recognise that going electric can save them money. As the Iran war pushes up petrol prices and pinches pockets, many who can are making the switch.

Buying an EV saves money on fuel in the long run, but the upfront cost tends to be higher than that of a petrol-guzzling alternative. The higher the price of fuel, the more people will take the plunge. Ethiopia started phasing out a fiscally imprudent fuel subsidy in 2024, after entering an IMF ►►

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► programme. The ensuing rise in petrol prices persuaded many Ethiopians to buy EVs. But other Africans have also been going green. Sales of two- and three-wheel EVs on the continent grew by 38% in the year to May 2025, according to the Africa E-Mobility Alliance, a non-profit group. Sales of electric cars rose by 28%.

The Iran war has accelerated the trend. Yuma Sasaki, the founder of Dodai, an EV startup based in Ethiopia, reckons demand for his e-bikes is two or three times greater this year than last. Spiro, a Dubai-based firm that is Africa's leading EV manufacturer, says it has more than 114,000 e-bikes on the road, an increase of 68% since December. BMI Research, a research firm, predicts that 8,300 EVs will be sold in South Africa this year, more than twice as many as in 2025, but still a small share of the 400,000 or so cars sold there annually.

Rising demand is driving investment. In Ethiopia Dodai is building two battery-swapping stations, where riders can switch empty batteries for fully charged ones, every month. Spiro recently raised \$270m in fresh capital, valuing it at close to \$1bn. It is also building a network of stations, particularly in east Africa. In most countries EVs are currently usable only in big cities, where charging or battery-swapping are available. But the infrastructure is expanding. Gagan Gupta, Spiro's founder, claims that by next summer it will be possible to travel from Kenya through Uganda to Rwanda on one of his e-bikes.

Spiro also plans to build four big "mother plants" in the Democratic Republic of Congo, Ethiopia, Kenya and Nigeria to manufacture many of the components of its e-bikes, which can then be assembled in smaller facilities across the continent. The firm expects to buy some \$400m-worth of batteries this year, rising to nearly \$1bn-worth in 2027. It hopes to entice battery manufacturers to set up factories in Africa to supply its plants. "Because of our size and scale, we are able to push manufacturing closer to the continent," Mr Gupta says, adding that this could lower production costs further.

Potholes lie ahead. Only two-wheeled EVs seem likely to scale up in Africa in the near future. Electric cars remain prohibitively expensive for most drivers, and charging stations suitable for them are much costlier to build than those that serve e-bikes. Vast improvements to Africa's shoddy power grids will also be required so that charging stations function.

Yet African governments have every reason to speed things along. Building the infrastructure necessary for EVs would mean less-polluted cities and more reliable power for citizens. It could also save cash-strapped treasuries billions of dollars on fuel imports. Africa's EV revolution cannot move fast enough. ■

Media in Africa

The enduring appeal of the radio

Despite smartphones and social media, many Africans are still tuning in

KENYA'S COMMUNICATION authority is facing what may seem like an odd problem in the digital age: Nairobi's airwaves are clogged. Kenya has more than 250 FM radio stations and multiple aspiring stations. In big cities such as the capital, would-be radio stars complain that there is no room to license more.

The problem reflects the surprising endurance of the radio in Africa. As social media and smartphones proliferate, you might expect them to have triumphed in the battle for attention. Yet, according to a survey published in April by Afrobarometer, a pollster, the hold of radio news on the continent remains strong.

Broadcast towers first went up across Africa in the 1920s. Colonial regimes used the radio for propaganda. Liberation movements set up clandestine stations to organise resistance. In the 1960s postcolonial governments started subsidising transistor sets; state-controlled frequencies advertised the grand modernist dreams of nation-builders.

Sometimes they were used for more sinister purposes. In the run-up to the genocide in Rwanda in 1994, a station associated with the Hutu-led regime stirred up hatred by calling Tutsis "cock-roaches". Yet around the same time, democratisation across the continent

forced the liberalisation of state controls. Commercial stations proliferated.

In recent years, social media have galvanised angry young people protesting against governments from Kenya to Madagascar. Yet around 60% of people in cities and in the countryside still listen to news on the radio multiple times a week, according to Afrobarometer. Even young people do so. Some 55% of Africans aged between 18 and 35 say they regularly get their news from the radio, just a little less than the 58% who cite social media as their main source.

What explains the enduring appeal? Radio is low-cost and easy to access. FM radios are embedded in even the cheapest phones and don't require pricey mobile data to tune into. Many listeners call in to shows while stuck in traffic in Africa's megacities.

Rather than hurt radio, the internet may be helping its stars. Big-name presenters have become social-media celebrities. One, in Kenya, brags that he now makes most of his money online from brand endorsements after becoming famous on the radio. Kenya is also harnessing the internet to solve its frequency shortage. Following Ghana and Senegal, it is trialling DAB radio, which compresses radio waves into digital data to make room for more stations.



Getting their news

RULES-BASED DISORDER

Can prediction markets cope
with the messiness of world events?



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The mayor of Scamtown

A young politician in the Philippines was accused of being a Chinese spy. The truth, Sue-Lin Wong and Lian Buan discover, was even stranger

Anyone's guess

As prediction markets make wagers out of world events, the rules they use to settle bets are proving controversial. Avantika Chilkoti investigates

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Wake up and smell the coffee

Tomas Weber meets the man who thinks a long-lost species could save the brew from climate change

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Brought to heal

Cuba's doctors are its most valuable export, making them a target for Trump. Sarah Esther Maslin takes their temperature

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ANYONE'S GUESS

Prediction markets let their users bet on a multitude of real-world events. But when reality is contested, asks Avantika Chilkoti, who gets to decide what happened?

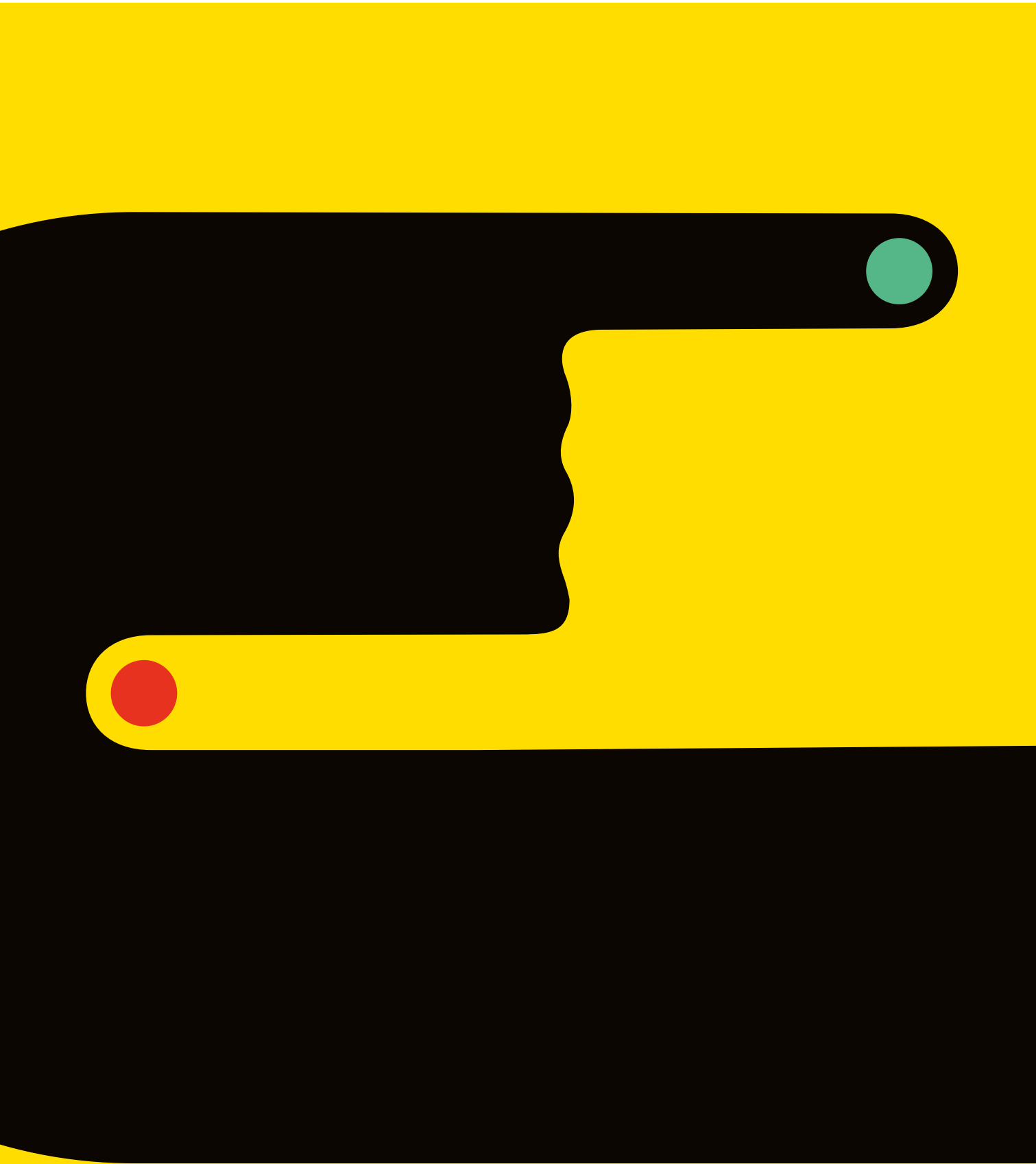
Two months before Venezuela's presidential election in 2024, a professional gambler known as Domer decided to take a punt on the incumbent, Nicolás Maduro. There was no guarantee Maduro would win: Venezuela's economy had been wrecked by years of mismanagement, and the opposition had united behind a credible opponent, Edmundo González. But Domer knew Venezuela had a history of sham elections and suspected that Maduro wouldn't relinquish power. Domer logged on to Polymarket, a prediction market, and started to place a series of bets on Maduro winning the election.

Polymarket and its main rival Kalshi—from the Arabic for “everything”—allow users to wager on the outcomes of real-world events. Will Binyamin Netanyahu leave office this year? When will Taylor Swift announce she is pregnant? Will America confirm that aliens exist?

Whereas casinos and bookmakers operate as “the house”, setting the odds and taking the opposite side of every bet, prediction markets let punters trade against one another. The platforms are appealingly simple to use. Traders log in, pick an event market (for example, whether Maduro will win the

**MILLIONS ARE TRYING THEIR LUCK, FROM STAY-AT-HOME
MOTHERS TO FINANCE STUDENTS TO DELIVERY DRIVERS**

ILLUSTRATIONS **NOMA BAR**



election), and choose between “yes” or “no” outcomes. What they’re really doing is buying a contract that pays a dollar if their prediction is correct and nothing if it’s wrong. Because of that, prices always stay between \$0 and \$1, which neatly reflects the probability the market puts on an event occurring. For example, if a “yes” contract on Maduro winning is priced at 62.5 cents it implies traders collectively believe there’s a 62.5% chance that will happen.

As the election drew closer, Domer noticed footage of large opposition rallies spreading across social media and thought González sounded increasingly confident. Yet Polymarket traders continued to give Maduro around an 80% chance of victory.

By this point Domer had made scores of trades, buying and selling both sides as the odds changed, even though a Maduro victory would still be his most profitable outcome. But the night before the election, Domer unexpectedly changed his position. He placed big bets on Maduro losing and on González winning. “It’s smart to bet against what people collectively believe,” he told me when we spoke in May. Domer stood to lose several thousand dollars if Maduro stayed in power, but earn tens of thousands if González won. It wasn’t that Domer had changed his mind about the most likely outcome—“Everyone expected the election to be rigged,” he said. But he hoped that a strong challenge to the official result would shift the odds enough for him to make a profit by selling his González victory contracts at a higher price.

The election unfolded as expected in late July, when Venezuela’s authorities declared Maduro the winner with 51% of the vote. But even Domer hadn’t foreseen what came next. The opposition released voting receipts printed from election machines across the country, which showed that González had won decisively. Both candidates claimed victory. China, Cuba and Iran congratulated Maduro, while most Western democracies rejected the official result.

In Caracas, Venezuela’s capital, angry crowds protested in the streets. The chaos was mirrored on Polymarket, where the odds of a win for Maduro swung wildly as traders reacted to competing claims. As millions of dollars became tied up in the outcome, the dispute escalated into what traders call a “rules fight”—a contest not about what was happening in

the real world, but about how Polymarket should define what had happened.

Arguments broke out in the comments section of Polymarket, and on X and Discord, the social-media sites of choice for betting nerds. Some wanted Polymarket to settle the bet as a win for Maduro; others wanted it to reflect the reality that González got more votes. “Maduro has been announced as the official winner via official channels. Anything other than resolving this market to yes soon would

On August 4th he did something that traders who later lost money would never forgive him for. In a 1,500-word post on X, he argued that Polymarket should resolve the market as a win for González. “The other road—rubber stamping a laughably stupid fraud, because an official state actor says so—seems like a far riskier road for prediction markets to go down,” he wrote, implying that the platforms shouldn’t be seen as condoning cheating.

Two days later, with more than \$6m



be a straight-up scam,” said one user. Another wrote: “The bet is on the election’s winner, not on who holds power.”

Domer continued betting on González. He was following updates obsessively and had stopped sleeping and eating properly. When markets are contested, traders’ arguments can shape how Polymarket settles a bet. “If there’s a rules fight you’re defending your idea and you have to be very persistent about it,” Domer explained. “If you’re sleeping, that is time for other people to spread their propaganda.”

wagered on the election, Polymarket closed the market as a win for González. Domer made more than \$50,000—the biggest profit on the trade. The outcome provoked fury among some users, who argued that, as a “whale” with a big online presence and more than \$4m in cumulative winnings, Domer had improperly swayed the decision. (When I put this to Polymarket, a spokesperson responded: “This is false.”) Someone on X wrote: “Ironical that you respond to Maduro rigging the election by trying to rig the

prediction market.” Domer said people confront him about the trade to this day; last year an X user called him a “manipulative psychopath”.

It’s not just full-time punters like Domer piling into prediction markets: millions are trying their luck, from stay-at-home mothers to finance students to delivery drivers. Nearly 40% of American men aged 18 to 34 have placed a bet on a prediction market, along with more than 20% of young women. In June Kalshi

To prevent manipulation and insider trading, the exchanges have increased surveillance and have suspended and fined offenders. Both Kalshi and Polymarket told us they had processes in place to deal with suspicious activity and refer trades to law enforcement and regulators where necessary. But, as the 2024 Venezuelan election exposed, prediction markets suffer from a more fundamental weakness: ambiguity in their rules. In the race to attract users, the platforms have

The central challenge of economics, Friedrich Hayek argued in the mid-20th century, is the “knowledge problem”: how governments and businesses can harness information scattered across millions of people. By the 1980s economists were growing excited about a potential solution: prediction markets.

The hope was that allowing participants to trade contracts on future outcomes would create prices reflecting the

IN THE RACE TO ATTRACT USERS, THE PLATFORMS HAVEN’T GIVEN ENOUGH THOUGHT TO THE RULES ABOUT HOW TO SETTLE BETS

processed \$33bn in trades; Polymarket handled almost \$14bn. The platforms are backed by founders of finance firms, such as Charles Schwab and KKR, alongside tech companies such as Palantir and Airbnb. Based on recent news reports, Kalshi and Polymarket are fundraising at valuations of around \$40bn and \$15bn, respectively. The bosses of these platforms, all 30 or under, are among the world’s youngest self-made billionaires.

As prediction markets have grown, cases of insider trading and market manipulation have grabbed headlines. In April a soldier involved in Donald Trump’s raid on Caracas to capture Maduro was accused of making around \$400,000 on Polymarket by using top-secret information to make a bet. Around the same time, French authorities opened an investigation after a weather sensor at Charles de Gaulle airport was allegedly manipulated with a hairdryer—a ploy that could have made thousands of dollars for Polymarket traders betting on Paris’s peak temperature. Last year the boss of Coinbase, a crypto firm, ended a call by reeling off buzzwords that punters had bet on him saying, including Ethereum, blockchain and Web3. More recently, a little-known indie pop song released in 2024 unexpectedly reached number one on Spotify USA, just as suspicious bets were placed on Kalshi as to whether the singer would top the chart by the end of June. Spotify later removed more than half a million streams after finding signs of bot activity. “It is really the Wild West right now—anything goes,” said Andy Kim, a Democratic senator from New Jersey who has co-sponsored legislation to tighten rules around prediction markets.

been launching new markets without giving enough thought to how their bets should be settled.

That matters, especially because prediction markets are expanding beyond the relatively straightforward two-way bets that gamblers have wagered on for centuries—such as sport results and election outcomes—into murkier territory. Did Israel “invade” Lebanon when it began limited ground raids? Was Ukrainian President Volodymyr Zelensky really wearing a “suit” when he ditched his military fatigues for a black jacket and trousers at a summit? Did Cardi B “perform” at the Super Bowl when she briefly appeared in the background of another artist’s set?

In the most extreme cases, ambiguous rules have led to multimillion-dollar disputes, with traders clashing over how markets should be resolved and exchanges forced to make costly payouts. The biggest losers, however, are often ordinary users. Unlike deep-pocketed whales such as Domer, they may not understand how to interpret the nuances of the platforms’ rulebooks.

The credibility of prediction markets, meanwhile, is on the line. They present their odds as reliable forecasts: both platforms have formed partnerships with media networks and their stats are cited alongside those from established pollsters. Their goal is to compete with traditional financial markets, allowing asset managers and hedge funds to bet directly on the future rather than relying on complex portfolios of stocks and bonds as proxies. But Wall Street institutions will shy away from betting contracts with fuzzy wording. And if the rules governing these platforms can’t be trusted, neither can their odds.

“wisdom of crowds”. When people put money behind their forecasts they are more likely to spend time doing research and to challenge their own biases. Prediction markets could therefore be a more accurate and responsive guide to the future than expert forecasts or opinion polls. As Justin Wolfers of the University of Michigan put it, “the average estimate of any ten dumb people is better than that of one dumb person.”

In 1988 the University of Iowa launched the first serious prediction market. Studies found that the Iowa Electronic Markets (IEM), which forecast American elections, consistently outperformed opinion polls such as Gallup. In 2014 came PredictIt, a non-profit political betting exchange that was initially run in partnership with a New Zealand university. It quickly became popular with political junkies, proving that as well as money to be made, there was a lot of fun to be had. “People want to prove themselves, especially young men,” said Robin Hanson, an economist who led early research into prediction markets.

For decades, regulation held the platforms back. In America they fall under the Commodity Futures Trading Commission (CFTC), which oversees derivatives markets. The CFTC has, in the past, taken a dim view of prediction markets, worrying about the potential for misuse. Bets on sports and elections also blur into gambling, which is regulated separately by state law.

There were workarounds. The IEM and PredictIt were granted special exemption by the CFTC, with conditions placed on the size and scope of bets they offer. But there were also casualties: Intrade,

an Irish exchange, collapsed after it was sued by the regulator for allowing unauthorised trading by Americans. For a long time, it looked impossible to run a large, for-profit prediction market in America—until Kalshi came along.

When I met Luana Lopes Lara, the platform's 30-year-old co-founder, in May she described herself variously as “resilient”, “stubborn” and “OK with suffering for a long period of time”. Growing up in Brazil, she trained as a ballerina at the Bolshoi Theatre School, an offshoot of the Russian institution, dancing for hours each day and tracking her calorie intake to a fraction of a strawberry. She somehow found time to win medals in international maths and science competitions before going on to study computer science and maths at the Massachusetts Institute of Technology (MIT).

Also on her course was Tarek Mansour. Like Lopes Lara he had grown up outside America—in Lebanon—and was intensely driven: he had reportedly taught himself English and was a competitive skier. In summer 2018 the friends interned at Five Rings Capital, a quantitative trading firm in New York. They noticed that investors often used complex bundles of stocks, bonds and currencies to bet indirectly on events like elections or economic data releases. It made them wonder why investors couldn't bet on the event directly. And why shouldn't these bets be opened up to the public?

There was one big hurdle to overcome. Mansour and Lopes Lara were determined to build a CFTC-regulated exchange. “From the start we had this deal that we're never going to do anything that breaks

markets on everything from the Oscars to the fate of legislation going through Congress. Mansour and Lopes Lara managed to secure investment from venture-capital firms. But Kalshi remained niche, used by a few traders making modest bets.

The platform took off in the run-up to the 2024 American presidential election. The CFTC had tried to block the exchange from listing election markets, arguing that political betting amounted to “gaming” and could threaten the integrity of the electoral process. But Kalshi challenged the decision in court, claiming that the regulator was overstepping its authority.

Weeks before the election, a federal judge sided with Kalshi. The platform began taking bets almost immediately. In the week of the presidential vote, the exchange processed around \$750m in trades—more than it had handled in its entire history. While political pundits and pollsters agonised over the outcome, traders on Kalshi were leaning towards Donald Trump, proving the wisdom of crowds once again.

By choosing to play by the rules, Kalshi has taken a difficult path. It must verify the identity of its traders, take steps to prevent market manipulation and submit its rules to the CFTC. Its chief rival, Polymarket, founded by a cherub-faced New York University dropout called Shayne Coplan, took the opposite approach. Even though its main office is in New York, the company claims to be based offshore, beyond the reach of American law. Its international exchange also operates in cryptocurrencies rather than dollars, allowing users to trade anonymously.

original platform using tools that mask their location. In June trading volume on the regulated exchange was about 30% of that on the unregulated international site.

Since Trump's re-election, both firms have had an easier ride. The president has turned the CFTC from watchdog to cheerleader, purging officials who took a tough line on prediction markets and backing the exchanges against state governments trying to restrict them under local gambling laws. His son, Donald Trump junior, is an adviser to both Kalshi and Polymarket. Even if a more cautious Democratic administration takes over, it seems unlikely that the industry will be banned, given how big it has become.

One serious threat to prediction markets could lie within. Lopes Lara told me she sees Kalshi's ability to define and resolve bets clearly as “existential”. “At the end of the day we're going to grow a lot faster if the users trust that we are going to settle things correctly,” she said.

If Lopes Lara and Mansour are king and queen of Kalshi, then Xavier Sottile and Nicole Kagan are judge, jury and executioner. As leaders of the markets team, they run the listing and settlement of bets. The pair were star debaters at Yale and Harvard respectively, which stands them in good stead, Kagan told me. Debaters are “very granular, extremely meticulous people who get caught up in words,” she said, adding they are used to having their opinions challenged. “We can volley ideas back and forth with no ego.”

To come up with bets, the markets team scans the news and takes sugges-

IN GEOPOLITICS OR ENTERTAINMENT, OUTCOMES CAN BE MORE AMBIGUOUS THAN THEY ARE IN SPORT, MAKING RULES TRICKIER TO WRITE

the law,” Lopes Lara said. The CFTC made them answer long lists of questions about market manipulation and insider trading. Despite the arduous back-and-forth, the pair were convinced their startup was well within the law. Timing was on their side: the rise of cryptocurrency had shown regulators how quickly financial activity could grow outside traditional oversight, making bans feel pointless.

In 2020 Kalshi was approved as the first regulated American exchange dedicated to trading contracts tied to events. It listed

“You have two horses,” Lopes Lara said of the two firms' rivalry, “but one has a carriage to pull and the other is free to run.”

Not that Polymarket has had entirely free rein. In 2022 the CFTC accused the firm of running an unlicensed exchange. In a settlement, Polymarket paid a \$1.4m fine and pledged to stop taking bets from Americans. It has since launched a regulated American platform, Polymarket US, which takes dollar-denominated trades and operates under the same rules as Kalshi. But many users still access the

tions both from Wall Street and from traders on Discord and X. On any given day, Kalshi has more than 10,000 live markets. “We have a bias to list,” said Kagan, which makes sense as the firm makes money from transaction fees.

Then comes the tricky part: writing the rules. Many markets follow existing templates, but fresh guidelines are sometimes required for a new market. Either Sottile or Kagan takes the lead, pinning down every detail—from when a market should settle to the source Kalshi will use



to decide the outcome. For interest-rate decisions it might be a central bank, and for something like a celebrity-wedding location, a reputable newspaper.

Drafting the rules can take weeks. Noah Zingler-Sternig, who until recently ran operations at Kalshi, described a “two-sided mandate”: rules must be detailed enough to eliminate ambiguity, yet simple enough for traders to understand. “If an exchange is optimising to write perfect rules, they’re never going to list a single market,” he told me. When the

team is satisfied with the rules, they run them through an AI tool for a final check before sending them to the CFTC.

Some bets are easier to define than others. In sport, which still accounts for the vast majority of trading on prediction markets, outcomes are usually clear-cut: there are only so many ways a game can go, and the league or association governing the sport is an obvious source. Centuries of betting have also created conventions for handling unexpected outcomes, such as rain delays or disputed calls. In

areas like geopolitics or entertainment, outcomes can be more ambiguous, making rules trickier to write.

The Super Bowl provided the backdrop for two of Kalshi’s most popular markets. One was on which firms would advertise during the broadcast. Kalshi listed dozens of brands, and users took yes/no positions on whether each would appear. (A 30-second advert mid-match counted; brief logo flashes on stadium billboards didn’t.) Sources were listed in order of precedence: first the National Football

League, then broadcasters such as CBS Sports, then other media outlets.

The other was on who would perform during the halftime show. Kalshi defined a performer by their legal name, stage name or widely recognised professional identity. What counts as a performance, though, has since had to be tightened. After Cardi B's brief appearance this year, the rules were updated to clarify that "singing" could either mean being the "audible lead or [providing] backing vocals".

"We're always learning," Kagan said, "and it's pretty often public." For typos and omissions in its rules, Kalshi runs a bounty scheme that pays users rewards ranging from \$25 to more than \$1,000. One bounty hunter, who goes by ProTrader on Discord, told me he has carved out a niche in misspelt names. His first prize was \$25 for spotting the New York City mayor's first name written as "Zorhan". He later built a tool that scanned the rules for a market on candidates for the Texan Senate and made \$350 by flagging around ten errors at once.

Users' main gripe with Kalshi is its insistence on adhering strictly to its rules, even when that produces perverse outcomes. The exchange settled a market on how many people had watched the 2025 Oscars by using as its source a *New York Times* article, which cited an estimate of 18m by Nielsen, a research firm. When Nielsen later revised the audience figures to 19.7m, Kalshi refused to overturn its decision, arguing that its rules forced it to settle based on the first reported figure.

The bet on whether Anthropic would advertise during this year's Super Bowl—which took in \$33m from punters—closed as a "no", despite the AI company running an ad for its chatbot, Claude. Kalshi argued that the advert didn't mention Anthropic itself, as per its rules. "You guys are scammers," one user commented on Kalshi's website. "We all have been cheated," another complained.

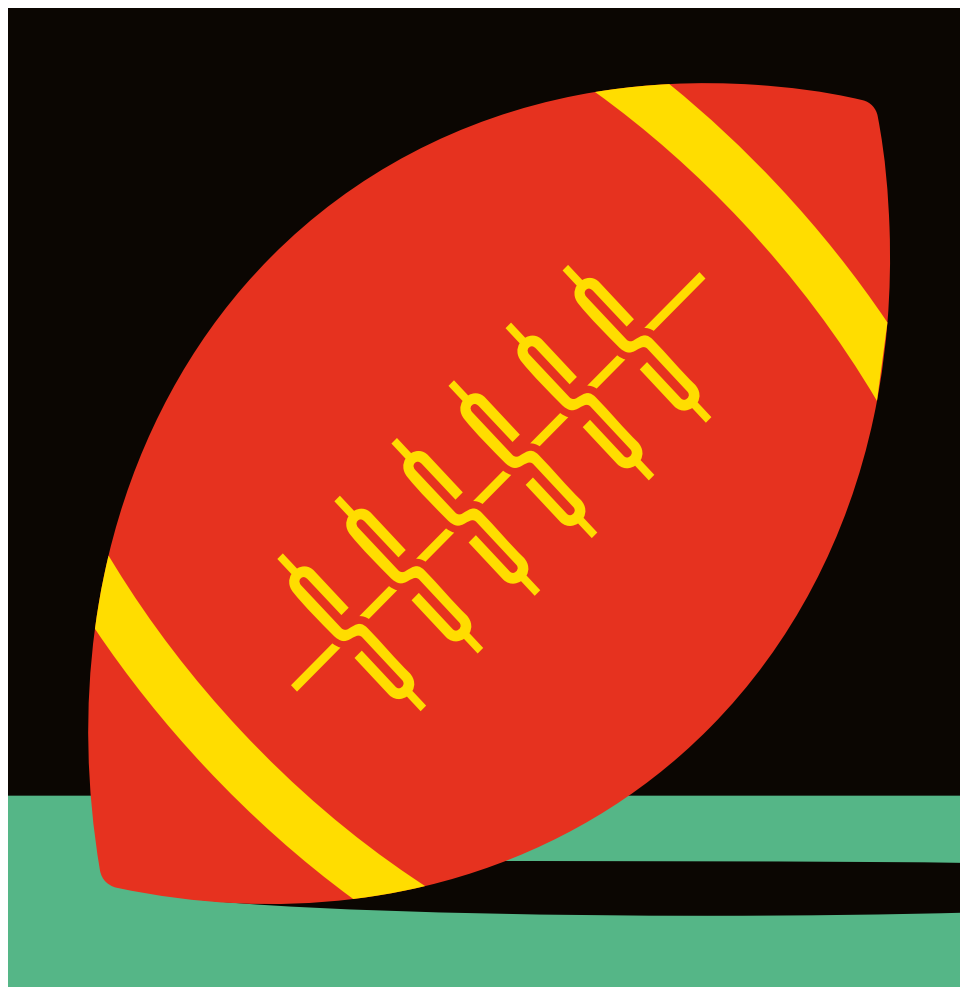
To Scottilicious, a trader who has made over \$1.5m from forecasting, Kalshi's insistence on following the rules to the letter misses the point of prediction markets. "When you're placing a trade it is to predict what's going to happen in the real world," he told me, "not fit some very definite paradigm." That rigidity reflects the fact that Kalshi answers to American regulators. Polymarket's main exchange, by contrast, prefers to settle disputes on what Scottilicious calls "vibes".

Earlier this year, both platforms were

running markets on when Ali Khamenei would be "out" as Iran's Supreme Leader. Punters poured in money as tensions between Iran and America ramped up.

On February 28th America and Israel launched strikes on Tehran, prompting a furious burst of activity on Kalshi, even though it was still the middle of the night for its mainly American users. As rumours of Khamenei's possible demise circulated, the odds of him being "out" jumped sharply. Within hours, Western media

ran rolled in, Kalshi kept taking bets and promoted the market on social media, to the consternation of some users. On Discord, Domer warned that the Khamenei markets risked turning into "a macabre circus". Others argued the rules were technically clear but asked how the time of death would be determined. One user added they expected the market to settle at the pre-strike price, "instead of incentivising murder", and hoped the platform would "do the right thing".



outlets were reporting that Khamenei was presumed dead, even though Iranian officials insisted he was safe.

Kalshi's market had ostensibly been on Khamenei's peaceful departure from office—by federal law, the CFTC is allowed to ban markets on war or assassination. Kalshi's rulebook included a so-called death carve-out, specifying that if Khamenei died the market could settle not as a "yes" or a "no" but at the last traded price "prior to the death".

But even as reports of strikes on Teh-

By mid-morning, Sottile and Kagan realised they had to step in. Kalshi has a process for clarifying ambiguities quickly without involving too many people (this is partly to avoid insider trading). Once the team becomes aware of a dispute, it can pause trading for a few minutes, clear the order book (so bets that have yet to go through are cancelled) and issue a clarification. All traders receive a notification and an update appears on the website in a bright green box. But the clarification Kalshi posted that morning only added

to the confusion. It said the market would settle at the last traded price before “confirmed reporting” of death. Traders said this differed from the wording in the rules, which referred to the death itself. Given how sharply prices had moved that day, the distinction could make a big difference to payouts. Also, wondered traders, what counted as confirmation? On Discord users began tagging Kalshi staff. “This is a huge deal,” one user commented.

Around midday Kalshi clarified its

In a class-action lawsuit over the Khamenei market, brought on behalf of more than 100 traders, Kalshi is accused of “unfair competition, deceptive corporate behaviour and consumer fraud”. Kalshi denies wrongdoing. The firm calls episodes such as this “edge cases”: rare outcomes nobody had foreseen. Yet as prediction markets expand into ever more areas of life, unexpected events will happen more often. The challenge will lie in tightening the rules while keeping traders on side.

to one of the biggest Polymarket trading accounts voted in 41 markets which that account had bet on. In more than half the instances, the tokenholder was on the winning side, resulting in \$7.4m of profits (including \$1.8m on whether America would ban TikTok before May 2025, \$1.3m on whether Israel and Hizbullah would agree a ceasefire in 2024 and \$1m on whether Israel would strike an Iranian nuclear facility that same year).

When contacted for comment, Poly-

A BET ON WHETHER ANTHROPIC WOULD ADVERTISE DURING THE SUPERBOWL CLOSED AS A “NO”, DESPITE THE COMPANY RUNNING AN AD FOR ITS CHATBOT, CLAUDE

clarification. If Khamenei died, the market would settle “upon the confirmed reporting of the death” at a price “based on the last traded price prior to death”. If that price was unclear, the exchange would convene a three-person committee to determine a fair outcome. To Flip Pidot, who does a similar job to Sottile and Kagan at PredictIt, this was a case of “sloppy rules, followed by sloppy adjudication”.

Around 10pm that night Kalshi emailed traders to explain that bets made before the strikes would be settled at the price just before they happened, while bets placed afterwards would be cancelled and stakes and fees refunded. It was a rare case where Kalshi paid users out of pocket. The bill reportedly came to around \$2.2m. “I’m sorry for the disappointment,” Mansour tweeted. “We’ll improve, thank you for bearing with us.” (Kalshi has since changed its rules to say the firm can suspend trading if it “reasonably believes” that a death “has occurred, is imminent, or that circumstances giving rise to the death may be occurring”.)

Still, many punters who had bet that Khamenei would be out of office were irate. They had expected to be paid out in full and believed Kalshi was depriving them of their winnings. They had become, in traders’ jargon, “rules cucks”, cheated by Kalshi’s adherence to the rules. They argued it was disingenuous to list a market on Khamenei leaving office if assassination wouldn’t count. Users also claimed that Kalshi hadn’t applied its rules consistently. When Jimmy Carter, the former American president, died before Trump’s inauguration, Kalshi quietly settled a market on whether he would attend the ceremony as a “no”.

Kalshi’s insistence on doing things by the book can frustrate its users. But Polymarket’s “vibes”-based culture leads to even bigger problems.

The exchange’s rules around trades are short and loosely worded, with outcomes relying on a “consensus of credible reporting”, a standard that Polymarket describes as “flexible”. When markets are contested, the platform outsources resolution to holders of a cryptocurrency called UMA. As Coplan, the founder of Polymarket, put it during a talk at Harvard University: “That’s where shit gets messy.”

Until recently, anyone has been able to suggest a market should close in a certain direction. In the event of a dispute, UMA tokenholders can vote for one of four options: yes, no, 50-50 (if the outcome is unclear), or too early to call.

The process is far from democratic: the more UMA tokens someone has, the more weight their vote carries. In an analysis for *The Economist*, TRM Labs, a blockchain investigations firm, looked at more than 3,250 UMA disputes over the past three years. It found the five biggest wallets together controlled on average 40% of the vote and the ten biggest almost 58%. In recent disputes, the largest wallet, known as BornTooLate.eth, held almost 8% of the vote.

There is also nothing to stop a trader from voting on the outcome of a bet they have made themselves. I asked Dune, a blockchain data provider, to find out if this was happening. Analysts at the firm linked eight of the 200 most profitable wallets on Polymarket to UMA voters by tracing funds that were moving between them. In one case, a UMA tokenholder linked

market said that 99.986% of markets resolve without objection and pointed out that the exchange doesn’t stand to gain financially if a market closes one way or the other. “We are the most transparent marketplace on the planet, and view democratisation and scrutiny as a feature,” a spokesperson said.

One of the most contentious markets ever listed on Polymarket was on whether America and Ukraine would reach a deal on critical minerals by April 2025. In late February the odds surged after officials said an agreement had been reached. But following a heated meeting between Trump and Zelensky days later, talks collapsed before any paperwork was signed. The odds of a deal crashed from almost 100% to around 40%. A few weeks later, with no updates from either side, a trader called 50-Pence proposed closing the bet.

There is a 48-hour voting period for UMA holders. During that time, many tokenholders state which way they are leaning on Discord (though there is no way to tell how they voted as the ballot is secret). Meanwhile, trading continues on Polymarket, so prices can move even as the outcome is being decided.

Some voters said that the February announcement meant a deal had already been reached, even without signed paperwork. Others pointed out that another market on whether a deal would be reached on the day of the White House meeting resolved as a “no” (meaning that a deal hadn’t been reached), and that it was too early to settle this one. Prices swung with each new post on Discord.

Minutes before voting ended, Polymarket shared a notice on its website:

"The US and Ukraine have not mutually agreed to a qualifying deal. It is too early to resolve this market." The odds of a deal dropped. Many traders understood that UMA tokenholders rarely go against Polymarket's guidance, but some did not realise it was too late to change votes that had already been cast. When the ballots were counted, "yes" won, with roughly 55% of the vote (BornTooLate.eth controlled 6.87% of the total, according to Dune data). UMA tokenholders had decided there had been a deal, even though to all intents and purposes there hadn't.

Polymarket has on occasion overturned UMA decisions, including on a bet about whether Barron Trump, the president's son, was involved in the creation of a cryptocurrency associated with the family. In the case of the Ukraine minerals deal, the firm apologised to traders but stopped short of issuing refunds. "This is an unprecedented situation," a Polymarket official wrote on Discord. "This is not a part of the future we want to build."

Ironically, disputes often fuel trading. Take a Polymarket bet on whether Portugal captain Cristiano Ronaldo would cry at the FIFA World Cup. Shortly after Portugal was knocked out by Spain, about \$2m had been staked. Then the debate took off. Had Ronaldo actually cried, or was it sweat? Punters dissected close-ups of his face, some doctored to add tears. By the time UMA voted that Ronaldo had cried, almost \$90m was on the line.

Since the minerals deal market controversy, the rules have been changed so that only a select "whitelist" can propose closing a market, including longtime users, Polymarket staff and the team be-

power they wield. A group called UMA.rocks pools votes from roughly 55 tokenholders and casts them through a three-person committee, effectively controlling around 8.5% of ballots (the size of the syndicate fluctuates). One committee member, whose username is JessicaOnlyChild (a reference to the Korean film, "Parasite"), posts detailed analysis on Discord ahead of votes, a time-consuming task given that dozens of markets can be disputed on any given day. Some traders suspect the person behind the account is making big money on Polymarket. I tried to contact the user on Discord but received no reply. Lancelot Chardonnet, UMA.rocks's founder, told me that JessicaOnlyChild runs a data-centre business, doesn't trade on Polymarket and takes part in UMA debates purely for fun. "It's a strange hobby," he said. "But then, some people collect stamps."

Because UMA holders lose tokens for voting against the majority, many watch UMA.rocks's comments on Discord closely. Polymarket traders have told me they switch their bets if UMA.rocks and JessicaOnlyChild appear to be voting the other way. One Polymarket trader, ContraQ, looked at more than 300 disputes in the first quarter of this year and found around 100 cases where UMA.rocks and JessicaOnlyChild both signalled they planned to vote either yes or no. In all those cases, the bet closed the way they were leaning. "It's extremely profitable following their opinion," he said. The result is that Polymarket traders are no longer basing their predictions on what they think will happen in the world, but on how they think the most powerful

At the entrance to Kalshi's office in Manhattan's Chelsea neighbourhood—past a reception desk scattered with poker chips—hangs a still from a CNN broadcast showing Kalshi's odds on a third term for President Trump. The firm moved to the office last September and already needs more space; in that time, its workforce has more than doubled to 170 employees. "It's crazy," said Lopes Lara.

Another sign of how far prediction markets have come is their growing presence on the conference circuit. There used to be only one event worth going to: Manifest. Held in Berkeley, California, it was described by the *New York Times* as "equal parts Math Olympiad and Burning Man". A few years ago, in a clear case of insider trading, a bet on whether there would be an orgy there closed as a "yes".

In March Kalshi held its first research conference in New York. A few weeks later I attended a prediction-market event in Las Vegas—an awkward setting for an industry trying to distance itself from traditional gambling. Over cups of tepid coffee and toothpicks stacked with tiny mozzarella balls, I met college dropouts building startups that aggregate data across exchanges, entrepreneurs pitching prediction-market kiosks for petrol stations, and young women aspiring to be prediction-market influencers. Punters greeted each other by their Discord handles and dissected old trades. "Nicole" and "Xavier" were spoken of as if they were old friends.

Domer turned up looking nondescript in a blue polo shirt and thick plastic glasses. But people in the crowd spotted him immediately. Domer, whose real name

POLYMARKET TRADERS ARE BASING PREDICTIONS NOT ON WHAT THEY THINK WILL HAPPEN, BUT ON HOW THEY THINK MOST POWERFUL UMA TOKENHOLDERS WILL VOTE

hind UMA. (Others can tag them on Discord and ask them to intervene.) Before, a simple majority was all that was needed to resolve a market in one direction; now you need 65% of the vote. Hart Lambur, co-founder of UMA, denied that some tokenholders had outsize influence. "A big holder who votes for a falsehood only profits if everyone else also lies, and with no way to co-ordinate that in advance, large stakes have the same incentive to vote honestly as small ones," he told me.

UMA voters are unapologetic about the

UMA tokenholders will vote.

Coplan has hinted that UMA could soon be replaced, though it is not clear with what. Polymarket's whales believe the system is broken. 50-Pence compared the exchange to a struggling casino group with expansion plans: "They want to build a swimming pool. Meanwhile, there are people fighting the card dealers." Domer was even more direct: "UMA is far more vulnerable than it was a year ago," he posted on X in April, "and the inmates are starting to take the asylum."

is Ken, knows Las Vegas well. He moved there in his 20s to become a professional poker player. One night, scrolling on his phone between hands, he discovered InTrade, the Irish prediction market that was a forerunner to Polymarket and Kalshi.

His first big win on InTrade was in 2008. John McCain, the Republican presidential candidate, was due to announce his running mate at Wright State University in Ohio. Few expected him to pick Sarah Palin, the inexperienced governor of Alaska. But Domer, who was tracking ar-



rivals at airports near the university, spotted a plane from Anchorage. Twelve hours before McCain's speech, he staked \$1,000 on Palin. The payout was \$25,000. He quit poker soon after and turned to "future-gazing" full time, adopting as a pseudonym the nickname given to fans of his beloved University of Notre Dame football team. His profile pictures cycled through Ryan Gosling stills; when Gosling played Ken in *Barbie*, the image stuck.

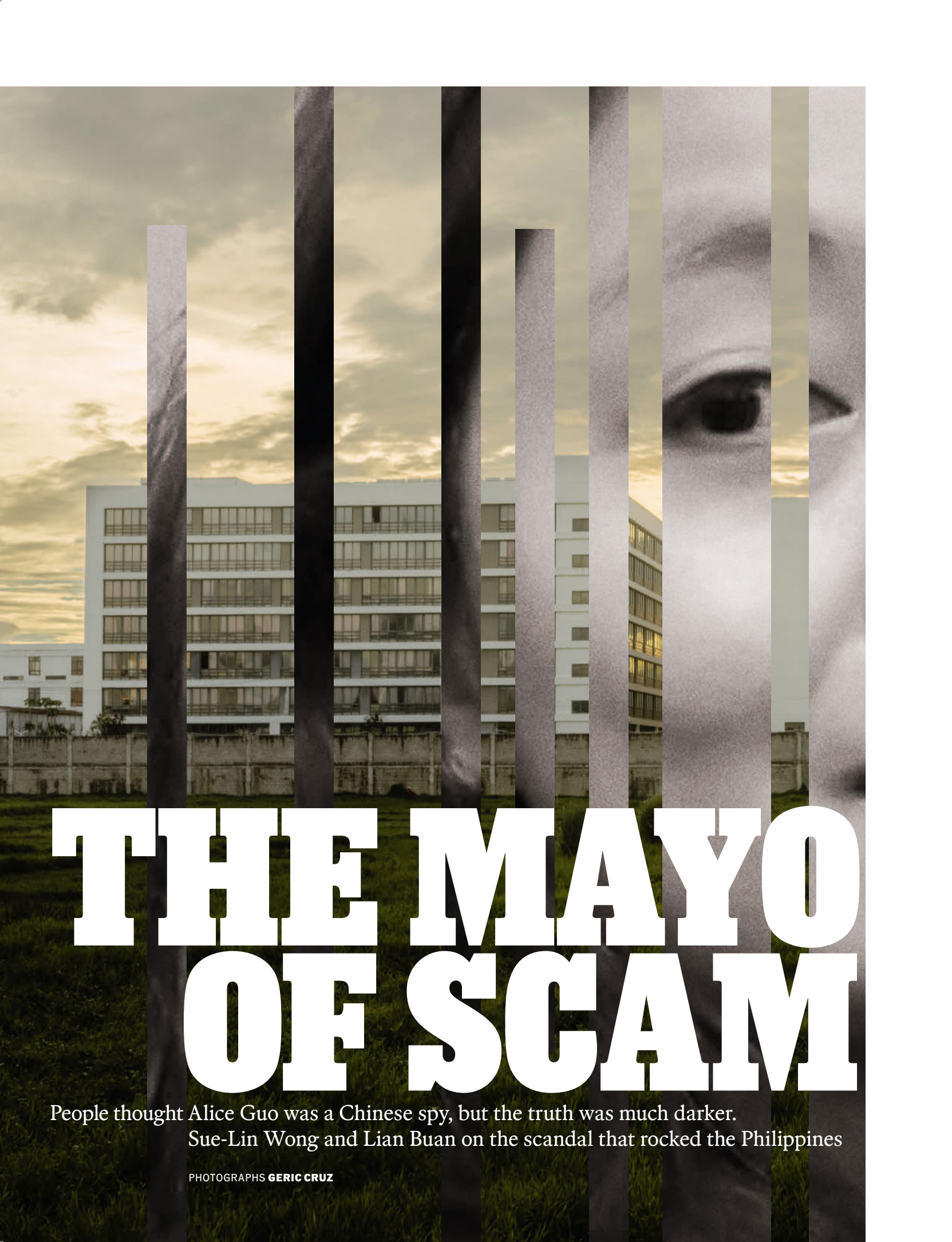
Over the years, Domer has become a prediction-market celebrity. Traders copy

his bets and exchanges ask his advice. At the conference's welcome drinks, the organiser even called for a round of applause. "This is the direct opposite of my personality," Domer told me afterwards.

Jeff Yass, co-founder of Susquehanna, an investment firm, also used to be a professional poker player in Las Vegas. Whether a bet is made in a casino, on Wall Street, or on prediction markets, Yass sees them as fundamentally similar: "They're decisions made under uncertainty." As more money flows through

prediction markets, Susquehanna's interest in the industry is growing. The firm has around 75 staff trading in prediction markets; Yass hopes this figure will soon rise. He is mindful that the platforms still have some growing-up to do, but told me Susquehanna is closely watching top traders. "We're losing a lot of money to people that are smarter than us", he said, "and we'd like to hire them." ●

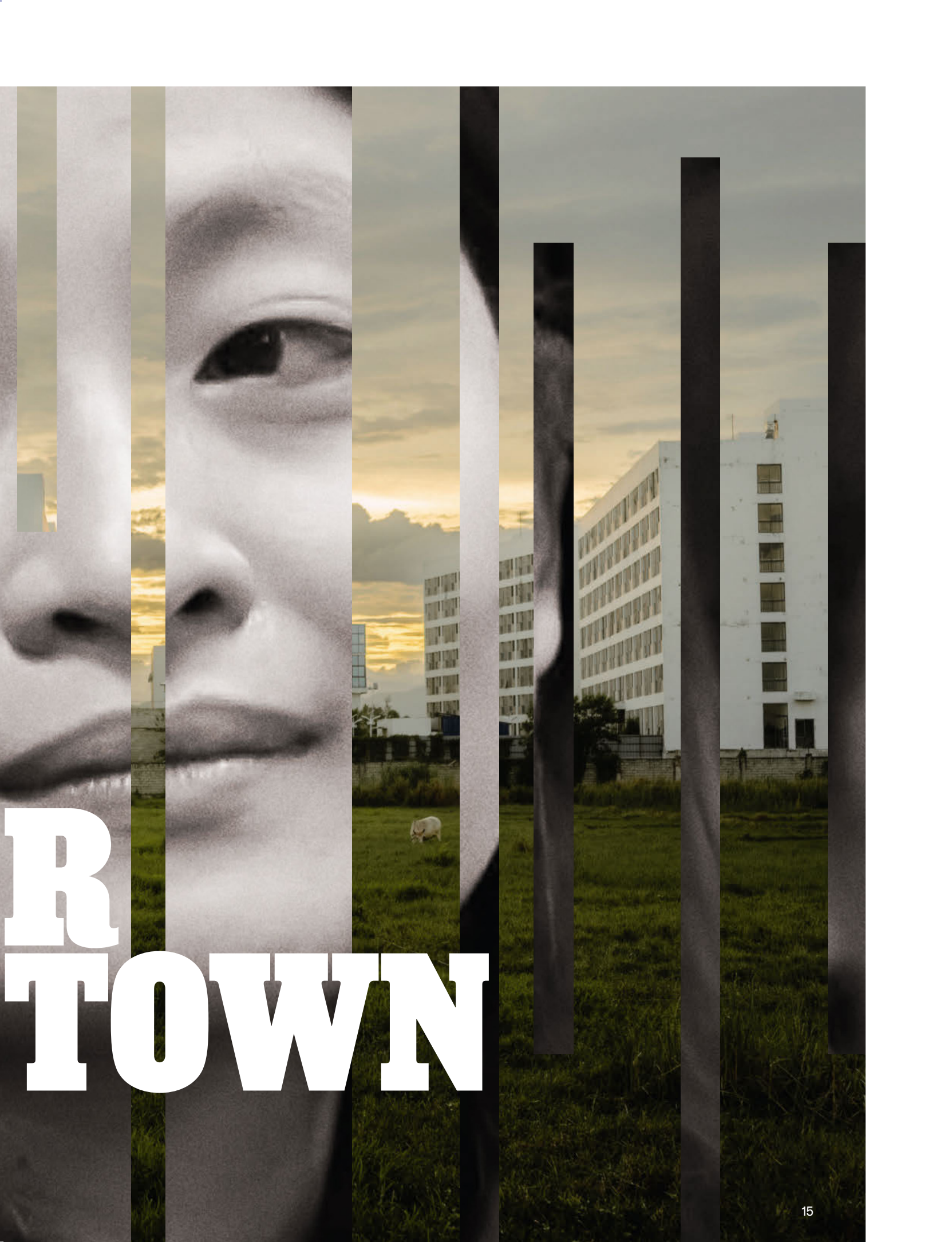
Avantika Chilkoti is global business correspondent at *The Economist*



THE MAYO OF SCAM

People thought Alice Guo was a Chinese spy, but the truth was much darker.
Sue-Lin Wong and Lian Buan on the scandal that rocked the Philippines

PHOTOGRAPHS **GERIC CRUZ**



R TOWN

Just off the main highway leading north from Manila is a town of about 80,000 people called Bamban. Until recently most Filipinos hadn't heard of it. At first glance Bamban looks like any other provincial town in the Philippines. Low-rise buildings and corrugated-iron shacks selling vapes crowd the edges of the road; occasionally a cart trundles by selling *susong pilipit*—freshwater snails cooked in coconut milk.

In the centre are some gleaming, brightly lit shops—not a common sight in such towns. There's Jollibee (a local fried-chicken chain), 7-Eleven, KFC and McDonald's. These all arrived in the past few years, after a dynamic millennial named Alice Guo (pronounced "Gwor") became the town's first female mayor.

Guo was a local girl who'd done well. As she told it, her parents were both Filipinos who owned a piggery near Bamban. Guo worked for them and helped the business grow, diversifying into fisheries and chicken farms.

Fortunato Meija, now 70, a former town councillor in Bamban, had become friends with Guo years earlier when they were both volunteering on a local official's re-election campaign. He admired her grit and enterprise. Guo was young and pretty, with a smooth, round face, long, shiny hair and glasses.

She seemed to prefer discussing business with town elders—whom she addressed as *lolo* (grandfather) or *tito* (uncle)—to hanging out with people her own age.

In 2021 Guo suddenly seemed to have a lot more money. She had taken on more responsibility in the family business, but that didn't seem to account for her flashy new car, or the fact that she had started travelling around the region by helicopter. "I remember asking her, how are you getting so rich?" said Fortunato. Guo just said that she had a new business partner. She told her friends the car was borrowed.

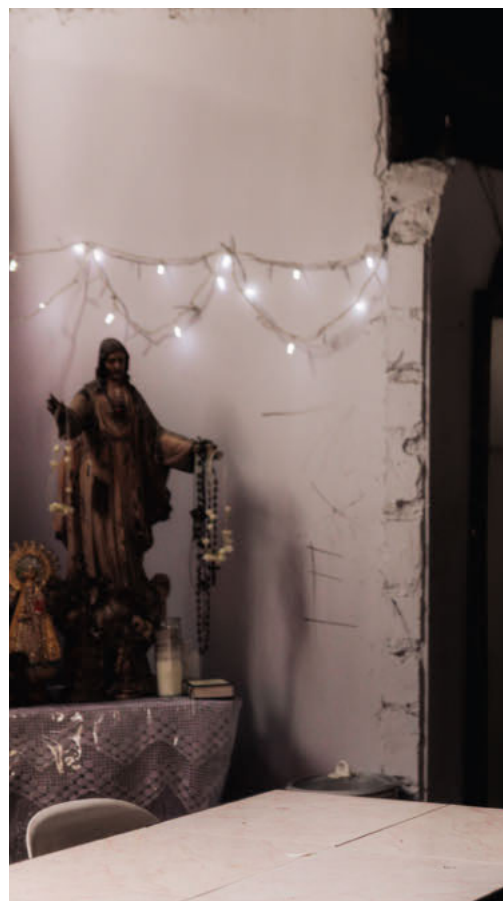
The same year, Guo announced she was going to run for mayor. This was a bold move. Bamban had been governed by the same small clique for decades; departing incumbents tended to endorse their successors after striking backroom deals. Outsiders didn't seem to stand a chance.

But Guo was undaunted. Her campaign materials played up her youth, leaning heavily into the cute. One video showed the mayoral candidate waking up beneath a Sesame Street duvet while Cash, her fluffy Pomeranian, bounced on top of it. Bubblegum pink was her signature colour: she drove a pink car and sometimes flew to rallies in a pink-striped helicopter.

The next year Guo won the election. Her victory heralded a renaissance for Bamban. Town mayors have broad powers in the Philippines, which include the regulation of local businesses



"I REMEMBER ASKING HER, HOW ARE YOU GETTING SO RICH?" GUO JUST SAID SHE HAD A NEW BUSINESS PARTNER



and oversight of the municipal police force. A mayor's degree of energy and competence affects a town's prosperity. Most local politicians aren't known for their work ethic. Guo, however, carried out her duties from dawn to dusk.

The results were soon tangible. "We saw more investment coming in, the price of land and property increased too," said Fortunato. Jollibee set up shop in Bamban in December 2022, and other chains opened soon after.

The town centre wasn't the only part of Bamban being redeveloped. In the fields behind the mayor's office, a cluster of 36 gleaming buildings had sprung up shortly before Guo was elected. Word went around that it was a call-centre complex.

The buildings, some of which were seven storeys high, looked jarringly modern against the low-rises of Bamban. The complex was surrounded by a wall topped with barbed wire. More than 100 locals had been hired to do cleaning and maintenance work there, though strangely no one had been recruited to man the phones. Nobody thought much about that.

The people of Bamban loved their mayor. Displays of generosity are common among Filipino politicians, but Guo distributed nicer things with less restraint. During her first Christmas in office she told people to line up outside the call centre, and handed out thousands of pink bags full of ham, fruit juice, spaghetti sauce and bread. Councillors were given bottles of Johnnie Walker.

One day in February 2024 a young Vietnamese man named Minh Duc Nguyen leapt out of a second-floor window in one of the call-centre buildings and bolted through a gap in the wall. A security guard saw what happened and aimed his gun at him. But Nguyen kept running, across a riverbed, over the fields and into the first private property he could find. It was a farm, and the owner, a 76-year-old man called Santa Maria, took Nguyen in.

Later that day the police showed up at Santa Maria's gate. They had brought an affidavit for Nguyen to sign, promising not to file a complaint against the company running the call centre. Santa Maria took the document to Nguyen, but the young man refused to put his name to it.

Santa Maria (whose first name has not been made public) found the police's behaviour odd. He rang his pastor, who called someone he knew in the Presidential Anti-Organised Crime Commission (PAOCC), a small but powerful agency founded in 1998 and led by former police officers. Winston Casio, a senior investigator at the PAOCC headquarters in Manila, was told to drive to Bamban and find out what was going on.

Casio saw the local officers as he approached the farm entrance, and was surprised to spot a police colonel from Manila among them. The police asked Casio to lead them into the farm. "I said 'no, because obviously the farm-owner does not trust you



Guo power A pink bench installed during Alice Guo's term as mayor (left).

Fortunato Mejia, a former town councillor (above). Peanut harvesting in fields near the town (top right). After Guo became mayor investment in Bamban increased, with branches of McDonald's and KFC opening (bottom right)

enough to allow you in. If they trusted you, you'd be inside the farm by now," Casio said. Santa Maria let the PAOCC team in and took Casio to Nguyen, who was pacing around, agitated.

Nguyen was desperate to get out of town, but Casio begged him to first give a statement about what had been going on inside the call-centre complex. Nguyen eventually agreed. "He said he wanted to help his friends who were still trapped inside," Casio recalled. Over the next three hours, Nguyen told Casio a story that would shake the Philippines. It involved criminals so powerful that they could buy off representatives of a democratically elected government, and so well-connected they could disappear across borders. And Bamban's young mayor was part of the conspiracy.

Nguyen's saga had begun a few weeks earlier when he heard about an opportunity to work as a chef in the Philippines. The job paid 60,000 pesos (just under \$1,000) a month, around four times as much as the average wage in Vietnam. When he arrived at Manila airport he was whisked away to Bamban and placed inside a building in the call centre. The building was filthy, caked in nicotine stains made by the chain-smoking Chinese supervisors. Nguyen had not been brought there to cook, he quickly learned. Bamban's "call centre" was in fact a scam compound: one of hundreds that have sprung up in South-East Asia in recent years.

Workers in scam compounds are ordered to form online relationships with victims around the world and trick them into giving away their money. The presence of these crime hubs across South-East Asia dates back to the 2010s, when the Chinese government began cracking down on crooks and money-launderers in Macau, a gambling hotspot. The criminals scattered and set up businesses abroad, mostly in countries with high levels of corruption such as Cambodia and Laos, or where the rule of law has broken down, such as Myanmar. But they also found ways into the region's democracies.

The offshore gambling industry in the Philippines was an inviting entry point. Internet gambling is prohibited in China, and for years the Philippines hosted online-casino operators offering Chinese punters the opportunity to play baccarat and poker. The businesses' legal status was murky, and in 2016 Rodrigo Duterte, then the president, decided to legalise them so long as they registered as a Philippine Offshore Gaming Operator (POGO).

Supporters of Duterte's POGO policy said it would create jobs and tax revenue. In practice, a shady sector of the economy was given a licence to expand just as Chinese gangsters were looking for new projects. POGO-owners surged into multiple areas of business, some legitimate, others not. Scamming, which uses a lot of the same software as gambling, proved very profitable, especially after the world moved online during the pandemic. Duterte's government did little to stamp out such activities. The Bamban complex was registered as a POGO, and overseen by the sector's regulatory body, which even had an office in the compound.

The most notorious scam practised at compounds like Bamban's is a long con known by Chinese criminals as "pig-butcher-



Scambuster Winston Casio, formerly a senior investigator from the Presidential Anti-Organised Crime Commission, led the raid on the compound

**SCREAMS
ECHOED
THROUGH THE
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BUT NEVER
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OUTSIDE**



ing”. Scammers pose as attractive strangers on social media and dating apps, spend months building relationships with people, then persuade them to “invest” in fraudulent schemes, often involving cryptocurrency, until their savings are gone. At that point the scammers disappear—the pig has been butchered.

Reeling in victims is a numbers game: scammers can message dozens of social-media users before they find one willing to enter into a conversation, and of the people willing to chat only a few will hand over money.

Relationships with the victims (or “customers”, as staff are encouraged to call them) require round-the-clock nurturing. A big scam farm may employ thousands of workers, all putting in long hours. Often the different stages of a scam are run from different centres. The one in Bamban seems to have specialised in identifying and baiting victims before handing them over to a compound in Cambodia to be “processed”. Globally, the scam industry is thought to be worth about \$500bn a year.

Some scammers are willing participants: compounds do sometimes pay their staff, and the wages tends to be higher than the average in South-East Asia. But to operate at scale, bosses also rely on human-trafficking networks. People from across the region are brought under false pretences to places like Bamban and forced to stay there. When Nguyen asked to leave, or complained about his living conditions, he was beaten. “I was slapped so hard that I was not able to eat for two days,” he said in his affidavit. He was also tortured with electric shocks. Screams echoed through the compound, but never seemed to reach the streets outside.

Casio, the investigator from the anti-organised-crime commission, was well aware of the scam problem in the Philippines. A bespectacled man with a calm demeanour and a penchant for philosophical digressions, he was an academic criminologist before he started working for PAOCC over a decade ago. By the time Ferdinand “Bongbong” Marcos took over from Duterte as president in 2022 it was clear to experts that organised criminals had penetrated the online gambling industry. Marcos vowed to fight them, and Casio became the public face of his crusade.

This made him a target for assassination. Suspicious cars would linger outside his office and he took to sleeping there to prevent anyone from following him home. When I first visited Casio at his work in 2024 I was struck by the profusion of contemporary art on the walls—he had retained an aesthete’s flair, even while hiding from gangsters.

He was also funny and self-deprecating. “I only do this because I have the financial independence to be able to protect myself,” he once told me when I suggested he was being brave. “But I’m not saying I’m incorruptible...if you pay me a billion pesos, I’d say yes.”

In the summer of 2023 Casio and his colleagues secretly joined Telegram channels on which the managers of scam compounds in the Philippines shared videos. Some of these showed them torturing their staff—and were apparently posted as a boast.

The methods used to keep the “employees” in line haunted Casio. “You’ve got someone who is fully naked being electrocuted, his balls were being electrocuted,” he told me. “Another man was

fully naked, his penis was being electrocuted, he had chilli sauce placed inside his rectum...Gruesome is an understatement.”

Some of this grisly footage had been posted from Bamban, and Casio had been trying to build a case for authorising a raid on the complex there. Nguyen’s testimony helped him get it over the line, and on March 12th 2024 the paperwork was signed off. Casio planned to travel to Bamban early the next morning.

That night he got a phone call from his boss telling him that people in the complex had somehow got wind of the planned raid and were escaping. Casio and his team jumped into a car and tore up the motorway (“like ‘Mad Max’”, he recalled).

When they arrived they found dozens of rooms with computers still running, and more than 2,000 phone banks. The supervisors had already left, but they hadn’t been able to destroy all their records. As Casio’s team began rummaging they found multiple documents with Guo’s name on them, including a housekeeping bill and an electricity bill for 15m pesos.

It turned out that Guo owned part of the land on which they stood, co-owned the property company that rented the buildings to the scam centre, and had applied for the centre’s POGO licence in 2020. Moreover she had 36 bank accounts, through which more than \$76m had moved between 2006 and 2024. She had also sent over a million dollars to addresses in China. There was clearly more to the local farm-girl’s story.

The Philippines is a young, flawed democracy. Colonised by Spain and America, then subjected to a brutal Japanese occupation during the second world war, it became independent in 1946. During the cold war America saw the new state as a bulwark against the spread of communism in the region, and backed its dictator, Ferdinand Marcos, the current president’s father.

During 20 years of kleptocracy Marcos became fabulously rich while his security forces carried out extrajudicial killings and torture. He was overthrown by a largely peaceful “people power” revolution in 1986. The country is far better governed now, but corruption remains a big problem and power is still mostly held by a few families.

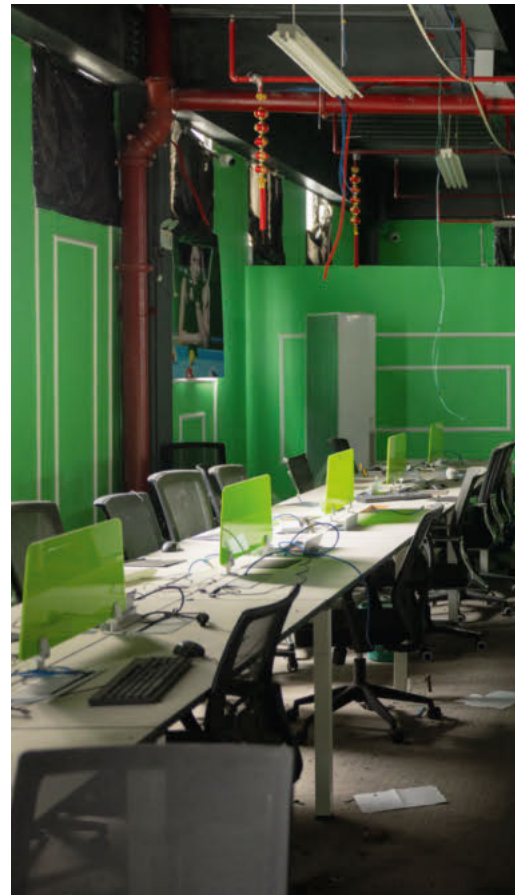
The Philippines has a long history of trading with its neighbour across the South China Sea; the world’s first Chinatown was established in Manila in the 16th century. But in recent years China has harried ships in Philippine waters in support of its expansionist claims, creating tension between the two countries.

Duterte had close ties to Chinese businessmen, and declared himself pro-China, but when Marcos junior was elected the political pendulum swung the other way.

Senators took advantage of the new climate to investigate POGOs and organised crime. When news broke that the mayor



**AS CASIO’S
TEAM BEGAN
RUMMAGING
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DOCUMENTS
WITH GUO’S
NAME ON
THEM**



of Bamban was implicated in a scam compound, she was summoned to testify at their hearings.

Risa Hontiveros, one of the senators, identified several discrepancies in Guo's family's birth and marriage records. When Hontiveros tried to grill her on them Guo shrugged or retreated into vagueness. Her refrain was, "I don't know, your honour."

"Her sheer evasiveness, opaqueness just hooked my curiosity," said Hontiveros. "She couldn't tell us simple details and memories about her parents, her childhood." Clips of Guo squirming in the Senate became memes and were remixed into club tracks.

Over the following months Hontiveros and her colleagues found out that Guo didn't obtain a Philippines birth certificate until she was 19. The certificate said that she was the child of two Filipino parents, but senators couldn't find any evidence that these people existed.

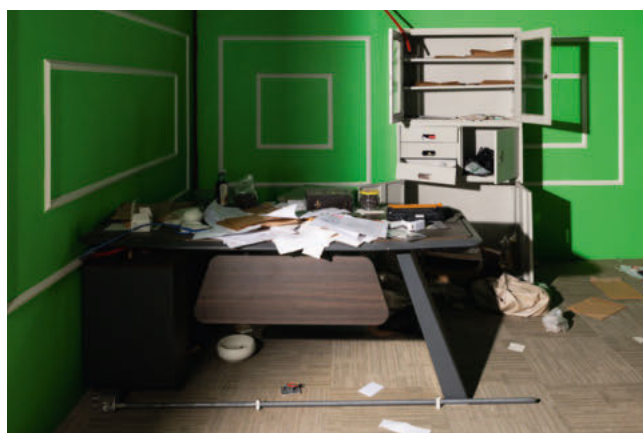
Digging further into government records, senators discovered that the birth certificate was fraudulent. Guo had actually been born Guo Huaping in Fujian, a province in southern China. She first entered the Philippines when she was eight years old, travelling with her parents—both Chinese citizens—on a Chinese passport. She attended Grace Christian College, a school in Manila for Filipino-Chinese families. Her old classmates later told Filipino journalists that when they first met her she could only speak Mandarin.

Shortly after senators unearthed her true identity, Guo stopped responding to requests to appear before the committee. A subpoena was issued and ignored, so the Senate ordered her arrest. Police went to all her known addresses, but she had vanished. It turned out she had been spirited away to Malaysia, then Singapore, then finally to Indonesia. In September 2024 she was arrested near Jakarta, the Indonesian capital, and returned to the Philippines.

But even with Guo back in the country, senators were no clearer on how and why a Chinese girl had become mayor of a Philippines town. A few weeks later, Al Jazeera published an interview with a Chinese tycoon called She Zhijiang. At the time he was in prison in Thailand, accused of running an illegal gambling business. He claimed to be a Chinese spy, and said he had evidence that Guo was one, too.

By then the Philippine lower house had also started looking into Guo. Representatives summoned her from jail to answer questions. When asked about She's claims in the documentary, Guo became unusually animated. "I'm not a spy," she insisted. Guo promised to sue Al Jazeera and She. But the Chinese-spy label stuck: Philippine politicians fumed at the supposed plot, and continued to refer to Guo as an asset of the Chinese government.

To date, these claims have not been backed by persuasive evidence, and they seem unlikely to be true. The Chinese govern-



Art of the steal The compound's managers left in a hurry (left). Casio's team found computers still running, and stacks of documents they had not had time to destroy (centre and right)

ment takes a dim view of scammers, who often prey on Chinese citizens. It has even executed some scam bosses.

The fact that Guo didn't flee to China also casts doubt on the espionage theory. Had she been a spy it would presumably have been safest to go home once her cover was blown, whereas Guo bounced around South-East Asia. But if she wasn't a Chinese spy, then who was she? And who was she working for?

In the summer of 2025 I went to Bamban with the Filipino journalist Lian Buan to find out more about Guo's rise. We decided to start by looking in the places where she had spent her childhood. No one answered the buzzer at the family pig farm near Bamban. But business records showed that her family also had an embroidery business in a nearby town called Marilao, so we headed there.

In rural parts of the Philippines, the smallest unit of government, roughly equivalent to a British village, is the *barangay*. Journalists often begin their searches at the *barangay* hall. We went to one close to the address we'd found for the Guos' firm, QJJ Embroidery. The hall was a rather dismal concrete building, but we met two elderly *barangay* workers there who enthusiastically escorted us to the factory.

On the way they told us that Filipino-Chinese had bought a lot of the land in the area over the past few years, attracted by the proximity to Manila. Only a tiny fraction of the 113m people in the Philippines are ethnic Chinese, but they play an outsize role in the country's economy. Most of its billionaires and owners of large conglomerates have Chinese ancestry.

The QJJ Embroidery factory turned out to be inside a compound. A man appeared at its locked, metal gate to ask who we were, before racing away on his motorbike. He returned a few minutes later to say there was no one who could speak to us.

We went to another *barangay* hall we had been told about, where we found the captain, Orestes ("Resty") L. Jacinto, sporting a yellow polo shirt with RESTY CHAIRMAN embossed on the front.

Jacinto was the first person I'd met who'd known Guo in her teenage years. Guo's parents had already established their factory when he first became captain in 2007, he told me. They lived on the second floor. As far as he was aware, the Guos were a typical entrepreneurial, Chinese-immigrant family. Alice was the only one who could speak Tagalog, the national language of the Philippines. He remembered her as "focused on her business, like many Chinese people". She would invite Jacinto along to the company's Chinese new-year celebrations. When the *barangay* hall held Christmas parties, she donated *lechon* (roast pig) and electrical goods for prizes.

Guo seems to have enjoyed showering locals with gifts. Filipinos sometimes say that there are two kinds of people: those who are *kuripot* (stingy with money) and those who are *galante* (generous). By the time Guo was in her 30s, there was a lot more money to be *galante* with.

After she won the race for mayor of Bamban, she treated dozens of local politicians and council workers to a holiday on Boracay, an upmarket beach resort. "We rented a boat to tour the island, we bar-hopped," recalled Fortunato, who attended the trip.



Ghost town Abandoned dormitories in the workers' sleeping quarters (*top*). Minh Duc Nguyen, who had been lured to the compound, fled through a gap in the wall (*bottom*)



“ALICE GUO WAS NOT ABLE TO DO THIS OVERNIGHT. SHE WAS ABLE TO DO THIS BECAUSE SHE CO-OPTED A GOOD NUMBER OF CORRUPT GOVERNMENT OFFICIALS”



Her 200 campaign volunteers were treated to three days at Subic Resort, a less fancy but still popular holiday spot. In December 2022 Guo hosted a Christmas party for the police force. A photo of the event shows her dressed in a long, black dress, standing in front of bags of rice and Christmas hampers.

It's hard to say exactly how much local policemen and other officials benefited from Guo's largesse. But the impunity with which the scam business was allowed to operate became clear to me when I was allowed to read records in the Bamban police station.

The first warning that the town was home to a conspiracy involving human-trafficking and fraud came in December 2020, when 332 foreigners were arrested at the compound for immigration violations. In October 2022 a Vietnamese victim was rescued at the request of the Vietnamese ambassador to the Philippines. In February 2023 police arrested 381 people on suspicion of committing fraud, but the case fizzled out. Not until Casio came along in 2024 did anyone mount a proper investigation into the compound.

In 2025 several town councillors, including Fortunato, were indicted for graft for authorising a POGO which turned out to be a scam business. Fortunato denies committing a crime, and says he plans to fight the charges.

Casio thinks prosecutors should look beyond the town council. “Alice Guo was not able to do this overnight. She was able to do this because she co-opted a good number of corrupt government officials,” he said. “And they need to be held accountable for these crimes against the people.”

When Casio's investigators raided the compound they didn't just find grotty workers' quarters. There were also palatial residential villas, an Olympic-sized swimming pool, shops and a dim sum restaurant. Some of the bosses' rooms were piled high with bottles of luxury spirits such as Louis XIII cognac, as well as boxes of Rolex and Patek Philippe watches.

Local police officers showed me around one especially luxurious villa. BMWs and Mercedes-Benzes stood outside. Inside the vast entrance hall was a grand, wooden altar featuring 11 Chinese deities. Beneath it in the basement there was a karaoke room big enough for a party of 50.

On the top floor was the biggest bedroom I had ever seen, which opened onto a balcony with its own swimming pool. The man who slept there, Casio told me, was the owner of the villa, a Chinese businessman from Fujian province called Huang Zhiyang. Huang, who is suspected of having links to other scam operations in the Philippines, appears to have been a senior figure at the Bamban compound.

Casio's team later found CCTV footage showing that Huang had escaped through a secret tunnel in the basement just as the raid was starting. The businessman then left in a helicopter. He hadn't had time to pack properly: boxes of antacids were still piled up in his bathroom. His sitting room was strewn with English-language textbooks.

Huang was clearly very rich. But in other respects he doesn't seem to have been a traditional mob boss. When we think of

organised crime, we tend to imagine the familiar, hierarchical structures of the 20th century, with tattooed gang members at the bottom and powerful godfathers at the top. China's triads were a classic example of this. But in recent years the triads' activities have evolved into something more like a criminal gig economy.

Organised-crime experts believe that "angel" investors in China provide the backing for scam compounds (though their names have never been made public). A loose network of criminal entrepreneurs like Huang use the investors' money to pursue profit-making opportunities such as scamming. Sometimes these entrepreneurs co-operate, sometimes they're in competition. Rather than maintaining an army of loyal footsoldiers, they rely on a fluid labour force of exploited and trafficked workers to carry out their schemes.

The first clue linking Huang to Guo was a document unearthed by prosecutors showing she sold him land in Bamban in 2019. Both Casio and Sherwin Gatchalian, one of the senators who investigated Guo, suspect that she was something like a fixer for Huang and possibly other bosses: finding and buying land, and smoothing over relationships with local authorities. "She opened the doors for all those individuals (from China) to come in," said Gatchalian. In exchange they seem to have given her protection and a cut of the profits.

Casio believes that a Chinese-born adviser to Duterte called Michael Yang paved the way for POGO operators to thrive. According to Casio it was Yang who sold Duterte on the idea of legalising the sector.

Yang had moved to the Philippines from China in the 1990s and set up a series of businesses there. Congressional investigators found that he was a partner in several of these with a man called Lin Weixiong. Lin reportedly subcontracted one of his companies' operations to a firm called Brickhartz. Casio's team found piles of documents belonging to Brickhartz in the Bamban compound, including bills and employee profiles.

Both Lin and Yang have been accused by Filipino politicians of links to organised crime. When reached for comment, Yang's lawyer said, "I am 100% certain that Mr Yang never had any dealings with Alice Guo per se. He may have had some business contact with a person who set up a company in the compound, but it was fleeting and inconsequential. Mr Yang has consistently asserted that he was not involved in the POGO business in the Philippines, and the absence of any cases filed against him to this date is more than sufficient proof of the same."

It's not immediately clear how someone like Guo would have come into the orbit of big players such as Huang and Yang. Guo told the Senate that she met Huang through her piggery, which seems implausible. "He had many restaurants and I sold him pig



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meat,” she said. “He was nice and I suggested he build something on my property in Bamban.”

Gatchalian believes Guo’s father, Guo Jianjiang, could be the key to the mystery. Guo Jianjiang had established a number of businesses in Fujian province in China with his brother before leaving for the Philippines in the late 1990s.

Senators couldn’t find much about Guo Jianjiang’s activities in the Philippines, but they did notice that from around 2016—the year Duterte legalised POGOs—he started making a lot of international flights. Southern People Weekly, a Chinese news site, reported that his destinations included Thailand, Japan, Singapore, Australia, Taiwan and Hong Kong.

Evidence unearthed by the Organised Crime and Corruption Reporting Project (OCCRP) suggests that Guo Jianjiang may have had a connection to Yang through his brother. The OCCRP found news clippings showing that Guo’s uncle attended an event in Hong Kong in 2019 at which both Yang and Lin, his associate, were present.

The event was a community-association meeting for expatriate Chinese from Liu Kang, a village in Fujian province. Yang, Lin and Guo’s uncle were all sponsors of the event: Yang and Lin each donated HK\$50,000 (around \$6,000), while Guo’s uncle proffered hundreds of jars of ginseng powder and Peruvian maca, herbs valued by Chinese businessmen for their

reputed effects on virility. Guo’s father was also an active patron of the community association, donating 400,000 yuan (around \$60,000) over the course of a decade.

Both Gatchalian and Casio think Guo’s father may have orchestrated her entry into Chinese organised crime. Their version of events is informed speculation rather than a definitive account, but it’s as good a theory as any of Guo’s perplexing story. Gatchalian’s hypothesis is that Guo Jianjiang played a long game, waiting until his daughter had mastered Tagalog and assimilated into local life before introducing her to his contacts in the Chinese underworld. Guo Jianjiang’s response to such suspicions is unknown: in July 2024 Senate investigators tried to reach him through Guo’s lawyers but to no avail.

Gatchalian believes the Guo case points to a fundamentally different kind of corruption problem from the ones Filipinos are used to. A conventionally dodgy firm might buy off a politician or two to grease a specific contract. The globalised Chinese scam-boss network has far more elaborate aims. “They are organised, they have money, they are sophisticated,” said Gatchalian. “And they studied the Philippines very well.”

Casio and Gatchalian say Guo is probably not the only mayor working for the network. Gatchalian has even heard of scam bosses marrying Filipinas, then encouraging their wives to go into politics so they can be used as proxies.



The great escape Huang Zhiyang, a Chinese businessman implicated in the scam operation, escaped through a secret tunnel in his basement (*left*). Plants have overgrown the courtyards, and the luxury villas where the bosses lived are now deserted (*centre and right*)

So far these stories involve only local government. But Gatchalian fears the network is making inroads into national politics. “Once they have voices in here, in the Senate or Congress or even the executive side it’s...very difficult to make decisions.”

There is an idea in Philippine society dating back to the pre-colonial era that governing well is about bolstering people’s sense of material well-being, or *kaginhawaan*. Perhaps this explains why Guo remains astonishingly popular in Bamban. People seem either not to believe or not to care that their mayor was mixed up in human-trafficking and scamming.

When I visited in 2025, more than a year after the story broke, there were still banners around town showing support for Guo. Leonardo Ding Anunciacion, then the acting mayor of Bamban, was surfing his predecessor’s popularity. On July 12th—the day listed in Guo’s false birth certificate as her birthday—he posted an old photo of himself and the former mayor on Facebook. In it, the pair are holding a cake iced with dollar signs. The caption reads: “Happy birthday to an amazing person”.

In November 2025 Guo was sentenced to life in prison for facilitating fraud and human-trafficking. But almost everyone else who enabled the crimes in Bamban—the torture of hundreds of trafficked workers, the theft of tens of millions of dollars—has got away with it. Huang Zhiyang was last heard of in Taiwan. Before that he had been in Cambodia. To this day, the Philippine government has not applied for an Interpol red notice against Huang (which would request other countries to locate him).

The list of those with questions still to answer includes the officials at the bureau of immigration who signed off on Guo’s fake paperwork years before, and the government’s own POGO regulators, who did nothing to hold the scam bosses accountable despite having their own office in the compound. (Neither department responded to a request for comment.)

The entire police force of Bamban was “relieved” of their duties after the scandal broke. This doesn’t mean they were fired, however. According to one member of the new police force, the old officers simply took a refresher course and then were posted to other stations in the province.

“I used to be very passionate about fighting POGOs,” said one government employee. “But I’ve become dispirited because I now realise that all the government officials who should be prosecuted for enabling Alice Guo and her counterparts are not going to be prosecuted.”

For a long time the one government agency which seemed determined to fight the scam bosses was the PAOCC, where Casio worked. Its relentless, well-publicised probes turned public opinion against the scam industry so effectively that in July 2024 Marcos announced he was banning POGOs. It’s more than other countries infiltrated by the scam network have done.

But the problem is far from solved. Many scam hubs have relocated to remote regions in the north of the Philippines, where they are less likely to garner police attention. “No one wants to talk about it because they’re very well protected,” said Casio.

In 2025 the Marcos administration moved Gilbert Cruz, the head of the PAOCC, who had overseen so many raids on scam



Pinkwashing She Zhijiang, a Chinese tycoon imprisoned in Bangkok, alleged that Guo was a Chinese spy (*top*). Guo testifies in front of a Senate committee (*bottom*). Pink hats embellished with Guo’s name were distributed during her mayoral campaign (*right*)



**PEOPLE SEEM
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TRAFFICKING**



REUTERS / AFP / GETTY

centres, to a job at the department of transport. Casio received a letter reminding him that his position at the PAOCC was conditional on Cruz's tenure there.

Casio feared the agency was being turned into a "paper tiger" because it had inconvenienced people with powerful connections, and decided not to fight for his job. (The new leadership of the PAOCC strongly disputes the allegation of ineffectiveness, saying that the organisation supports the campaign against organised crime and citing a long list of recent measures taken, including the proposal of a new anti-POGO law.)

Casio still frets about all the loose ends. Shortly after he left the PAOCC, I had a conversation with him that underlined how powerless organised-crime investigators were becoming. He told me that a few of the big scamming companies had successfully rebranded as legitimate businesses, but were continuing to run scam operations behind the scenes.

I asked why no one was investigating them. He said he didn't want to report the companies to a law-enforcement agency only to find out too late that it had already been penetrated by scammers. "I'd rather not put my neck on the line," he said. "I don't know who to trust." ●

Sue-Lin Wong is *The Economist's* Asia correspondent. **Lian Buan** is a former correspondent at Rappler, a leading Philippine news site



On a baking-hot afternoon in January, Aaron Davis climbed out of a white Toyota Land Cruiser that had arrived at a village of clay-walled huts. It was the peak of Sierra Leone's dry season. The ground was a rich ochre and dotted with deep, round shafts—mines which villagers had dug to prospect for gold and diamonds. But Davis had come in search of a different kind of treasure.

On our way to the village, in the east of the country, we had driven past plantations of oil palms and cashews, and a railway carrying iron ore to the coast as part of a Chinese-backed mining venture. Davis, who wore a biker bandanna around his neck to protect it from the sun, had allowed me to join him on condition that I keep the name of the village secret. There were rumours that other foreigners had been poking around.

A local farmer called Alex John Bulle led us down a path behind a hut on the edge of the forest. It was a relief to feel the cool air beneath the trees. Davis darted over to some yellowing, spindly bushes. To my untrained eye, there was little to distinguish them from any other foliage. But this was no ordinary plantation. It was a secret experiment to develop a coffee plant that could withstand climate change.

At the moment, only two coffee species are grown at scale: arabica and robusta. Most coffee drinkers think arabica tastes

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WAKE UP AND SMELL THE COFFEE

Climate change could make coffee extinct. Tomas Weber meets the maverick scientist who thinks the drink's future depends on a long-lost plant

ILLUSTRATIONS AGA WIĘCKOWSKA



better but it is also highly vulnerable to rising temperatures. Davis believes the saplings we were looking at—which belong to a naturally heat-resistant wild species called *stenophylla*—could be key to preserving the wonder-brew.

Until a few years ago, scientists had feared that *stenophylla* was extinct in Sierra Leone. But Davis rediscovered the species in 2018 after trekking through the country's forests for months. This clearing was one of dozens of sites where Davis and his team, including Bulle, were now cultivating the crop.

Davis, a botanist at the Royal Botanic Gardens in Kew, London, is a wild-coffee prospector. He and his collaborators claim to have discovered roughly a third of the more than 130 species of wild coffee that we know about. An academic by training, Davis is instinctively open about his work. But that's a reflex he's had to learn to suppress.

The world of wild coffee is unexpectedly cut-throat, as botanists, corporate scouts and chancers compete to find species that could become commercially valuable. On a recent trip to Malaysia, where he'd gone to visit coffee farms growing a rare hybrid, Davis realised that someone was on his trail. Farmers told his team, which had been posting about Davis's journey on social media, that a suspicious individual had visited the same locations about two weeks after Davis had left them and requested seeds. Sometimes coffee-hunters don't bother to ask: Davis told me that last year robbers made off with thousands of *stenophylla* plants from a farm in Sierra Leone.

There are more formidable obstacles in the quest to save coffee. The warming climate is stretching even *stenophylla*'s heat tolerance to its limit. Davis had insisted on not watering the plants I saw in Sierra Leone; the purpose of the trial was to test if *stenophylla* could still flourish in its native habitat. But the plants seemed to be having a tough time of it. Their long, ribbon-like leaves, meant to be a deep, glossy green, were pale and paper-dry.

Over the years Davis has also had to accept that big firms don't seem particularly interested in helping him. A handful of companies, mostly based in Europe and America, dominate the coffee market, which is estimated to be worth around \$250bn a year. Their focus is on short-term supply, rather than planning for the long run. Last year Mywish Maredia, an economist at Michigan State University, estimated that the global coffee industry spends less than 0.1% of its annual revenue on research and development—far below the R&D allocation of comparable industries. A resulting lack of innovation could put the 2.25bn cups of coffee the world drinks each day at risk. "I would use the word 'crisis'," said Maredia.

Davis, 61, who rides a vintage motorbike around west London between coffee-hunting expeditions, seems to have assumed the burden of identifying species that can survive a changing climate. Aside from his modest salary from Kew, Davis does not, and will not, make money from any of his projects. At a roadside eatery in Sierra Leone, he jotted down the

THE BIG COFFEE COMPANIES TEND TO VIEW DAVIS'S PLAN AS A COSTLY AND QUIXOTIC FANTASY

cost of a bargain fish lunch for his expenses. "People think it's crazy," he told me. "I get no bonuses, there's no perks. Staying in the worst accommodation...I'm doing it purely for the enjoyment and the fact it's going to have an impact."

Davis has a reputation in the coffee trade as a maverick—somebody with interesting but ultimately outlandish ideas about coffee's future. Although some in the industry see the need for experimentation ("We need to be looking under every rock for opportunities," an executive at an American firm told me), the big coffee companies tend to view Davis's plan to grow new species at scale as a costly and quixotic fantasy.

But Davis relishes a challenge. In Sierra Leone, he has chosen as his testbed a nation that was once a large coffee exporter, but has produced little since the 1990s, when a civil war left the country in ruins. Most growers believe its climate is too hot and dry to produce beans of high quality. Davis disagrees. If a coffee can thrive in Sierra Leone, goes the logic, it can thrive almost anywhere.

At Kew, the idea that the world's forests contain unappreciated treasures has deep roots. In 1759 Princess Augusta, the mother of King George III, founded the gardens that now occupy 320 acres along the southern bank of the Thames in west London. Kew became the nerve centre of imperial botany. Its plant collectors ranged across Africa, Asia and the Americas in search of species with commercial potential, packing promising specimens into specially designed cases and shipping them back to London.

Some were redistributed across the British empire. In the mid-19th century, staff from Kew sent South American cinchona trees to India to be cultivated. Their bark was processed into quinine, a natural anti-malarial. The drug helped Britons survive malaria in west and central Africa, making it easier to colonise the continent's interior.

Kew also helped shift the world's rubber production from the Amazon to South-East Asia. In 1876 Henry Wickham, an explorer, orchestrated one of history's most audacious plant heists when he smuggled 70,000 rubber seeds out of Brazil and sent them to Kew. The seeds were shipped to British Malaya (an area that now covers Singapore and parts of Malaysia), where they were used to establish plantations.

Today, Kew's mission is conservation and research rather than the search for tropical cash crops. But its herbarium, a vast scientific archive containing more than 7m preserved plant specimens, contains valuable clues in the search for climate-resilient crops.

Over the past several years, coffee growers have endured droughts, frosts, hailstorms and floods. Alongside these more extreme weather events, seasons have become more unpredictable: rains arrive too early and dry seasons stick around for too long. In Ethiopia, the birthplace of *arabica*, early downpours trigger blossoms that wither away before pollination. "It's just unprecedented. When you talk to



the locals there they say: 'We've never seen this,' said Davis. In Colombia, intensifying heat is driving arabica farmers up the mountains, where land is scarcer but cooler (arabica struggles above 30°C). In 2020 and 2021 in Brazil, the world's largest coffee producer, severe drought followed by frost destroyed nearly 600m kilograms of coffee, around 6% of annual global supply.

Climate change, along with tariffs and rising labour costs, has more than doubled the average price for half a kilogram of ground-roast coffee in America since 2020. "Within a decade", said Davis, "coffee will become a luxury product."

Robusta, a caffeine-rich species widely used in

**"WITHIN A
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instant coffee, is more heat-resistant than arabica (it takes its name from its supposed resilience). But even it is not immune to climate change. In Vietnam's Central Highlands, the world's most important robusta-growing region, long droughts punctuated by floods have led to a big decline in fruit yields.

In 2015 researchers from Germany, Colombia and Nicaragua published a study which suggested that half the world's coffee-growing areas could become unusable by 2050. It was the first time that coffee companies had ever received such a blunt warning. Reading that paper "was kind of like a cold shower", Andrea Illy, the chairman of Illycaffè, an Italian coffee brand, told me from his office in Milan. "We said: 'Oh my God!'"



Growing coffee has always been a high-risk, low-margin enterprise. Around half the world's 25m coffee farmers survive on less than \$3.20 per day. This year they have also faced higher costs for fertiliser, thanks to Donald Trump's war on Iran. Factor in the increasingly volatile weather, and an already precarious business is becoming dangerously unstable.

Climate change is making many growers consider switching to a more reliable crop, such as plantain or palm oil, or even abandoning the industry altogether. Meanwhile, global demand for coffee continues to swell; in China consumption has more than doubled over the past ten years. The puzzle of how to deliver on future orders bedevils producers. "Where's the

**COFFEE
GROWERS
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next 20m bags going to come from?" asked Dave Behrends, the head of trading at Sucafina, a large coffee trading firm in Geneva. And the "next 40m?"

Even when he's not working, Davis spends much of his time around plants. He tends to his allotment and the garden of the west London house he shares with his wife Lucy Smith, a botanical artist he met at Kew. After his parents' recent deaths, Davis began biking down to the Kent coast, in south-east England, to care for their lush tropical garden. It was here that his fascination with plant-hunting had begun. When Davis and his sister were children, their mother, a keen

horticulturalist, used to take them to plant fairs and nurseries to buy rare flowers and shrubs. The family's garden grew so magnificent that the local postman would sometimes quietly take tea breaks in it.

When Davis was a teenager, he had a girlfriend whose father had worked in India in the 1950s as a butterfly collector. The romance and adventure of a job that involved darting around the world in pursuit of exotic specimens caught his imagination. He started collecting caterpillars, but then realised he was more interested in growing the plants they ate. At university Davis studied botany and wrote his PhD thesis on snowdrops, white wildflowers native to Europe and the Middle East that bloom in winter.

Shortly after completing his thesis, Davis was having tea at Kew Gardens when he happened to get into conversation with Diane Bridson, an expert in coffee plants, who worked at Kew. As the story goes, Davis peppered Bridson with questions about how many coffee species there were and where they grew, only to be told, "Nobody knows exactly." Impressed by Davis's enthusiasm, Bridson eventually hired him to find out. He then set off on a mission to catalogue the world's coffees, spending much of his time in Madagascar.

By the mid-2000s, as conversations among colleagues became increasingly dominated by climate change, Davis found himself preoccupied with the consequences for coffee. Realising there was almost no data on the subject, in 2012 he assembled a small team of botanists to gather as much as possible.

They decided to focus their research in Ethiopia, Africa's largest coffee producer. The scientists from Kew, joined by their Ethiopian counterparts, spent years driving more than 30,000 miles across the country, often on roads so remote they did not appear on the government's own maps. They visited as many coffee farms as possible, recording data about the climate in each area and using it to build models to predict what would happen as temperatures rose. The results shocked them. By the end of the century, the models suggested, large parts of Ethiopia would become unsuitable for growing coffee.

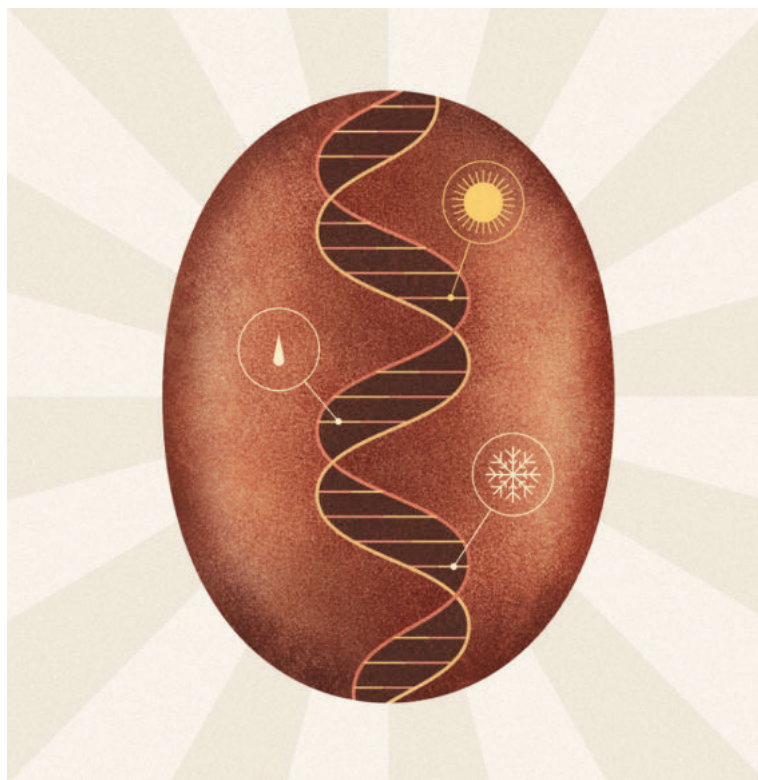
Davis had hoped to find wild varieties of arabica in Ethiopia that were naturally adapted to higher temperatures, but came back empty-handed. He wondered if he should be looking for an entirely different wild species. Somewhere in Africa's forests, he reckoned, there must be coffee plants with helpful genetic traits, such as heat tolerance or drought resistance. Of course, they would also need to taste good.

One species that piqued his interest was stenophylla, which had been cultivated in Sierra Leone in the early 20th century but was no longer being grown by the 1950s. Davis had never seen a live plant, but knew what it looked like. Inside Kew's herbarium is a specimen collected by George Don, a Scottish botanist, on an expedition to Sierra Leone in the 1830s. At various points, stenophylla was grown commercially in several other African countries, though on a smaller scale than it was in Sierra Leone.

**"IT'S VERY,
VERY HARD
TO FIND WILD
COFFEE"**

Although arabica was the first coffee species known to have been traded, west Africans may have been consuming stenophylla for far longer. Daniel Sarmu, a Sierra Leonean development specialist who would later join the search for the lost species, told me his ancestors roasted stenophylla seeds over open fires before grinding them in mortars. Women used the plant's fruit, known as cherries, to make soap and to flavour dishes, and walking sticks were carved from its branches. Farmers continued to grow stenophylla under British colonial rule, but from the early 20th century they increasingly shifted towards robusta, which had a reliably higher yield.

Stenophylla had other qualities, however. Accounts from the 19th and early 20th centuries praise its flavour; in one scientific journal from 1929, a French explorer describes it as "exquisite". Don suggested its taste was superior to arabica.



Davis knew stenophylla could stand up to heat and drought: it was native to a place much warmer than the coffee-growing regions of Ethiopia. But he also knew that looking for stenophylla or similar species was not a mission to be undertaken lightly. "It's very, very hard to find wild coffee," Davis told me in December as we sat in his office at the top of a red wrought-iron spiral staircase above the herbarium. It was a small room, filled with jars of old coffee beans, DNA samples of wild coffee in airtight containers, maps and leather-bound Victorian plant manuals. We were sipping sweet and fruity cups of excelsa—another drought-resistant species he's helping farmers grow in Uganda.

Davis explained that many wild species grow in small, isolated pockets in dense forests. Some coffees grow up to 20 metres tall in high-altitude rainforests, while others are twiggy shrubs in low-lying areas. Their fruit can be bright red or deep black, and range in size from pea to grape. The seeds they contain (what we commonly know as beans) can be turned into brews with a range of weird and wonderful flavour notes, from jasmine, clove and charcoal, to marshmallow and purple yam.

Hunting for wild coffee is physically demanding work, involving days of hacking through undergrowth while balancing the unwieldy pruning poles needed to pluck fruit from the treetops. While seeking out species in Cameroon in the early 2000s, Davis was further weighed down by a backpack filled with clinking bottles of Johnnie Walker Black—gifts for village chiefs in exchange for permission to roam their land.

Coffee-prospecting can be dangerous, too. In the forests of Madagascar in the late 1990s, Davis and his mentor, the Malagasy biologist Franck Rakotonasolo, were searching for species they believed might be naturally caffeine-free. During the expedition Davis contracted trench foot and spent a week in hospital with hookworm. Despite the ordeals, he recalls those adventures with a kind of nostalgia. “The combination of being naive, young and not having a great deal of funds”, he told me, “always makes things exciting.”

In 2014 Davis turned 50, although he had the energy of a younger man, not to mention two decades of experience in the jungle. He was still desperately short of funds. But if anyone was going to track down stenophylla, it was going to be him.

A conversation with an old colleague gave Davis a way forward. Jeremy Haggar, an ecologist at Greenwich University, told him he was working with farmers growing *robusta* in Sierra Leone. Davis suggested they team up to find *stenophylla*, if it still existed. According to Davis’s own research, 60% of wild coffees are threatened with extinction thanks to a mixture of deforestation, climate change, pests and diseases. Even if it was still growing somewhere, they would be looking for it in a country roughly the size of Scotland.

Haggar was enthusiastic about the challenge, but both men knew they would need to take a targeted approach. Davis combed through documents in Kew’s library and found that the last recorded sighting of *stenophylla*, in 1954, had been in a forest three hours east of Freetown, Sierra Leone’s capital. In 2018 he and Haggar, together with Sarmu, the Sierra Leonean development specialist, began searching in that spot, as well as in the hills around Freetown. It had been a long road to get there. First the Ebola outbreak in west Africa meant their travel plans had to be put on hold. Then some promising-looking leaves Haggar found in Sierra Leone failed to match the specimen preserved in Kew’s herbarium.

For all the men’s excitement at finally being on the ground, the plant remained stubbornly elusive. Sar-

**“TO FINALLY
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mu rode from farm to farm on his motorbike, asking people to keep an eye out for it. He put up “wanted” posters featuring photocopies of *stenophylla* leaves and inviting people to send in samples. “We got a lot of weird stuff,” Davis told me. “But no *stenophylla*.”

On a muggy afternoon that December, Davis, Haggar and Sarmu were pushing their way through the Kasewe Hills, a patch of forest in the middle of the country. It was getting late; they’d spent hours trying to arrange permission from the village chief to enter the forest, and find somebody to drive them there. Out of nowhere Davis noticed a small shrub nestled in the undergrowth. It was the only coffee plant in the area and its leaves were long and narrow, tapering to a sharp point. He was certain it was *stenophylla*.

The feeling, Davis told me, was one of “absolute relief”. “To finally find a living plant was really exciting.” Although the shrub was healthy, it was too young to fruit. But at least there was proof that *stenophylla* was alive and well.

On the walk back to the car, Sarmu mentioned the landscape reminded him of the forests around his home city of Kenema, Sierra Leone’s diamond-trading capital. Perhaps *stenophylla* was also growing there? They headed in that direction. After several hours hiking through thick forest in the hills around Kenema, the trio found several mature *stenophylla* trees, around seven metres tall, growing on a sloping ridge. They were not fruiting either. But when the trio returned to check at the beginning of 2020, they found branches laden with clusters of inky-black fruit.

They weren’t quite ripe, but after his colleagues returned home, Sarmu harvested the cherries and sent ten grams of *stenophylla* seeds to England. In 2021 Davis and Haggar took the packet to the headquarters of Union Coffee, an east London roaster which specialises in ethically sourced beans. Steven Macatonia, Union Coffee’s co-founder, was interested in selling *stenophylla* if it lived up to its reputation.

After managing to eke out just enough coffee for a few espresso shots, the men took their first sips. According to the rules of coffee tasting, a taster must adopt a neutral expression after drinking to avoid influencing their colleagues—but Davis struggled to stop his poker face from turning into a grin. They all agreed: *stenophylla*’s sweetness, silky body and softness on the tongue brought to mind a high-quality arabica—specifically Rwandan Red Bourbon, a prized variety that dominates coffee production in the east African country. “It was mind-blowing,” said Davis.

Union was willing to sell *stenophylla* if it could be grown at scale, and Davis was keen to bring other companies on board. The following year, he held a blind tasting for a group of professional tasters in Montpellier, France. To Davis’s delight, most of the tasters—which included an expert from Nespresso—were unable to distinguish *stenophylla* from arabica.

In April 2021 he published the results in a paper in *Nature*. Within hours, his inbox was flooded with



requests for stenophylla—some from big coffee companies such as Illy. (Unfortunately there wasn't enough stenophylla to meet the demand.) There was talk of more trials. Starbucks, which markets itself as using 100% arabica, began plotting to cross the coffee with stenophylla in the hopes of capturing some of its heat and drought tolerance.

Six years later, though, the initial hype around stenophylla has died down. While small specialty-coffee outfits continue to compete for the world's extremely limited supplies, interest from industry heavyweights has remained peripheral, with none of the large-scale investment Davis had hoped for. Instead, most climate-related R&D has focused on

TO DAVIS'S DELIGHT, MOST OF THE TASTERS COULD NOT DISTINGUISH STENOPHYLLA FROM ARABICA

breeding more resilient versions of existing commercial species. Davis believes that approach can only go so far. "If you stay within a species," he told me, "you're bound by its biological limits."

But domesticating wild coffees such as stenophylla is difficult and expensive. The first step to introducing a new species is finding a coffee in the forest that not only tastes good but also yields plenty of fruit. Then you have to start experimenting. How much shade does it enjoy? Which altitudes will it tolerate? How much water does it need? And before you can plant an unruly wild species at scale, you need to "break it in". "If you try to get a zebra to pull a cart for you it's a bit of a mess," said Vern Long, chief



executive of World Coffee Research, an organisation working with the coffee industry to breed temperature-proof varieties of arabica and robusta. Over successive generations of plants, Long explained, you have to pick out the strongest individuals—the most vigorous, the ones with the best yields and taste—and breed them until you have trees with reliably strong genetics. Even with modern breeding tools, that can take decades.

There are yet more hurdles to overcome. Farmers must be persuaded to rip out their existing trees and plant an unknown species that will take years to reach maturity. Bulle—the farmer who is helping with Davis's project—told me his parents used to

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grow robusta but had abandoned their coffee plants during the civil war in the 1990s, when 2.6m people were displaced from their land. For farmers of his generation, stenophylla presented both an opportunity and a challenge. “I’m very anxious,” he told me. “It’s so different.”

Finally you have to hope that prospective consumers won’t be put off by the unfamiliar new taste of a new coffee. “There’s a big risk of introducing something that you don’t know” to consumers, said Pablo von Waldenfels, director of corporate responsibility at Tchibo, a German coffee retailer.

But Davis remains convinced of stenophylla’s potential and is determined to prove that it can

be grown commercially in its native environment. Together with Sarmu and Haggar, he is working with dozens of Sierra Leonean farmers to cultivate 12,000 plants in a programme supported by a small grant from Sucafina, the coffee-trading firm.

"It's something that we think could really help our industry over the next 20 years," Behrends, the company's head of trading, told me. Despite the company's support, the trials remained underfunded, and Davis and Haggar were making frequent trips to Sierra Leone to monitor the young plants. When I joined them in January, the country was enduring an unusually severe dry season. As our plane descended towards Freetown airport, I could see small fires glowing in the forest below.

Sitting in the dining room of our hotel outside Freetown the next morning, Davis gave short shrift to the complimentary Nescafé. "I don't drink that common stuff anymore," he said, laughing. "I drink stuff that's not even known to science." From his luggage he extracted a hand-powered coffee grinder and a small bag of beans and proceeded to brew me another cup of excelsa.

Davis and Haggar spent a week checking their stenophylla plots across the country. In many locations, the trees appeared stunted and stressed—partly because of the heat, but also because the project was running on minimal resources and in some cases without fertiliser. From time to time, the ramshackle nature of the endeavour wore down Davis's usually cheerful disposition. "We're starting from absolute scratch," he told me after inspecting one disappointing site. "The capacity for research [and] intervention in Sierra Leone is almost non-existent."

As we moved farther inland towards the country's eastern highlands, the trees began to look healthier. They were taller and stronger, and their leaves were a darker green. At one plot, we met a farmer whose main problem was keeping his neighbours away. Believing the stenophylla plants to be weeds, they had chopped down several of them. "Most people here don't know anything about stenophylla," he told me. Luckily, dozens of his plants had survived the cull and were about to bud. He was proud to be growing his country's native coffee and looked forward to harvesting several kilos of beans next year—a small but symbolic haul. Davis was overjoyed at how well the stenophylla plants were doing. "I'd got to the stage where I thought they'd never flower, so I'm just super-happy," he said.

When he got back to London, Davis embarked on an anxious wait for news about the stenophylla plantations. Would they make it through the long dry season? In June he texted me excitedly to say that the plants that were flowering in January were now fruiting. "You know," he said, "I think it's going to happen. We will be drinking stenophylla."

The plan is initially to market the coffee as a high-end product, selling it to coffee nerds at a premium.

**DAVIS GAVE
SHORT
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Stenophylla's small yields, however, mean farmers such as Bulle would still be gambling their livelihoods on it. Davis, though, believes there could be a way to help spread the risk. He has been hunting through Sierra Leone's forests for yet another species of wild coffee.

Liberica, which copes better at higher temperatures than arabica, is mostly grown in South-East Asia, but it is native to west Africa. In the 19th century, American abolitionists imported the beans from Liberia, a west African republic founded to "resettle" free and formerly enslaved black Americans. They served the fruity, smoky brew to Union troops in the civil war. Davis thinks liberica, which can grow up to 20 metres tall, could provide stenophylla trees with the shade they desperately need, as well as helping farmers diversify. Earlier this year, he found what could be a liberica tree in a forest on Sierra Leone's border with Liberia, and intends to test its DNA. His team at Kew has identified a natural hybrid of liberica and excelsa, "libex", which is apparently tastier and higher-yielding than purebred liberica, while retaining its heat tolerance.

Davis is always on the lookout for ways to get other people as excited about wild coffee as he is. He and his wife sometimes talk about collaborating on a book about his life's work. (Smith is hesitant about taking on what could become a never-ending



project. Her husband, she suspects, will keep discovering more coffees.) Davis wonders about getting France's top barista to make stenophylla espressos in the World Barista Championship. Another idea is to auction the forthcoming haul from the farmer in eastern Sierra Leone at Sotheby's or Christie's. To help generate a buzz, he gave a small bag of stenophylla beans to James Hoffman, a British barista who runs a popular YouTube channel. "It is ultimately a clean, sweet-tasting coffee that has some acidity, has got some florality," said Hoffmann in a video. It "actually fills me with a great deal of hope." ●

Tomas Weber is a writer in London

Earlier this year a Cuban doctor named Jorge received a WhatsApp message from a health official offering him the chance to work in rural Mexico. If he wanted the position, the official said, he'd have just a few hours to pack his bags. Jorge agreed immediately.

It wasn't the first time Jorge, a trim man in his 40s with intense hazel eyes, had been posted abroad. Over the past six and a half decades, Cuba has turned its abundance of well-trained doctors and nurses into a valuable export. In much of the developing world, people associate the country not with missiles or Marxism, but with the health-care workers who live and work in places their

Doctors posted abroad
provide Cuba
with most of its cash.

Sarah Esther Maslin
meets the health-care workers
caught between
Trump and a hard place

ILLUSTRATIONS PATRIK SVENSSON





local counterparts shun: rural villages, urban slums, the Amazon rainforest. The doctors programme is a humanitarian initiative, an expression of soft power and a lifeline for Cuba's communist government—it is the country's biggest source of foreign currency, bringing in about \$4bn a year.

Jorge's first medical mission was during the pandemic, when he was placed in an intensive-care unit for covid-19 patients in Mexico City. It was the first time he had left Cuba, and the culture shock left him reeling. Having grown up in a country impoverished by a command economy and an American embargo, he was used to ageing infrastructure, secondhand clothes and empty shelves. In Mexico he spent hours staring wide-eyed at shop windows; unused to feeling full, he would eat so much he felt sick. He thought about how much time he'd wasted standing in queues, fixing ancient appliances and walking to work when there was no petrol. Now he discovered the calm that came with not having to devote all his energy to survival.

But as soon as Jorge returned home, he felt drained again. Food shortages were getting worse and there were frequent blackouts. In the past he had managed to get by on his monthly salary, supplemented with government rations. But by late last year, as President Donald Trump intensified his campaign to throttle Cuba's regime, government *bodegas* were running bare and the 6,600 Cuban pesos Jorge was paid each month were worth only \$14. Jorge and his partner Bryan (both pseudonyms) survived off remittances from relatives abroad and gifts from his patients: a bag of beans, a few tamales.

When Jorge was offered the chance to go back to Mexico it was a straightforward financial decision. He would be making the equivalent of \$1,700 a month, working in a small hospital in a region wracked with poverty and violence. "I didn't come out of humanism," he told me. "Anyone who tells you that is lying. I'd much rather be in Cuba with my family."

Like his colleagues, Jorge sends most of the money he receives back home, where it funds solar panels and sausages and countless other things that make life more comfortable. The house he and Bryan share, in a rural province far from Havana, has high ceilings and pink-and-green-tiled floors, and is filled with stuff that other Cuban families lack: an electric scooter, a hard drive full of pirated entertainment, a photograph Bryan made with AI of the couple looking slick in business suits.

Jorge was glad he could provide Bryan with these things, and he enjoyed the experience of working abroad. His patients in Mexico liked him; he was easygoing and a good listener. He was making a hundred times his Cuban salary and living simply but rent-free, with hot water and fast internet. He often worked less than his contracted 35 hours a week because some staff members tended to go home early, before evening set in and the town became a playground for narcos.

Yet he was always thinking about Cuba. Whenever Bryan could get a signal he updated Jorge on the tragedy unfolding back home: about the lights being off more often than they were on; about government *bodegas* denying bread to anyone over six and under 65; about people dying from the lack of antibiotics.

Jorge had never considered himself a communist, but like many Cubans he'd learned to toe the official line. "Even if you think one way, you act another," he told me. "You say 'Long live the revolution!' You go to the march." His compliance had earned him a spot on this mission. But he began to worry that his work was propping up the regime he held responsible for Cuba's mounting crisis. Sometimes he wished that Mexico would end its support for the doctors programme; he would be out of a job, but such a measure might help bring down Cuba's communist leaders. He prayed for America to launch a "surgical strike", even though he worried about his loved ones.

This year, for the first time, Jorge allowed himself to consider defecting—something that several of his peers did during his earlier mission. It would mean relinquishing the support he gave to his family and exposing them to retaliation. He recalled the vitriol one defector received in the mission's WhatsApp chat, usually full of heart emojis and praying hands. "We have a rat," the head of mission wrote, asking everyone to send their thoughts about the *contrarrevolucionario*. "They wrote horrors about him," Jorge said. "They called him a deserter, a traitor, scum." Increasingly, though, he struggled to imagine returning to a country that was falling apart. At night he stayed awake wondering: should I stay or should I go?

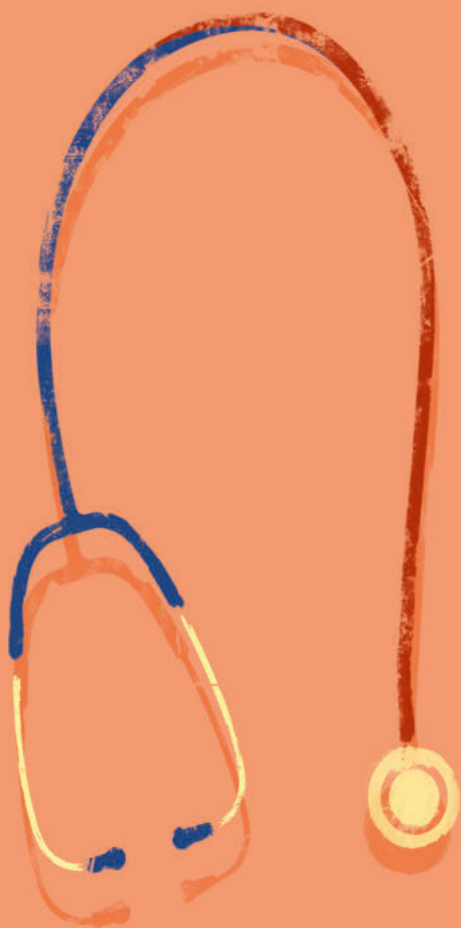
Doctors have been central to Cuba's idea of itself since the revolution. Che Guevara was a physician before trading his lab coat for combat fatigues. After overthrowing the right-wing dictatorship of Fulgencio Batista in 1959, Fidel Castro's revolutionary government set out to build a health-care system for a poor, sickly population. The country has since enshrined the right to free health care in its constitution and pioneered a prevention-based approach to medicine which has proved extraordinarily effective in delivering care on a shoestring. In the 2010s Cuba's infant-mortality rates were on par with those of developed countries, despite spending far less than they did on maternity services, and life expectancy matched that of the United States. (Some wonder whether official statistics are reliable.) In 2021 there were 9.5 doctors per thousand Cubans—five times the world average and more than twice as many as in the United States.

Today Cuba's doctors are responsible for the survival of not only their patients, but the regime itself. It is in terrible shape, economically and diplomatically. Trump and his secretary of state, Marco Rubio—a Cuban-American who has built his career, in part, by taking a hardline stance on Cuba—have pursued policies that have echoes of American imperialism in the

20th century, when the country backed coups and proxy wars in a bid to dominate the western hemisphere. They have ramped up sanctions on Cuba, crushing its tourism industry and cutting off other inflows of hard currency, and overthrown its most important ally in the region: Nicolás Maduro, the dictator of Venezuela, who used to keep the island supplied with cut-price oil. The Trump administration has also enforced a de facto blockade of fuel from other sources by threatening to slap tar-

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iffs on any country that sells oil to Cuba. The president boasts that, one way or another, he will bring about regime change. He has not ruled out a military invasion.

Trump and Rubio have discerned—as previous American administrations did—that the doctors programme is a pressure point for Cuba’s government. Initially, Cuba sent its doctors to host countries at no cost or a heavily subsidised rate. But after the Soviet Union collapsed in 1991, it lost its main financial backer. The economy, already strained by the decades-long embargo, fell into crisis. The Cuban regime quietly began using a sliding scale to charge most countries millions of dollars for the doctors. Soon the export of professional services surpassed tourism, sugar and tobacco as Cuba’s primary source of cash.

As the country’s medical missions grew in economic importance, so did America’s attempts to thwart them. In 2006 George W. Bush’s administration established the Cuban Medical Professional Parole Programme, which offered permanent residency to doctors who defected. Nearly 10,000 health-care workers abandoned their posts before the scheme was closed down in 2017. But past attempts to bully host countries into expelling their doctors were largely unsuccessful. “The problem was that the US wasn’t in a position to offer its own doctors,” said Tom Shannon, a career diplomat and former top State Department official. “Our position was, don’t take the Cuban doctors, and to hell with your people.”

Last year the second Trump administration figured out a particularly effective way to disrupt the programme: restricting visas for officials from countries with Cuban medical missions. Since mid-2025, at least ten host countries have sent their doctors packing. Mexico is the most significant holdout, but its left-wing government seems keen to keep the doctors’ deployment as low-key as possible. Jorge was flown to Mexico City in the middle of the night and bundled off to his *pueblo*, or town, the next morning—it felt like an undercover operation. “All that was missing was the hood over our heads,” he told me.

Rubio’s State Department has justified its crusade against the medical missions by saying they are a form of modern slavery. While the doctors are ripped off by their own government—which typically pockets between 50% and 80% of what host countries pay for their services—the Trump administration’s motives are hardly humanitarian. “They created this narrative to justify strangling a tiny country,” Johana Tablada, a top Cuban diplomat in Mexico City, said when we spoke in June.

It’s not clear whether Trump and Rubio will follow through on their threats of invasion. But they have proved to be more motivated than any previous American administration to shut down Cuba’s doctors programme. Their goal, it seems, is to weaken the regime to the point it is forced to strike a deal with Trump, or release its grip on power.

Doctors abroad find themselves at the sharp end of these geopolitical manoeuvres. The income they provide for their families back home is increasingly essential. Misery inside Cuba is becoming worse by the day. When I visited this May, it seemed as though the island was travelling backwards in time—people were studying by candlelight and cooking with charcoal. Outside Havana, some roads had more carts on them than cars.

As the Cuban government’s struggle looks increasingly futile,

**ELISA WAS TOLD HER TRIP WOULD
BEGIN IN JUST FOUR DAYS.
“I DIDN’T HAVE TIME TO PROCESS HOW
DANGEROUS IT WAS. IT FELT
LIKE THE ONLY OPTION”**



some doctors, like Jorge, are starting to wonder: should they keep helping to perpetuate it, or should they jump ship while they can? The irony is, the only way the regime in Havana can earn the currency it needs to stay alive is to expose its doctors to the capitalist world from which it otherwise tries to insulate its citizens. Yet unlike other Cuban exports such as coffee and tobacco, doctors have minds of their own.

The revolutionary government first began sending its doctors abroad in 1960 after an earthquake in Chile left nearly 2,000 people dead. Over the following decades Cuba would send more than 500,000 medical staff to more than 165 countries, reflecting the state's commitment to health care as a human right. The Latin American School of Medicine in Havana has trained more than 31,000 doctors from 122 countries, mostly in the global south; Operation Miracle has provided free eye surgery to some 3m people around the world.

Aid can be measured in different ways, but on the basis of human capital, "the contribution of this small island to global health dwarfs that of all other industrialised countries," John Kirk, a Canadian academic and a Cuba expert, has written. In the 1980s America sent abroad one aid worker for every 34,700 citizens—Cuba sent one for every 625.

Over the past six months I have spoken to more than 30 Cuban doctors and nurses who have served on medical missions. Around half are living in Cuba; most of the others defected from their posts. Two, including Jorge, are currently serving abroad and are technically forbidden from speaking to journalists. Their motives for going on missions varied, from a desire for financial stability, career advancement or adventure, to a genuine desire to help. So did their experiences. Many, particularly from older generations, felt greater appreciation for Cuba's health-care system once they'd seen the suffering of their foreign patients.

Elisa, Jorge's younger half-sister, joined the doctors programme in 2013. It was then at its height, bringing in about \$8bn a year—roughly 10% of Cuba's GDP—and placing nearly a third of the country's doctors abroad. After graduating from medical school Elisa was offered a place on Barrio Adentro (Inside the Neighbourhood) in Venezuela. It was the largest Cuban mission at the time, with some 32,000 health-care workers, along with other professionals such as teachers, architects and engineers.

Elisa (also a pseudonym) was then 24, with a pixie-like physique, dyed-blond hair and a seemingly infinite store of energy and idealism. Both she and her brother had grown up saluting the flag at school every morning, chanting, "Pioneers for communism, we will be like Che." But whereas Jorge had been raised by his paternal grandparents who were sceptical of communism, Elisa was influenced by her father. He oversaw a chain of state-owned factories and instilled in her a fervent belief that communism was the best thing that had ever happened to Cuba.

Setting out on her mission, Elisa was filled "with the idea that I was going to help the Venezuelan people." She was excited to put the values of solidarity and sacrifice she learned in

medical school into practice. She also wanted to make money. In Venezuela she would earn \$200 a month, ten times her salary as an intensive-care doctor in Cuba, where it had seemed normal to save for a year to buy a single pair of Crocs.

Elisa was assigned to a poor, busy hospital in the vast state of Bolívar. She kept to a gruelling schedule—24 hours on, 24 hours off—and treated 60 to 100 patients a day in the emergency room. Once a member of a local gang dragged in his unconscious leader, who was bleeding from a gunshot wound. "Save him or we'll kill you," he said.

The following December, Elisa returned to Cuba for a month-long holiday. She stayed in her mother's and stepfather's house, which had a leaky roof and a pigsty in the backyard. After a year of skimping on meals to save as much of her salary as she could, she weighed just 90 pounds (41kg). But with the \$2,000 she had put aside, she bought her family an air-conditioning unit, a washing machine and a television. She felt giddy every time she used the government-issued debit card that gave her a 30% discount on household goods—a privilege reserved for members of medical missions. "I'd never seen a bank card before," she said. "I felt like I could change the world."

At Christmas Elisa put up a tiny artificial tree. In retrospect, she said, that was her first rebellion, since both Christianity and consumerism ran contrary to the values of the revolution. Her childhood fervour had left her primed for disillusionment when she discovered the world beyond Cuba's shores. She had begun to question whether communism was really as egalitarian as it purported to be. In oil-rich, socialist Venezuela, she noticed a chasm between the poverty of her patients and the wealth of government cronies and army officers. She also learned that the value of the subsidised oil which Venezuela was paying Cuba for the doctors' services far exceeded the sum that the medics themselves took home. The Cuban government justifies such discrepancies by saying that the money is funnelled back into the public-health system, including tuition-free medical schools.

Elisa was not convinced. Her whole life she had heard people blame America and its embargo for Cuba's run-down hospitals and poverty. But now she struggled to feel grateful to a government that asked so much of her but was incapable of providing for her basic needs. Although Raúl Castro, the president at the time, had introduced cautious economic reforms, most Cubans still had trouble making ends meet. Rations were being reduced, schools were losing teachers, and even the beloved health-care system was showing signs of strain. (Elisa said her mother received stitches after a fall that were so badly sewn they didn't stop the bleeding.) Elisa had always been clever and inquisitive, but she had grown up without the internet. "I left Cuba with my mind in a cage," she said. "In Venezuela, I began to wake up."

**AT CHRISTMAS
ELISA PUT UP A
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Elisa's service in Venezuela took place in an unusual interlude in America-Cuba relations. Barack Obama sought a rapprochement with the Castros and there was widespread hope that the island's isolation might end. During his visit to Havana in 2016—the first time

a sitting American president had gone to the country since the Cuban revolution—Obama praised the doctors programme and its service “for the poor and suffering”. He loosened restrictions on remittances and travel to the island. The Cuban government, in turn, made it easier for foreigners to invest and for Cubans to run small businesses and buy and sell houses.

Obama believed that greater economic freedom, along with rapidly spreading internet access, would make Cubans question their lack of democratic rights. To a degree, a revolution did happen—but not among those on the island. Instead it took place among the doctors living abroad, who faced fewer repercussions for speaking out. One notable revolt occurred in Brazil, where doctors, rather than defecting quietly as they had in the past, complained to the press about their experiences of wage retention. They also filed lawsuits against the Brazilian government and the Pan American Health Organisation, which was acting as a financial middleman and taking a cut of their salaries too.

The Cuban government and its defenders claimed such revolts were the result of a conspiracy between xenophobic medical associations in host countries, Cuban exiles funded by the State Department and reactionary politicians. To stem the mounting flow of defections, the regime clamped down on health-care workers. It confiscated the passports of those serving on missions; encouraged them to snoop on one another; froze part of their salaries as an incentive to return home; and refused to let their families accompany them abroad. The cruellest tool was the “eight-year ban”, which bars those who have abandoned international missions from returning to the island for the best part of a decade. Tablada, the Cuban diplomat, told me that the country’s immigration laws are “under review”, but also that “Cuba has a right to defend itself” against “brain theft”.

The restrictions made Elisa feel suffocated. After her holiday in Cuba she returned to Venezuela, where she lived in cramped quarters in the back of a police station with 14 other Cubans. They weren’t allowed out after 6pm, or to drive, or to travel out of the state. There were strict rules about who they mixed with: they couldn’t date a local without permission, or have “friendships or relationships” with those who held “hostile or contrary views”. When Elisa’s bosses found out that one person was planning to abandon the mission, they sent him home and interrogated his housemates. “It’s an awful feeling,” she told me. “You start to mistrust everyone, even your own countrymen.”

There were external pressures, too. Catastrophic mismanagement and falling oil prices had led to food shortages, hyperinflation and violent protests across Venezuela. Because Cuban doctors had sometimes campaigned on behalf of Maduro’s government, they became targets of anti-government rage. Elisa understood the protesters’ anger and felt responsible for the role her country had played in Venezuela’s collapse.

Finally, she cracked. “I can’t take it any more,” she confessed to a sympathetic colleague. It turned out that the colleague had a friend who had abandoned his mission and defected to Colombia; he was the first to tell Elisa about America’s doctor-parole pro-

gramme. The man put her in touch with a coyote, or smuggler, who promised to get her across the Venezuelan border. Elisa was told her trip would begin in just four days. “I didn’t have time to process how dangerous it was,” she said. “It felt like the only option.” She gave her belongings to her colleague and sold her mobile phone for cash. After a long journey to the border, she joined up with a group of Venezuelan migrants, and crossed the waist-high river that separated Venezuela from Colombia.

When the Cuban government found out about her escape, they sent agents to her mother’s house every day for three weeks. Some days, they would chastise her mother for raising a traitor; on others, they’d beg her to convince Elisa to return to Venezuela. “When she repents, we’ll welcome her back,” they said. Meanwhile, \$4,800 in frozen funds disappeared from Elisa’s bank account. Friends and family members wrote seething messages on her Facebook page, calling her an enemy of the revolution, a deserter, a worm. Her best friend stopped speaking to her. So did Jorge, who saw his own hopes of going on a mission dashed as a result of Elisa’s actions.

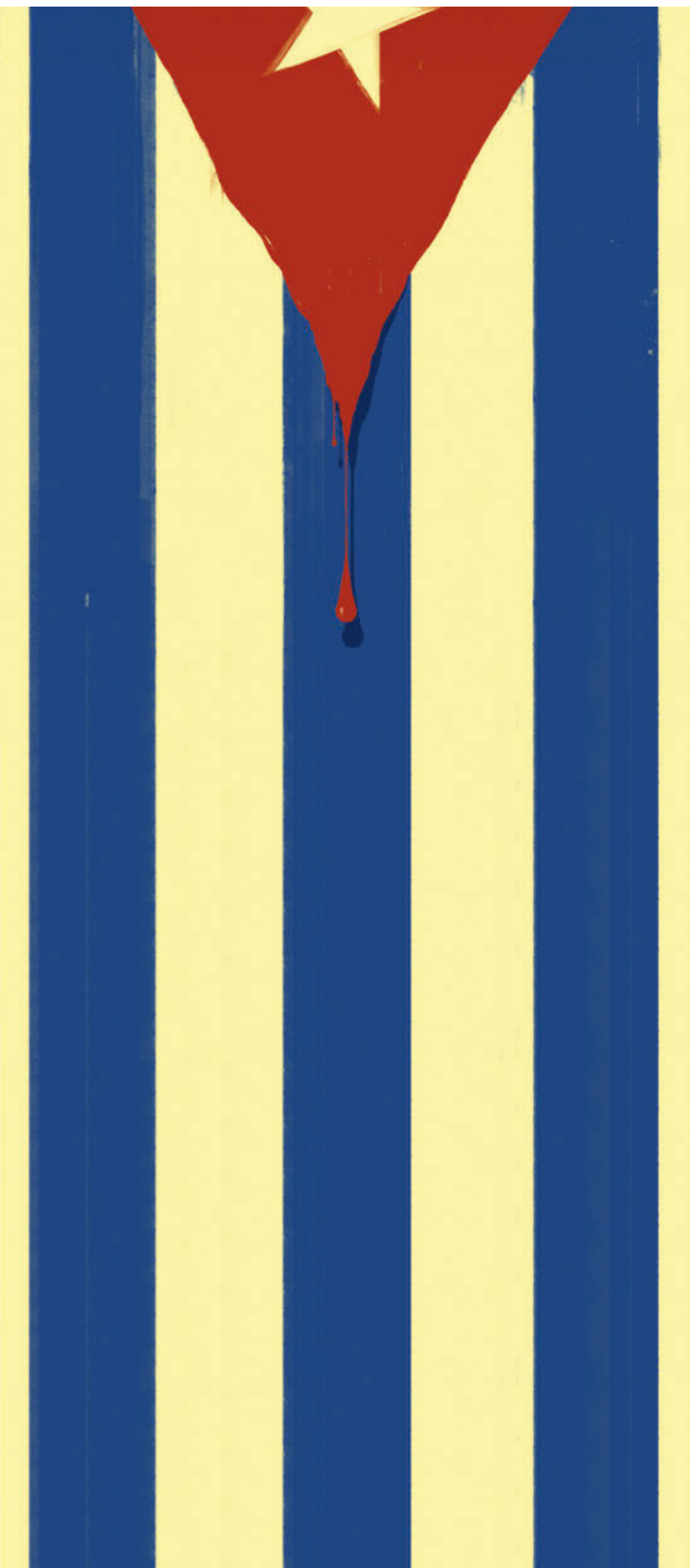
This fanaticism only strengthened Elisa’s resolve. Once in Colombia she went to the United States embassy in Bogotá and announced she was a doctor who wanted to defect. She was fortunate with her timing. Not long afterwards, Obama announced the end of the parole programme. Four months later, she boarded a flight to Miami.

Today, with the Obama-era thaw long over, the doctors programme is a shadow of what it was when Elisa left it. Host countries had begun pushing out their Cuban health-care workers during Trump’s first term. In 2018 Jair Bolsonaro, Brazil’s far-right populist president, used the revolt by the doctors there as an excuse to force out all 8,300 of them. Bolivia and Ecuador followed suit. Now, after Trump’s latest pressure campaign, there are fewer than 20,000 Cuban health workers abroad, a drop from more than 50,000 a decade ago. This loss will hurt host countries. Some have relied on Cuban doctors for 50 years; others count on Cuba for 20% of their medical personnel. The Cuban medics who are currently treating earthquake victims in Venezuela will soon head home.

Cuba, meanwhile, has turned into a place it might once have sent doctors to. When I visited a hospital in Jorge’s and Elisa’s hometown, the hallways were dark and the examination rooms lacked supplies and equipment. Generators were keeping the lights on in the operating rooms, but the frequent power cuts had fried several ageing ventilators and x-ray machines. No one knows how many Cubans have died as a result of the fuel blockade, which UN experts have deemed a violation of international law. But the government has said that critical procedures have been disrupted for tens of thousands of people. Patients are being asked to bring their own medicine, which has reached exorbitant prices on the black market.

Such desperate circumstances have alienated many health workers. I met people all over

**I MET PEOPLE
ALL OVER THE
ISLAND WHO’D
LEFT MEDICINE
TO BECOME
TAXI DRIVERS,
SHOPKEEPERS OR
WAITERS**



the island who'd left medicine to become taxi drivers, shopkeepers or waiters, because these jobs are far more lucrative (Cuba lost more than 77,000 health workers between 2021 and 2024).

For doctors who have stuck it out, the country's crisis has created both a strong incentive to go abroad, and a deep state of ambivalence about a programme that was once Cuba's source of pride. Many doctors in Elisa's generation had idealistic motivations and rewarding experiences, but these days the reason for working abroad is overwhelmingly economic. Although it's still the case that only a small minority of doctors defect, I spoke to several who'd gone on missions with that explicit purpose, and had done so within the first 24 hours.

In Havana I met a woman I'll call Yasmín, a black 63-year-old obstetric nurse. In the 1950s her parents belonged to an urban resistance movement that helped bring Fidel Castro to power, and she credits the revolution for reducing racial disparities. She had served on several medical missions and recently turned in her paperwork to go abroad again. But her gratitude has turned to disenchantment. "I did so much for my country," she said, lowering her voice in the way Cubans do whenever they criticise the government. "But where is all the money?" She tried to retire at the end of the pandemic, but had to return to work because her pension wasn't enough to live on. "You look at the state of the hospitals..." she said, her voice trailing off. Her siblings, who left Cuba decades ago, have been urging her to join them in Florida. For the first time, she's considering it.

Against all odds, some people in Cuba have managed to remain sanguine. During an 18-hour blackout, Jorge's partner Bryan took me to a rooftop restaurant with fairy lights and frozen cocktails—its owner, he said, had foreign income and government contacts. Bryan is a decade younger than Jorge. Despite having never lived abroad, he comes across as urbane and informed. He mixes English into his conversations; he knows about anime and Broadway musicals. The internet allowed him to broaden his horizons from a young age in a way that Jorge and Elisa never could.

I asked whether he thought the doctors were humanitarian heroes or slaves of an authoritarian regime, as the State Department claims. Bryan laughed: "Both are true." The Cuban government exploits doctors' desperation, but calling them "slaves" is an exaggeration, he said, especially in a country that was shaped by chattel slavery (scholars believe that more than half of Cubans have African ancestry). Doctors should be paid more, he thought, but it's fair that they are expected to give back. "I'm the son of a poor black woman who cleaned floors for a living," Bryan said. "Thanks to the revolution I was able to become an engineer. I never paid a cent."

In many ways, Elisa is an American success story. After defecting, she made a new life in Miami, where a third of the population is Cuban. Like most doctors who defected, Elisa gave up on the arduous re-certification process required to practise medicine in Florida. Instead, she got a job as a medical coder, liaising between physicians and health-insurance companies. She has fared better than many doctors I spoke to, especially more recent arrivals: one told me he is delivering packages for Uber, another is fighting a deportation case.

**“WHEN I LEFT, I WAS A GIRL
STILL DRINKING POWDERED MILK.
MY MOM GETS HERE
AND FINDS A GROWN WOMAN
WITH TWO KIDS”**



Elisa lives in a four-bedroom house in a leafy neighbourhood with her husband, a veteran of the Iraq war, their kids, aged six and four, and her Polish mother-in-law. “We bonded over our shared traumas of communism,” Elisa joked.

When I visited, Elisa apologised for her Spanish—not only because it was lightning fast, like that of most Cubans, but because it was peppered with English words like “so”, “um” and “well”. In our conversations she remembered her pride as a young doctor, but struggled to recall what had impressed her about Cuba’s health-care system. Like nearly all of the doctors I interviewed who had defected, Elisa agreed with the State Department’s characterisation of the medical missions as “modern slavery”. She was frustrated by a recent report from the Inter-American Commission on Human Rights, which concluded that elements of the missions amounted to forced labour and human trafficking. It was the strongest condemnation of the doctors programme to date by a major regional human-rights body, but in her opinion, it didn’t go far enough. “Nowhere”, she said, “did they use the word ‘dictatorship’”

Elisa’s views have undeniably been influenced by a decade in Miami’s stridently anti-communist and staunchly Republican Cuban exile community, which views the prospect of American intervention with enthusiasm. She and her kids have taken to calling the president “Papa Trump”. It’s a testament to the depth of the defected doctors’ disenchantment that many have become Trump supporters, even though his administration has treated them with the same disdain it shows other migrant groups. Draconian immigration rules on both sides of the Florida Straits have taken a toll on Elisa’s family. Although her eight-year ban has ended, she hasn’t returned to the island; she fears that if she does, she might be flagged as a doctor and forbidden from leaving.

As a result, she and Jorge haven’t seen each other for a decade, and he has never met her kids. But she has been reunited with her mother, who joined her in 2022 (her stepfather, who has spina bifida and arthritis, stayed behind in Cuba). On my last afternoon in Miami I met them both in the small apartment that her mother, whom I’ll call Teresa, shares with one of Elisa’s cousins. It smelled of browning onions and the earthy mix of spices used in Cuban rice. As we spoke, shrieks and giggles came from the bedroom, where Elisa’s kids were playing with her cousin. Teresa picks her grandchildren up from school every afternoon and looks after them until Elisa gets home from work.

The mother-daughter reunion hadn’t gone as expected. In Cuba, they’d been so close they’d even shared a bed. But in Miami, they bickered constantly. “At first, I felt jealous of my grandchildren,” Teresa explained. Elisa raised her eyebrows; this was the first time she was hearing of this. “I wasn’t here for Elisa’s pregnancies, for their first years,” Teresa said. “I felt like they took my daughter from me.”

Teresa turned to Elisa. “I don’t know if you remember,” she said. “You had these beat-up sandals. A nail was holding the strap together. I held on to them for years after you left, I couldn’t throw them away.”

Elisa laughed. “When I first got to the US, my mom called me and went, ‘I have your books, your clothes, your powdered milk.’ I was like,

‘Mamá, I’m not coming back!’” She paused and looked at her mother, as if seeing her for the first time. “When I left, I was a girl still drinking powdered milk,” she finally said. “My mom gets here and finds a grown woman with two kids.”

Despite Elisa’s embrace of the all-American life, it was clear she also felt nostalgic. She had asked me to pay a visit to her house when I was in Cuba and text her photos of everything I saw. The living room had barely any furniture, and in the kitchen were the same appliances Elisa had bought more than a decade ago. A hurricane had torn off part of the roof, which has been covered with a tarpaulin ever since. On the walls were faded photographs: Jorge in a nappy with a ball; Elisa in primary school wearing a Soviet-style neck-scarf in front of the Cuban flag; Elisa graduating from medical school in a pink gown and a white lab-coat. “Crying here,” she’d replied when she saw my messages. “It’s exactly the same as when I left.”

A few weeks after I saw Elisa in Miami, I travelled to Jorge’s *pueblo* in Mexico. As I drove into town, I passed posters advertising a band famous for narco ballads and signs promising “fast work visas” to the United States. When we met in the square outside the Catholic church, Jorge still seemed torn about the prospect of defection. For the time being, his salary gave him a strong incentive to stay, but he predicted that “loads” of doctors would leave right before the mission ended in December. He had made plans to speak to a lawyer about Mexican residency—but he had also added his name to a spreadsheet of volunteers for missions in 2027.

Jorge admitted that he sometimes envied Elisa. “She was so young when she left, she takes for granted that she can think freely,” he said. He felt bad for the way he’d shunned her when she had defected, but he said he’d suffered as a result of her decision; it took years for the government to trust him enough to send him on a mission. “She didn’t think about the rest of us,” he said.

In May the Justice Department indicted Raúl Castro for his alleged involvement in the downing of two planes carrying Cuban exiles in 1996. Pundits speculated that the case might be used as the pretext for a military intervention in the style of the operation to capture Maduro, which was also preceded by criminal charges. In response Jorge’s bosses in Mexico called a video meeting with all the doctors on the mission, telling them to be ready to fly home “at any moment” because Cuba was “at war”.

He panicked. “They do this on every mission,” his colleagues reassured him. Sure enough, talk of an invasion soon died down. But it had forced Jorge to think about what he would do if he were suddenly called home. “I don’t want to go back,” he confessed.

Elisa isn’t sure he will have the courage to flee. When Jorge lived in Mexico the first time, she offered to pay a coyote to bring him over the border but he demurred. “Sometimes when you open the door to the cage, the bird doesn’t fly away,” she said. Teresa had another explanation. “My kids are good kids,” she said. “But my daughter is braver than my son.” ●

Sarah Esther Maslin is a journalist based in Mexico City

TALK OF AN INVASION HAD FORCED JORGE TO THINK ABOUT WHAT HE WOULD DO IF HE WERE SUDDENLY CALLED HOME

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Mykhailo Drapaty

The butcher's bill

KYIV

The new commander of Ukraine's armed forces is innovative—and critical of its old Soviet-style leadership

RENOWNED GENERALS from George Patton, who strutted about in cavalry boots and carried two ivory-handled pistols, to the ascetic Bernard Montgomery, understood that their troops' morale depends a lot on the image they project of themselves. Few will have taken the job with the legendary status of Mykhailo Drapaty (pictured), who was named the commander-in-chief of Ukraine's armed forces on July 21st, replacing Oleksandr Syrsky.

Many hope his appointment will lead to the modernisation of Ukraine's armed forces. Though they have shown an unexpected talent for innovation and adaptability in the years since Russia's full-scale invasion in 2022, they have been unable entirely to shake off the stultifying rigidity of their old Soviet-era command structures.

General Drapaty, aged 43, first rose to fame as a young major in 2014 when Russia-backed separatists tried to seize Mariupol, a city on the south-east coast. Leading

from the front in command of a column of four armoured vehicles, he smashed through rebel barricades and into the city. Later that year he led his battalion on a raid along the Russian border to cut off separatist fighters. His force, along with others, came under fire from Russian troops and was encircled. When a sister battalion surrendered, he led some 260 troops back to Ukrainian lines.

His reputation rests on not just bravery but also compassion. In late 2024 he was appointed commander of the ground forces, a role focused on training and prepar-

ing troops, rather than leading them in battle. His first orders were aimed at improving their conditions, revamping recruitment and introducing technology to reduce losses. He also sought to implement a Western style of command, whereby subordinates were given more authority. "The command is gradually shifting from a culture of fear to a culture of responsibility," he later wrote on Facebook. "For the first time, the initiative from below has ceased to be a threat, and has begun to become a resource."

As he granted more responsibility, he held himself to the new standard. In 2025, after a Russian missile killed 12 soldiers on a training base, he resigned, saying he should be held accountable.

He was later deployed to a role in which he was more directly involved in planning combat operations, where he won the praise of his subordinate brigade commanders for listening to them and offering support. "He is a critic of Soviet-style thinking and micromanagement," noted Rob Lee, an expert on the Ukraine war.

This approach was in stark contrast to that of General Syrsky, who was sacked by Volodymyr Zelensky, Ukraine's president, amid big protests calling for him to go. General Syrsky had been unfairly nicknamed "the butcher", partly because of the losses suffered during his dogged defence ►►

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► of the city of Bakhmut in 2023. Many commentators present the contrast between Generals Drapaty and Syrsky as a generational struggle between a young tech-savvy drone enthusiast and a Soviet-style traditionalist. But that misses the main points of difference between the two.

General Syrsky oversaw the widespread adoption of drones in the Ukrainian armed forces and the strategy of using medium-range drones to isolate Crimea and long-range drones to hit oil installations deep in Russia. Yet he also saw the value of investing resources in more traditional kit, such as tanks and artillery, since these are needed to blunt and break up attacks that would overwhelm defenders armed only with drones.

He is also seen as a talented tactical commander, who skilfully led the defence of Kyiv in 2022 and an offensive into Russian territory near Kursk two years later. The bigger concerns about General Syrsky's leadership relate to what some saw as strategic blunders as well as favouritism in the allocation of reinforcements and other resources. Western officers involved in the planning of Ukraine's big summer offensive in 2023 accused him of diverting troops to Bakhmut instead of concentrating forces for an attack in the south. Allies of the general counter that he was tying down Russian troops and that, if there was any misallocation of forces, blame for that should fall on Valery Zaluzhny, who was the chief commander at the time.

General Syrsky also developed a reputation for micromanagement and a refusal to fully accept the authority of the defence minister, Mykhailo Fedorov, another young moderniser. When Mr Fedorov tried to consolidate weak and poorly led units, General Syrsky formed new brigades, diluting already-scarce manpower. "Syrsky took several of Ukraine's best units and deployed them as a split formation across opposite ends of the front," wrote Jack Watling of the Royal United Services Institute, a think-tank in London.

After clashing with General Syrsky and failing to oust him, Mr Fedorov was sacked on July 15th by Mr Zelensky. The move triggered the protests calling for General Syrsky to go—and for Mr Fedorov's return. Mr Zelensky has reportedly offered Mr Fedorov a new job, though it is unclear whether he will take it. The spat has changed his relationship with Mr Zelensky, which was once trusting and loyal. The outcry over Mr Fedorov's sacking and its chaotic aftermath has hurt the president's authority. The demonstrations included soldiers such as Andriy Syry, aged 27, who lost his foot in a drone strike. He attached a banner to his crutch reading: "I can't stand up but I won't shut up." Whatever the talents of the new commander-in-chief, the problems he faces have no easy fix. ■

Russia and Ukraine

Up in smoke

MOSCOW

Ukrainian strikes on e-commerce hubs are bringing Russia's war home

EIGHT CIVILIANS lay dead. More than 80 were injured. Columns of black smoke billowed from the wreckage. On July 18th Ukrainian drones hit two giant warehouses belonging to Wildberries, Russia's largest online retailer, in Moscow and Tambov, some 475km south-east of the capital. The bombs are thought to have destroyed some 150bn roubles (\$1.9bn) worth of consumer goods. Four days later Ukraine bombed two more warehouses in south-west Russia. One woman was killed.

Volodymyr Zelensky, Ukraine's president, said that soldiers and volunteers use Wildberries to buy military-related goods such as drone components and bulletproof vests. But he also signalled revenge. The attacks, he said, were a "response to Russian strikes on our civilian infrastructure and on our cities and communities". They followed strikes on facilities belonging to Nova Poshta, a Ukrainian postal and logistics company, which Russia says are also used for military purposes.

Ukraine's attacks on refineries, which have caused fuel shortages across the country, were already bringing the war home. The latest strikes further undermine the notion that the fighting will stay confined to the battlefield in Ukraine and drive home the Russian authorities' failure to defend their own people. "Those black columns of smoke have become part of everyday life," says one Muscovite. Wild-

berries has millions of customers. Hundreds of thousands of businesses use it to sell everything from socks to smartphones (not to mention body armour and fibre-optic cable). "The attacks on Wildberries warehouses have affected nearly 100% of the population in one way or another: some physically, some financially, and others psychologically," says Elena Panfilova, a Russian political scientist.

Merchants who sell their wares on the site filled social media with videos and posts. One mother from a small town posted on Instagram: "I made everything with my own hands...and then this happened. Everything fell apart. What am I supposed to do now?" Natalia Plonke, who sells cosmetics, said: "The risks are being shifted onto us. The losses are becoming ours, too. It's only going to get worse." But for Wildberries the attack was not a complete surprise. Two weeks earlier the company revised the terms of its contracts with merchants, disclaiming responsibility for war-related losses.

Damn and blast

Russian military bloggers have long lamented the apathy of Russians who tried to ignore the war. Responding to the latest strikes, some pro-war nationalists sounded almost gleeful. "From the point of view of getting people involved, [these attacks] are a plus," said one commentator. In fact such strikes may make Russians more resentful towards the war. In the Samara region a veteran recently tried flashing his credentials to get petrol without queuing. Angry motorists beat him up.

Public discontent is rising. According to VCIOM, a pollster close to the Kremlin, satisfaction with government policies has fallen from 45% in January to 21% in June. The number of people who think Russia is heading in the wrong direction has doubled from 17% to 35% in the past year, says Levada, an independent pollster. President Vladimir Putin's own approval ratings are falling, too, though from a high level.

In Moscow campaign posters reading "Za Putina" ("For Putin")—complete with the Latin letter "Z", symbolising the war—are now commonplace. Parliamentary elections are two months away. Any politician who speaks against the war has been excluded from standing. The Kremlin will declare whatever result it wants.

But the Kremlin cannot control how Russians feel. Most want the war to end. News broadcasts are leaving out information about Ukraine's drone attacks, further eroding trust in television—one of Mr Putin's levers of power. While 56% of Russians still mention television as their main source of information, only 37% say they trust it. In the past, Mr Putin brought the war to their TV screens. Now he has brought it into their daily lives. ■



They're going to need a bigger hose

German politics

Spahn out

BERLIN

A surrogacy scandal costs Friedrich Merz an effective lieutenant

JENS SPAHN, until recently the parliamentary leader of Germany's Christian Democratic Union (CDU) and the Christian Social Union (CSU), its sister party, is deficient in sharp political instincts. On July 15th Mr Spahn said on social media and in an interview with *Bild*, a tabloid, that he and his husband had had a baby boy via a surrogate in America. Unfortunately for him, that looked to voters like brazen hypocrisy. Surrogacy is illegal in Germany and Mr Spahn, a conservative former health minister, had argued that it should remain so. Three days later he resigned.

Mr Spahn's departure is awkward for Friedrich Merz, the chancellor. The pair are not close: in 2018 Mr Spahn ran against Mr Merz for the CDU's leadership. But Mr Spahn had a good relationship with Matthias Miersch, his opposite number in the Social Democratic Party, and was effective at managing the quarrelsome coalition between their two parties.

The pair brokered a comprehensive reform package, a 34-point "programme for growth and employment", finalised on July 1st. Its most important elements are reforming the ailing public-pension system and providing tax relief for low- and middle-income earners. The government needs to deliver such measures if it is to have any chance of heading off the hard-right Alternative for Germany (AfD) in state elections in eastern Germany in September. Without Mr Spahn's dealmaking nous, the coalition could return to disarray.

Walk the plank

Mr Merz was slow to grasp the strength of the outcry over Mr Spahn's announcement. In his annual *Sommerinterview* on ZDF, a public broadcaster, the chancellor hinted that the public's anger was so strong because of Mr Spahn's divisive and scandal-prone personality.

Mr Spahn is one of Germany's least popular politicians. In 2020 he got a loan for a villa from a bank where he had served on the supervisory board. During the pandemic he awarded a contract for overpriced face-masks to a firm employing his husband (the health ministry denies preferential treatment). Many dislike his MAGA connections: he is friendly with Richard Grenell, a former American ambassador, and Peter Thiel, a hard-right tech mogul.

Mr Merz wants to move on quickly from the Spahn affair. On July 29th lawmakers

The World Cup

A victory for football's soul

MADRID

Spain's team embodies footballing values FIFA has betrayed

LESS THAN 24 hours after Spain's victory over Argentina in the World Cup final, Madrid turned out to congratulate the team as they paraded in an open-top bus. "Champions of the World", sang the crowds. The government reckoned 1.8m people (in a city of 3.5m) attended the celebration, many waiting hours in suffocating heat.

La Roja (The Reds) embody Spanish virtues that casual visitors often overlook: modesty, hard work and above all teamwork and unity. Their success is based on denying the opposition possession of the ball, and close control and probing inter-passing when attacking. In an era of flamboyant sporting superstars, Spain's most influential figure was Rodrigo "Rodri" Hernández, an unobtrusive midfield general who was named

the World Cup's best player.

The team represents national cohesion in a country of fragmented political geography. The squad included nine Catalans and three Basques. Lamine Yamal and Nico Williams, two rising stars, are the children of African immigrants. Until recently, many Catalans and Basques were ambivalent towards La Roja. Now many seem enthusiastic. The final's audience share on TV in the Basque country was 84%, just below the national average of 87%. The only acts of intolerance were by Bilbao's mayor, a Basque nationalist, who refused to install an outdoor screen for the final, and extremists who tried to sabotage one set up by a conservative party.

On the pitch, Spain's victory was one for the values of football. Argentina kicked and shoved. A less indulgent referee would have handed out more than the single red card they received during the match. The punches they threw at their opponents after the final whistle will be investigated by FIFA, the sport's governing body.

This World Cup was marked by innovations. Expansion from 32 to 48 teams was on balance a success. Not so crass commercialisation, with advertising breaks disguised as "hydration breaks" and a lengthy half-time show alien to the sport's traditions. Football is also supposed to be free of political interference. But FIFA drew criticism when it rescinded a red card from an American player after Donald Trump called Gianni Infantino, the organisation's boss. In the final, Mr Trump was backing Argentina, an ally. Too bad: the filigree football of Spain, whom he has called a "terrible partner", prevailed.



Fast kickin', low scorin' soccer!

from the CDU and CSU will interrupt their holiday to vote on Mr Spahn's successor in Berlin. According to media reports, Thorsten Frei, the head of the federal chancellery, will be his replacement. "He is popular among parliamentarians though he is not as strategic as Spahn, who could bring them to heel," says Cathryn Clüver Ashbrook of the Bertelsmann Foundation, a think-tank. Mr Frei's likely successor is the health minister, Nina Warken. Moving her will require a cabinet reshuffle.

It is not clear whether a change of per-

sonnel would revive Mr Merz's sagging popularity. He could try to reboot his government by replacing a few of the CDU or CSU ministers in his coalition government. Voters don't much like Patrick Schnieder, the transport minister, or Katherina Reiche, the economy minister. Mr Schnieder is blamed for the notorious delays at Deutsche Bahn, the national railway service. Ms Reiche is unpopular because of her perceived closeness to the fossil-fuel industry and her inability to come up with an effective industrial policy. ■

CHARLEMAGNE

All the continent's a stage

Dismissing Europe as a museum is glib. Think of it as a theme park



HOW BETTER to come under the spell of *Mitteleuropa* than to stroll across the Charles Bridge, admiring Prague's baroque skyline before reaching the glistening cobblestones of its old town? If Gallic charm is your thing, surely nothing can be so Parisian as whiling away an afternoon at the Café de Flore in Saint-Germain-des-Près, where Jean-Paul Sartre once puffed on Gitanes as he pondered being and nothingness. Or one might seek to discover the ancestral essence of Europe by basking in the old-money haunt of Capri, the whitewashed Aegean island of Santorini, or the honey-coloured streets of Dubrovnik. Pick among these destinations wisely and Europe offers the discerning traveller an unrivalled chance to commune with the continent's timeless soul.

Kidding! It has been decades since any local has even given thought to lingering in what were once the most charming parts of the continent. The Charles Bridge is merely a thoroughfare between tourist traps, the Flore is a relic best left to Instagrammers these days, Dubrovnik merely an entry on a visiting American's bucket list. From Barcelona to Bruges by way of Florence, vast swathes of Europe's once-idyllic cities are a procession of foreigners shopping for souvenirs. Some hilltop villages in Provence or Tuscany now seem to exist chiefly as backdrops for linen-clad types sipping spritzes. This counts as an economic success of sorts: a continent that struggles to export cars or chemicals now gets its dollars and yuan by enticing foreigners to come over and spend on its shores instead. Alas, that comes at a steep price. In summer Europeans are not so much residents of their home cities as extras in someone else's social-media feed.

Forget the gibes about the old continent being a museum in which Europeans can live out their unambitious *dolce vita*. These days it is better to think of it as a theme park where locals can be gawped at by holidaying voyeurs. Museums preserve history; theme parks offer any visiting punter willing to suspend disbelief that feeling of being part of it. This is closer to the European tourist experience. For the point of a family holiday to France or Spain is not just to admire the scenery. It is also to imagine oneself a true European, a temporary denizen of the world's lifestyle superpower. Indulging in long lunches, strolling through cities and dealing

with surly waiters are just as much part of the travel experience as visiting the Uffizi. The continent's greatest attraction is the suspicion that its inhabitants have somehow arranged life better.

Any European tempted to be flattered should remember that being a lifestyle superpower is not nearly the same as being the real thing. But hold that thought for after summer. Until then, selling authenticity by the night is a tidy earner. While America flogs artificial-intelligence models and China monopolises critical materials, only Charlemagne's cramped peninsula seems to be able to satisfy the global middle class's wanderlust. Of the roughly 1.5bn tourist journeys each year that involve crossing borders, over half are in European countries—a staggering success for a place with but a tenth of the world's population. Six of the world's ten most-visited countries are in Europe (including trips taken by fellow Europeans). The hotels, campsites and Airbnbs in the European Union can put up 32m people, enough to host the entire population of a dozen countries in the bloc. The nearly \$900bn in revenues from international tourism make up around 7% of Europe's exports, says the UN's tourism arm. Who needs big tech when you have the Eiffel Tower and the Parthenon? Europe cannot create its own Google, but it excels at tempting Silicon Valley engineers into spending \$1,500 a night to sleep in a converted convent. Would you like to see the gluten-free menu, madame?

Not every part of Europe partakes in the bonanza: the crowds remain unsurprisingly concentrated in a handful of photogenic bottlenecks. At the bustling end of the spectrum, even those who once welcomed well-heeled foreigners now realise they may have been too much of a good thing. Tourism hotspots in Spain and Croatia have been rebelling for a while, griping that short-term accommodation has turned homes into hotel rooms and residents into commuters. (Visiting Americans cosplaying at being European are often imitating locals who cannot themselves afford a break: for all their paid holiday, half of all Europeans lack the money for an annual trip of more than four days away from home.) Hoteliers and exchequers hooked on foreign income think the situation can be managed by shuffling visitors to more out-of-the-way places, or into quieter parts of the year. But imposing a tourism tax on hotels or trying to nudge tourists into the off-season won't reclaim the Café de Flore for Parisians. Those days are gone.

City of likes

Wary of anything that smells like economic success, Europe is currently busy undermining itself as a destination. One issue is bureaucracy, a recurring continental passion. The ham-fisted introduction of a new procedure to check passports for visitors to the EU has left many tourists this summer in airport queues lasting up to five hours. A more enduring problem is heatwaves. A little sweating was once part of the charm of visiting the continent's southern shores, a nudge towards taking up local siesta habits. Now it feels stifling. Italy risks turning its peak summer season into an endurance test with gelato in lieu of air-conditioning.

Yet even that won't deter the hordes. And so the great European summer shuffle will continue, as this former Parisian can attest. Those who can afford to leave the tourism-worthy bits of the city decamp to the beach. The resulting void is filled by foreigners who soon grumble about how many other foreigners are in this place. And thus, paradoxically, visitors get what is the authentic Parisian experience: sitting beside other tourists, and doing their utmost to pretend they are not there. ■

Britain



The new government

A man without (yet) a plan

Andy Burnham hits the ground strolling

BRITAIN'S NEW prime minister has inherited a country in a funk—and a Labour Party in a slump. On taking office on July 20th, Andy Burnham showed he could tap into the mood of a nation which needs a lift, and a party which needs a fresh start. Speaking in Downing Street, he declared: “Let us make this the moment when Britain starts to believe again.”

Britons are feeling pessimistic about their future. Nearly two thirds believe the country is heading in the wrong direction, according to polling by Ipsos. This gloomy outlook has persisted since the covid-19 pandemic gave way to a spike in inflation more than four years ago, and Mr Burnham's four predecessors struggled to shift it. Gathering his cabinet for the first time on July 21st, the prime minister told his team they needed to “take that little bit of pressure off people's shoulders”.

Mr Burnham is a good communicator; that is why Labour MPs are excited about a

change from the stolid Sir Keir Starmer. Alas, his rhetoric has not been matched by a transformative vision for government. Sixteen years after he first tried to become party leader, and a year since he began planning for his new job in earnest, Mr Burnham has hit the ground strolling.

He told his cabinet to be “boldly Labour”, and has railed against 40 years of “neoliberalism” which he claims have devastated parts of Britain, particularly in his

home region of the north of England. Mr Burnham has hinted at support for transformative (but probably self-defeating) policies such as wealth taxes, rent controls, the nationalisation of utilities and constitutional reform. None of those, however, made it into his initial policy programme, which is almost entirely short-termist.

Instead, Mr Burnham set out policies of limited ambition designed to fulfil a promise to lead “a cost-of-living government” (see next story), although wage stagnation, not inflation (which has fallen to 2.6%), is now the biggest constraint on living standards. He cut value-added tax on energy bills from 5% to zero and reintroduced a cap of £2 (\$2.67) on bus fares throughout England (other than London, where fares are already cheaper). For businesses, he has promised a discount on the local taxes of certain types of pubs and bars.

The energy announcement was only a modest advance on similar moves by Sir Keir, while the bus cap is a return to an identical policy in place under the previous Conservative government. Both policies will expire within a year of coming into force, and the promised sources of funding look questionable. Previous such small-scale attempts to make life more affordable have not won over voters. Mr Burnham presumably hopes that by setting them out as his very first moves he will convince the

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— Inheritance rows

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public that the long squeeze on their incomes is at last coming to an end.

Although Mr Burnham declared he was “ready”, he has signalled that some of his biggest decisions will be kicked down the road. He has promised to produce a “ten-year plan” sometime in the autumn. This is likely to include his solution to the knotty problem of how to reform social care for the elderly. His biggest policy passion is the devolution of power from Westminster to the English regions, but even there he has provided little detail beyond setting up a “Number 10 North” office in Manchester. Several Starmer-era policies, including the proposed handover of the Chagos Islands to Mauritius and a plan to restrict the number of jury trials in order to speed up the courts, are now under review.

As well as boldness on policy, Mr Burnham pledged a politics of unity and an end to Labour’s sniping between factions. That remains to be seen. Mr Burnham immediately fired from the cabinet most of those involved in crafting Sir Keir’s approach to the economy, which (in rhetoric if not always in practice) favoured tech, deregulation and a focus on housebuilding in order to gee up Britain’s sluggish growth.

Rachel Reeves was sacked as chancellor. Peter Kyle, Steve Reed, Liz Kendall and Darren Jones were removed from their posts overseeing, respectively, business, housing, science and the machinery of government. Other casualties included those whose only fault was loyalty to the last prime minister, such as Sir Keir’s deputy, David Lammy. The potential problems with this approach became apparent straight away, as Mr Jones went public with criticism of Mr Burnham’s unfunded spending promises.

By contrast, those Labour bigwigs who had fallen out with the previous regime were rewarded with promotions. Chief among these are the new chancellor, John Healey, who resigned as defence secretary in June after a row over funding, and Wes Streeting, who called for Sir Keir to go and is now in charge of defence. Angela Rayner, Louise Haigh and Lucy Powell—all fired by Sir Keir at some point—are back in senior positions. Ministers who let it be known that they had privately told Sir Keir to quit have either kept their jobs (such as Shabana Mahmood, the home secretary) or landed a promotion (such as Ed Miliband, who becomes foreign secretary). Mr Burnham’s commitment to healing old wounds in his party looks shaky.

Mr Healey’s return to the Treasury, where he served as a junior minister in the government of Sir Tony Blair two decades ago, is a welcome signal that Mr Burnham’s assault on economic orthodoxy will go only so far. The new chancellor told the cabinet that “we need to look hard at our own budgets”; given his previous role he is

expected to prioritise defence for any new public-spending splurge. Pat McFadden, the flinty work-and-pensions secretary, stays in place, suggesting that efforts to bear down on the welfare bill will continue. Mr Burnham has abolished the standalone department for science and technology, a decision opposed by the tech industry, but made up for it by giving Kanishka Narayan, the AI minister, a seat at the cabinet table.

In his first week, the prime minister has preferred quick wins to starting work on the long-term reforms needed to restore Britain to health—and see off the populism of left and right. Though he had

friendly phone calls with Donald Trump and other world leaders, his views on foreign policy remain murky. He has said almost nothing about his policy on immigration, the topic which—along with the economy—will decide the next election. He is sending mixed messages on whether he will continue the baleful trend of shifting the tax burden towards higher earners while prioritising pensioners for handouts.

This vagueness leaves Mr Burnham wriggle room to take his government in a more adventurous direction. So far, the early signs are that he is falling short of his grander promises. ■

First decisions

Calorific canapés

Andy Burnham’s early handouts offer a worrying taste of things to come

IN HIS FIRST days as prime minister, Andy Burnham presented his *amuse-bouches* to the British public. He announced that VAT, a consumption tax, would be cut on electricity bills from 5% to 0% from October. The cap on most bus fares would be slashed from £3 (\$4) to £2 for all of 2027. From April, pubs and clubs in England will get a 20% business-rate cut. Mr Burnham’s portion sizes are meagre: the electricity tax cut will save just £25 per household in this tax year, according to the Institute for Fiscal Studies, a think-tank.

These tasters show Mr Burnham’s strengths. He is a more political animal than Sir Keir Starmer, his predecessor, and understands that tackling the cost

of living will be crucial for his success. Unfortunately, he has served up policies that resemble baked Camemberts: they have lots of fatty calories and are liable to cause indigestion later on.

The calorie count is large and growing. Cutting electricity bills costs £850m this tax year alone. Mr Burnham says he will fund it by scrapping Sir Keir’s scheme to introduce digital IDs. But that policy was unfunded, so in reality he will need to find the cash elsewhere. It will be hard to ransack energy budgets, as he has already raided them for £454m to help fund the bus-fare cuts. These early decisions reflect Mr Burnham’s big-spending instincts. If he is not careful, the state’s waistline could balloon.

Nor are Mr Burnham’s offerings nutritious. By capping bus fares nationally, he is taking away the agency of mayors to decide how to support their bus networks. That’s the opposite of the devolution dream he ostensibly espouses. He is also blunting price signals.

The electricity tax cut is poorly targeted: richer households will save the most money. And the scrapped digital-ID scheme would in time have made it much easier to use public services. These are ominous signs of a short-termist leader ducking hard decisions.

Mr Burnham says these moves show his promise to “bring back hope”. But the most disgruntled diner is one who gets excited by the menu but disappointed by the food. The best way to tackle the cost of living is to get real wages rising through growth. If Mr Burnham is distracted by £25 giveaways, not even his communication skills will save him.



Winning back voters

Andy Burnham could save Labour

His supporters are more northern and more Green than Sir Keir's

LABOUR MPS hope that by picking the former mayor of Greater Manchester to replace Sir Keir Starmer they can clean the slate after two troubled years in power. Opinion polls suggest they may be right—at least for now.

Andy Burnham is more popular than Sir Keir (a low bar), but he also has better ratings than the now-departed prime minister had two years ago, when he came to power. Sir Keir squandered the political capital he had at astonishing speed with a series of U-turns and reinventions that voters hated. Though Mr Burnham's popularity may be equally short-lived, the data suggest that the new Labour leader could build a more enduring electoral base by uniting Britain's fragmented centre-left voters.

To dig into Mr Burnham's base of support, *The Economist* analysed a survey of 5,070 Britons conducted by Stack Data Strategy, a polling firm, between July 7th and 14th. The pollster asked respondents which party they would vote for if an election were held tomorrow. It then repeated the question, asking respondents to consider how they would vote if Mr Burnham were leader of the Labour Party as well as prime minister. The effect was to add 2.1 percentage points to Labour's vote share—a small but meaningful improvement (see map).

The new prime minister has tied his political identity to the north of England. Northerners have noticed. Across the region Labour's vote share under Mr Burnham improves by around six points. In his stomping-ground around Manchester the improvement is closer to ten points—not to be sniffed at. Only 26% of seats in Parliament are in the north of England, but over the past decade the region has been rising in political salience. *The Economist's* election model suggests that around 45% of the marginal constituencies which Labour needs to win for a parliamentary majority are in the north.

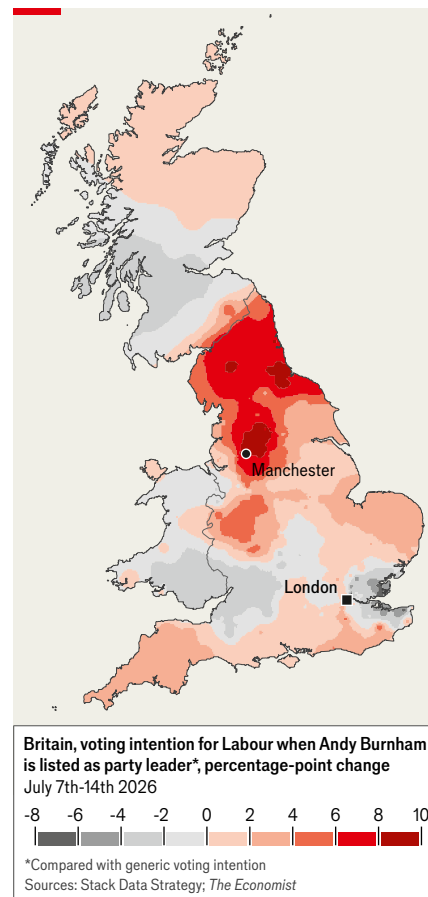
Mr Burnham's northern roots are also an asset in Britain's fraught class system. Despite his relatively comfortable upbringing (his father was a BT engineer, his mother a doctor's receptionist) followed by a degree at Cambridge University, around 46% of Britons say that Mr Burnham is working-class. That compares with only 14% for Sir Keir, the son of a toolmaker, and 18% for the former health secretary (and new defence secretary), Wes Streeting,

who was brought up by a single mother in an east London council flat. According to Stack's data, replacing Sir Keir with Mr Burnham would leave Labour's vote share unchanged among respondents in the most middle-class occupations, while increasing it by 3.6 percentage points among those in the most working-class jobs.

With Mr Burnham's northern, working-class hue, some commentators mistakenly believe that he is particularly appealing to supporters of the populist-right Reform UK party (many of whom are northern or working-class). In Stack's polling, however, just 2% of Reform supporters switch to Labour when Mr Burnham is listed as party leader—compared with 4% of Liberal Democrats, 5% of Conservatives and 6% of Green supporters. According to YouGov, another pollster, Mr Burnham has a net favourability rating of +20 points among Green supporters and +21 among Liberal Democrats, compared with a dismal -62 among Reform supporters (see chart). The same voters gave Sir Keir ratings of -47, -14 and -92, respectively.

Faced with this evidence, Mr Burnham might be encouraged to tack to his left, attempting to unite Britain's broadly left-of-centre bloc in order to defeat Reform. But such an approach brings risks. The first is that left-wing voters tend to be concentrated in relatively few constituencies. Judging by current polls, most Labour MPs could face Reform as the leading challenger in their constituencies. In these contests, switchers from Reform to Labour are in effect worth double.

The second risk is that left-wing voters might not reward Mr Burnham for left-



wing policies. There is little evidence that Sir Keir's most left-leaning policies have won him any friends. His approach—presenting himself as a moderate while pursuing a solidly centre-left agenda—has alienated voters to both his left and right.

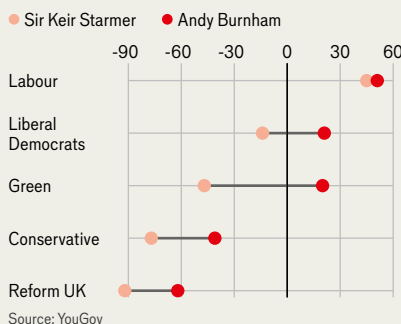
Manchester prism

In this respect, Mr Burnham begins his time in Downing Street with a head start. Before becoming prime minister, Sir Keir had to contort himself in order to be elected Labour leader by the party's left-wing membership. As leader of the opposition, he then strained to persuade voters that he was in fact a moderate who had changed the Labour Party. Finally, in government, he had to satisfy the demands of left-wing backbenchers. The whiplash was too much: by May 2026 nearly three-quarters of Britons thought the prime minister was indecisive, according to YouGov. By contrast, voters are still open to finding out what Mr Burnham stands for.

His first electoral test will come sooner than most predecessors'. On July 30th voters in Greater Manchester will elect Mr Burnham's successor as mayor. Reform won the region with a clear margin in May's local elections, but polls now suggest that Labour's candidate—an ally of Mr Burnham—is on course for victory. It would be a good start for Labour. ■

The Burnham bounce

Britain, net favourability by voting intention, percentage points, May 28th-June 22nd 2026



BAGEHOT

Now or never, Mr Burnham

Government achievements happen immediately—or not at all



CHANGING PRIME MINISTER has become an all too familiar ceremony. On July 20th Sir Keir Starmer bade farewell and zipped from Downing Street to Buckingham Palace, with helicopters hovering above. Andy Burnham, the new prime minister, followed in reverse, heading from Buckingham Palace to Downing Street, where friends, family, allies and apparatchiks listened to his hopes for Britain.

Then began the next stage: picking over every word. What did Mr Burnham mean when he called his government a “circuit-breaker”? Was his target to eliminate rough sleeping feasible? And most important: what will Mr Burnham do in his first 100 days?

At this point, the chuntering starts. Why judge a government that will run the country for years after only 100 days? Forget the first days, what about the next ten years? What better symbol of the ADHD-addled media environment that makes governing impossible? But whereas most media conventions can be dismissed, the first-100-days meme cannot. It reflects a fundamental truth of British politics. The most consequential government actions happen almost immediately or not at all.

Take Sir Tony Blair. Practically all New Labour’s lasting achievements happened within days of taking power. Bank of England independence, which is now the backbone of British economic policy, came on day five. A plan to give Scotland and Wales their own parliaments, on day 14. By the end of the first month, the national minimum wage was in progress. After eight weeks, what became the Human Rights Act was outlined. To round off this busy first 100 days, plans for a London mayor were unveiled.

What about the next dozen years? Oh, they did this and that. Public services improved; waiting lists fell, eventually. Schools were rebuilt; the public realm was renewed. But this was temporary, as a trip down any high street or a visit to hospital today will show. New Labour’s achievements faded away and Sir Tony, the most successful prime minister of the past 30 years, spent two decades kicking himself for not doing more sooner.

And so it was for the Conservative-Liberal Democrat coalition government led by David Cameron that took power in 2010. Austerity was put in train at once; the government announced it

would crank VAT to its current level of 20% after a little over a month. The triple lock, which guarantees that the state pension must rise by the rate of inflation, wage growth or 2.5%, came on the 42nd day of the Cameron era. A good 16 years on, it is still there, a symbol of the long-term unseriousness of British policy, since it will eventually lead to the heat-death of the fiscal universe unless someone tweaks it.

By 2014 the legislative cupboard was almost bare. Critics called it a zombie parliament. Whips desperately emailed MPs for ideas for debates. (Perhaps food security? What about foreign lorries?) When Mr (now Lord) Cameron won a majority in the 2015 election, he set Brexit in train almost immediately. He produced the referendum bill on the EU on day 21, sealing his government’s fate.

Likewise, Theresa May took her biggest decisions within weeks of winning power. At her first Conservative Party conference as leader, Mrs (now Lady) May set Britain on a path to a hard Brexit. Her place in history was secured by day 82. It took Boris Johnson a bit longer to rejig Britain’s relationship with Europe: he reached a deal with the EU on day 86, which was one half of his legacy. The other half was a boom in immigration. When did Mr Johnson ditch the Conservative Party’s long-held pledge to cut immigration to “tens of thousands”? Day one.

Most governments take up to 100 days or so to shape a country. Liz Truss managed it in half that. She pledged energy subsidies roughly equivalent to the annual British defence budget. When a ragbag of sweeping tax cuts were thrown in, markets moved, Tory MPs followed and Ms Truss was gone. Unpicking that budget was Rishi Sunak’s job, which he did in the first few weeks. Grill veterans of the Sunak era about their achievements and at the top comes the Windsor Framework, which restored relations between the EU and Britain to normalcy, and dominated the start of Mr Sunak’s tenure. Little else matters from Mr Sunak’s stint.

What happens when a government fails to sprint at the start? Ask drinkers at The Grafton, a pub in north London, which on July 20th hosted relieved and humiliated members of Sir Keir’s team, who toasted their freedom from the burdens of government barely two years after a landslide victory.

Of all the sins of Sir Keir’s time in office, it was the start that proved mortal. In the first 100 days of Sir Keir’s tenure there was a great vacuum where a government should be. In the time that other governments had begun upending Britain’s constitution or ripping through the country’s fiscal position or taking Britain out of Europe, Sir Keir cut winter-fuel payments to pensioners, embroiled himself in a scandal about the number of freebies he accepted and sacked his chief of staff. After barely two months in power, prescient obituaries of “two-year Keir” were written, even if they felt absurd at the time.

I’m here for a good time, not a long time

First impressions are usually correct. Governments do not change much in office. Errors compound and events scar them, but their basic instincts and flaws remain the same. To the extent that prime ministers control their destiny at all, they control their first few months. And so the most significant period of Mr Burnham’s government has already begun. A strategy for the next decade is coming, says Mr Burnham, but in the autumn. Judging by his predecessors, it could well be too late. They had already been assigned their place in history by that point. If Mr Burnham has a plan, Britain needs to hear it soon, or it never will. ■

International



Trying to stay cool

The geopolitics of air-conditioning

As temperatures rise, fights over AC and energy pose a challenge for governments

ON A SUN-BAKED morning in early July, with temperatures set to soar above 40°C (104°F), a mob in Nanterre, a Paris suburb, heaved against the doors of a Lidl supermarket until they collapsed. The sweat-stained hooligans were desperate shoppers, pitted against each other for the last portable air-conditioning (AC) unit. In another Lidl across town two men came to blows. French politicians had a row of their own, over how much AC was too much.

At about the same time in cities across Pakistan and Bangladesh, protesters blocked roads and surrounded electricity offices during weeks of power cuts in temperatures as hot as 45°C. In Chandpur, Bangladesh, in late June residents allegedly assaulted an employee of the Rural Electrification Board. In May power cuts during a heatwave in India led to similar protests in some rural villages, where residents

complained they could not even run fans at night. In places like Iraq and Sri Lanka, too, unrest has broken out over shortages of energy needed to keep cool.

As extreme heat breaks tempers and electricity grids, fights over AC—or the energy that powers cooling tech—are threatening to break politics. It is a decidedly modern problem: AC hardly existed even in America before 1960; now climate change has made it a near-absolute must in much of the world. In November the COP30 climate summit, held in Belém, Brazil, declared cooling technologies like air-conditioning to be “essential infrastructure” like water, energy and sanitation.

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Of all extreme weather, high temperatures are overwhelmingly the most deadly. Between 2000 and 2019 an estimated 489,000 people died of heat each year, according to modelling published in the *Lancet*, a medical journal. AC has proved a strikingly effective response. A separate study in the *Lancet* estimates that by the early 2020s AC was averting around 190,000 deaths each year in people aged 65 or older. In America researchers at the National Bureau of Economic Research reckon that residential AC was responsible for a roughly 75% decline over the 20th century in the risk of dying on a very hot day, defined as above 27°C on average. Almost all of that decline came after 1960, when American households began to adopt AC.

All that might seem to lead to a straightforward political calculus: more AC for everyone, everywhere. But it has not proved so simple. In rich countries politicians fight about climate and energy-efficiency. In poor countries, about the price of electricity, and ageing, rickety electric grids. And everywhere, they must contend with a public that increasingly expects, or outright demands, access to AC.

Take the rich countries first. Populist-right figures spy a clear opportunity in the hazy heat. In June Marine Le Pen, leader of

► France's National Rally, demanded more air-conditioners in the country's schools, hospitals and care homes. Jean-Luc Mélenchon, her rival on the populist left, countered that "air-conditioning everywhere" would heat up the planet, thereby only "increasing the damage". Globally, cooling produces around 4% of greenhouse-gas emissions. The UN expects demand for AC and refrigeration to more than triple by 2050 on current trends, nearly doubling those emissions again.

Even in climate-controlled America, where 90% of households have AC, the MAGA right has tried to score cool points. On July 1st Zohran Mamdani, the Democratic Socialist mayor of New York, called on New Yorkers to set their AC to 78°F (26°C) to protect the power grid from overloading during a heatwave. Ted Cruz, a Republican senator from Texas, mockingly wrote in response, "In a first-world country you could turn on the AC...". Others noted that Mr Cruz's home state routinely issues the same guidance to protect its grid.

Ms Le Pen, at least, has more than populism on her side. Europe is both wealthy and temperate for its latitude. Yet it is, by a large margin, the region where heat kills most disproportionately, the *Lancet* model finds: 36% of the world's heat deaths are attributed to Europe, which is home to less than 10% of the world's people. And the annual death toll is rising. The World Health Organisation says it has gone up by 30% in two decades. Some of that is because Europeans are older, and the old are more vulnerable to heat. And some is because Europe is the world's fastest-warming continent. But many deaths are from the lack of AC. The International Energy Agency notes that just 23% of European households have an AC unit (see chart).

In poor countries, most of which are in hot climates, the politics of AC will get a lot stickier. Both their populations and their governments face formidable budget constraints when adopting cooling technology: AC units are expensive, energy is often expensive, and upgrading grids is expensive. Though more than 80% of the world's population regularly encounter the kind of heat for which cooling is needed, just 40% of those people are able to get AC.

The greatest gap is in the poorest, hottest countries. India is quickly adding AC units: some 50m between 2019 and 2024, or half of the total for Europe. The India Energy and Climate Centre (IECC) at the University of California, Berkeley, expects the country to add another 130m-150m units over the coming decade.

Most of those will go to richer households. Many poorer Indians are turning to rentals during the hottest months, with some going into debt to do so. The electricity costs a lot too: the poorest households in poor countries like India spend up

to 8% of their income on cooling electricity, compared with 0.2-2.5% for rich households worldwide. Poor households also face a double-whammy in efficiency: the cheapest machines gobble up more electricity, and are being cranked up in the leakiest, worst-insulated homes.

And those inefficient units are often on grids already stretched to breaking point. AC units account for perhaps a quarter of India's peak electricity demand; on current trends, the country's peak-energy consumption for just cooling could triple to 180 gigawatts by 2035. The IECC warns of electricity shortages from 2028 even if every plant under construction is finished. Indian peak power demand hit a record high this May, bringing power cuts, burned-out transformers and costly reliance on the spot market for electricity.

Grid-blocked

Power cuts cluster in heatwaves—when electricity demand peaks—leaving people who have grown accustomed to AC both unprotected and unacclimatised. Unreliable supply also corrodes the economics of adoption from both ends. Households face a choice of paying for machines they will not always be able to use. And electricity firms, which are mostly state-owned in places like India, Pakistan and Bangladesh, sink deeper into debt when they make loss-making spot purchases in response to spikes in electricity demand. That in turn saps their ability to invest in sorely needed grid improvements. Such firms are also in a tough political bind. When they do cut power to ease the load on grids, governments suddenly face mass protests.

Protesters in such poor, hot countries often accuse their governments of hoarding electricity for their own buildings or for richer customers, including (in places like India) big industrial firms. They want electricity distributed more fairly and, where it is not subsidised, more cheaply. Such policies are difficult to execute when grids are rickety: the cheaper and more widely available electricity is, and the more that cus-

tomers run AC on cheap units, the faster that grids will fail.

Countries that cannot afford to invest in grids, and in AC, risk entering a self-reinforcing spiral. In 2009 Lee Kuan Yew, Singapore's founding father, famously cited AC as one of the most influential inventions in history for "making development possible in the tropics". Lee's city-state became rich for a host of other reasons, but AC helped things along. Without AC many other hot countries will fall further behind. In eastern and southern Africa, UNICEF reckons that over-hot classrooms (along with other climate shocks) have interrupted schooling for 130m children. The International Labour Organisation estimates that by 2030 heat stress will erase 2.2% of the world's working hours—the equivalent of 80m full-time jobs—with the losses concentrated among agricultural workers in South Asia and west Africa.

The rich world can help. Rich countries could include the cost of AC in heatwaves as a factor in determining how much to help poor countries pay for adaptation to climate change. Rich governments could also support bulk-buying of efficient AC units. Development banks could finance storage and distribution of electricity to shore up failing grids. And patent-holders could license next-generation refrigerants affordably, greatly lowering the cost of hyper-efficient AC units.

So far they are doing rather less. More than 70 countries have signed a Global Cooling Pledge, promising to cut cooling-related emissions, raise the efficiency of new AC units and expand access to sustainable cooling. And a "Beat the Heat" drive aims to put "access to cooling" in 50 national adaptation plans by 2030.

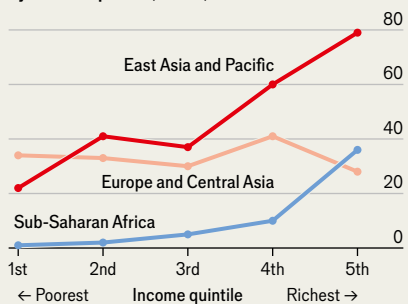
But such efforts focus more on fixes like passive cooling, such as better insulation, than on, say, buying or subsidising AC units for the poor (though in France Ms Le Pen has advocated doing so). Capital remains in scarce supply. The International Finance Corporation, a lending arm of the World Bank, says closing today's cooling-access shortfall in emerging markets would take \$400bn-800bn.

For some in the rich world, like Mr Mélenchon, there remains a stubborn squeamishness about adapting to rising temperatures with AC. (Al Gore, America's former vice-president, called reliance on adaptation a "kind of laziness".)

But the market is quickly passing the French hard-left leader by. This summer Chinese air-conditioner exports to the EU rose by 43% year-on-year, to \$3.8bn. The bestseller is a portable unit made to comply with European rules that restrict drilling façades; one Austrian drove 200km for the last one in stock. The fight over how much AC the public should have has already been lost in the stampede to buy it. ■

Cold comfort

Share of households with air conditioning, by income quintile, 2020, %



THE TELEGRAM

The Iran war is consuming the Trump presidency

Donald Trump may hate to hear it, but Barack Obama was right about avoiding “stupid shit”



HERE IS A thought to chill the blood of President Donald Trump. He would be in a far better place today if he had followed the foreign-policy advice of the predecessor he loathes, Barack Obama. According to the Obama doctrine, as explained years ago to Jeffrey Goldberg, a journalist, an American president's first duty in world affairs is: “Don't do stupid shit.”

As doctrines go, it is not very sophisticated. Moreover, cerebral Mr Obama left a mixed foreign-policy record: he was slow to grasp the full scope of the China threat, for instance. Still, if Mr Trump had heeded him, he might not have joined Israel in launching war on Iran on February 28th without a plan for victory. Mr Trump might not have boasted that the killing of Iran's top leaders, followed by punishing air strikes, would soon trigger regime change. Given Iran's complexity and its rulers' ruthlessness, that was as daft as predicting that the Mafia could be bombed out of Sicily from the air. Now, Mr Trump's war may consume his presidency.

The president's Middle East record includes real successes, notably the recognition of Israel by four Arab states in the Abraham accords. Mr Trump deserves credit for (belatedly) strong-arming Israel's prime minister, Binyamin Netanyahu, into a ceasefire last year with Hamas, though conditions in Gaza remain grim. His decision to join Israel in bombarding Iran's nuclear sites last summer was risky, but not stupid. The operation came with costs, including the loss of access to Iran's highly enriched uranium for international inspectors. Still, inflicting severe damage on Iran's underground nuclear programme followed a coherent logic. Iran's muted response in retaliation was a further vindication.

Not all presidential blunders meet the Obama-doctrine test. Take Mr Trump's repeated demands to own Greenland. He is deeply unwise to alienate Denmark, the island's colonial master and a devoted American friend. Still, Denmark remains a NATO ally, needing America to deter Russia. In contrast, an actual invasion of Greenland would qualify as unambiguously stupid shit.

When Mr Obama coined the term, he was thinking of his own predecessor, George Bush, and the fatal mix of vengefulness, impatience and over-ambition that doomed the American-led campaigns in Afghanistan and Iraq that followed the September 2001

terrorist attacks. After studying the Bush years, Mr Obama learned (and indeed overlearned) abiding lessons about the dangers of American hubris. He was sceptical of nation-building in far-off lands, believed that only the gravest threats to America warrant armed intervention and thought of many allies as aggravating free-riders on American power. Striving to balance his coldly realist instincts with the liberal values that he believed his country should uphold, he suggested that America should pick its battles, and be “hardheaded at the same time as we're bighearted”.

As it happens, Mr Trump shares many Obama-esque instincts, for all his sniping at the man. He too is wary of nation-building and annoyed by free-riding allies. He is unlike Mr Obama in his relish for America First bullying, his disastrous disdain for detail, his unblushing personal greed and his contempt for liberal values. In an unhappy mirror-image of the Obama years, Trumpian foreign policy too often revels in being bigheaded and hardheaded.

When it comes to the Middle East, both presidents hoped America could pivot away from a role as the region's dominant security provider. From 2011 or so, the Obama administration openly sought to shift military and diplomatic resources away from Iraq and Afghanistan towards Asia, a dynamic region where investments of American power would “yield the biggest returns”. Obama aides talked of increased American energy production rendering the Middle East less relevant. With some bitterness, they accused such allies as Saudi Arabia of trying to goad America into fighting Iran on the Arab world's behalf. Mr Obama's full pivot to Asia was thwarted by renewed Middle Eastern instability, though, including civil war in Syria and the rise of Islamic State.

Mr Trump announced his own Middle Eastern pivot last year. The region would soon be “defined by commerce, not chaos”, he told Arab leaders in Riyadh. The days of the Middle East dominating American foreign policy are “thankfully over”, declared his national-security strategy, with conflict replaced by deals to sell American nuclear, defence and AI technologies. Seeking returns of their very own, Trump family members have secured hundreds of millions of dollars from Gulf rulers and their investment funds.

Then Mr Trump launched his war with Iran, upending Gulf business models. It is hard for Arab states to build billion-dollar data centres filled with American chips when Iranian missiles are falling. A different, gloomier sort of pivot now looms, involving Middle Eastern partners losing faith in America as a reliable ally.

The Gulf learns not to rely on America

Though the United Arab Emirates remains all-in on defence ties with America, others in the Gulf, led by Saudi Arabia, the regional giant, can be seen hedging. America remains uniquely important as a partner, but it is less trusted. Some Gulf rulers will quietly pay Iran for a quiet life. Others are deepening defence ties with such actors as Turkey, and economic links with China. It does not help that Mr Trump has played down Iranian attacks on American bases and local infrastructure in Gulf countries, anxious to obscure the war's costs. Perhaps eager to convey his dominance as the war raged, in March Mr Trump publicly mocked the Saudi crown prince, Muhammad bin Salman, bragging that the prince never imagined “he'd be kissing my ass” as American president.

In a rough world brains are not everything, as the Obama administration learned to its chagrin. But Mr Obama was right that reckless presidential stupidity causes catastrophes. If Mr Trump talked less and listened more, he might have heard the warning. ■

Business



An interview with Elon Musk

Croesus or Cassandra?

AUSTIN

The world's richest man sets out his vision for the future of AI—and humanity

ELON MUSK, in his telling, is a modern-day Cassandra—better than most at predicting the future, but doomed to be disbelieved. “People don’t realise that what I’m saying will come to pass,” he tells *The Economist* in a 90-minute interview for *The Insider*, held at a giant Tesla factory in Texas where electric cars drive themselves off the assembly line. That may be because his future-gazing ranges from the unsettling to the downright weird. Mr Musk predicts that, within five years, artificial-intelligence systems may surpass the sum of all human intelligence. Within ten years, robots in the workplace will help usher in an era of such “amazing abundance” that

money will become meaningless. And within 20 years, Britain—a country that he has not visited for years—will be engulfed in civil war.

Believe them or not, the predictions of Mr Musk, who last month briefly became the world’s first trillionaire, are worth taking seriously. The driving force behind Tesla and SpaceX, a rocket-maker turned AI conglomerate, is doing more than any entrepreneur to shape the future. His influence—powered by money and feats of engineering genius—stretches from the White House to global trouble spots such as Ukraine. With 240m followers on X, his social-media platform, Mr Musk’s views,

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especially those that are divisive, have significant repercussions.

Dressed in black boots and a leather jacket with the logo of Grok, his chatbot, on the back, he showed flashes of the steely single-mindedness that helped him pioneer the mass-production of electric vehicles and send reusable rockets into space against all odds. He also showed how bent on shaping his own reality he is, to the point of intransigence on matters outside his sphere of expertise.

It was Mr Musk’s first extended interview since the public listing of SpaceX, which soared to a value of \$2.6trn in the days after trading began but has since plunged to \$1.6trn, a fifth below what it first traded at. The main topic of conversation was AI. It is a technology, he says, that can move him from “exhilaration to terror” in a single day. For now, his “philosophical conclusion” is to “look on the bright side”.

It is a choice that conveniently serves his own interests. Mr Musk believes that AI systems and robots will eventually handle most digital and physical jobs, rendering work by humans “optional”. To that end, xAI (now called SpaceXAI) is developing systems to perform cognitive tasks such as software programming while Tesla is manufacturing humanoids. Mr Musk plans to power the whole AI caboodle with data centres in space.

Without jobs, he suggests there may need to be large-scale wealth redistribution to create “universal high income” for humans. But although the world’s richest man says he is fine to pay “trillions in tax”, he also argues that money will be irrelevant a decade from now. Thus he argues that governments should simply “issue people cheques”, because amid an infinite supply of goods and services produced by machines, deflation will be a bigger problem than inflation.

Mr Musk acknowledges there are imminent risks from increasingly powerful AI systems. Noting that the capabilities of frontier models are improving rapidly, he elaborates on a recent proposal by Sir Demis Hassabis, co-founder of Google ►

► DeepMind, for America's government to set up a self-regulatory body via which the industry would test its own models for dangers. Mr Musk argues that the effort should be extended to China, and that leading AI labs, including Chinese ones, should have a week or two to inspect each other's latest models before release, flagging any risks to governments in both Washington and Beijing. "The competitors can keep each other honest."

He goes so far as to suggest that, in order to keep models safe, he may even be prepared to bury the hatchet with Sam Altman, boss of OpenAI, with whom he has fought a losing battle in court over recriminations stemming from the days when they co-founded the AI lab together. "At the end of the day, if we have to talk, we'll talk," he says, adding that both men might need to "set aside our personal differences for the good of the world".

Mr Musk seems much less worried about the rise of Chinese labs than other AI bosses, such as Anthropic's Dario Amodei (see story after next). He is impressed by new releases like Kimi K3, unveiled this month by Moonshot AI, and reckons there is a "good chance" that Chinese AI firms will become "the leaders at some point", pointing to the country's electricity supply, which vastly exceeds America's, and its ability to churn out robots. (He adds that he finds videos of Chinese robots knocking each other's heads off "pretty funny".)

Mr Musk opposes efforts by some officials in the Trump administration to ban American companies from using Chinese models, saying it would not do much to stop their makers from winning the AI race. He expects China eventually to overcome its shortage of cutting-edge chips, the result of American export restrictions, by creating its own lithography machines, the absence of which currently prevents it from manufacturing sufficient quantities of high-end processors. Currently ASML, a Dutch firm, holds a monopoly on the sale of the most advanced class of lithography tools, and is barred from selling them to America's superpower rival. But China is "closer than most people realise to solving the lithography problem," says Mr Musk.

The serial entrepreneur is unabashed about the amount of power he wields. He contends that AI will control almost everything eventually, and that his dominance of SpaceX, where he holds more than 80% of the voting shares, is aimed at ensuring that its long-term goal of turning humanity into a multi-planetary species with a colony on Mars is achieved, even if it depresses short-term profits. As for his sway over American politics, where his money and influence helped return President Donald Trump to power in 2025 (and briefly put Mr Musk in charge of gutting the federal bureaucracy), he says he became too invol-

ved. "I got carried away, frankly."

Still, he shows no sign of relinquishing the geopolitical bully pulpit. Although SpaceX's Starlink satellites, which provide internet connectivity in remote places, have been used to help Ukraine counter Russia's invasion, Mr Musk remains adamant that any peace deal should offer territorial concessions to the aggressor. He describes the media's characterisation of Europe's far-right as "false, misleading and nonsense", and argues that it is made up of "normal people" seeking safe cities, secure borders and sensible spending.

His jeremiads about civil war in Britain stem from a view that an influx of people

whose ideas are "antithetical to Western beliefs" will lead to a reckoning. Asked if he is anti-Muslim, he replies: "I'm against rape and murder. I'm against the imposition of rules and laws that are contrary to what we've come to accept in the West, and it's a crying shame that traditional media, like you, don't recognise this."

It is unclear how his dark vision of the future outside America fits with his AI utopianism. But even Mr Musk wonders if it all makes sense. At times, he says, he believes in a theory in which the universe is a computer simulation created by aliens. "The things I'm doing are so preposterous that it's hard to believe they're real." ■

Billionaires

Hazy rich Asians

SHANGHAI

Meet China's mysterious new generation of young tycoons

EARLY LAST year, when DeepSeek, a Chinese artificial-intelligence lab, was causing panic among its Western rivals, almost nothing was known about Liang Wenfeng, its founder. Mr Liang remains a mysterious figure, but at least one thing is clear. As DeepSeek closes a funding round valuing it at \$71bn, its founder's personal wealth has soared to roughly \$38bn—making him far wealthier than Anthropic's Dario Amodei or OpenAI's Sam Altman.

Mr Liang will not be spotted on the conference circuit. He has never appeared live on Chinese TV, and there are few photos of his unpolished, wiry figure. That puts him at home among the new generation of young Chinese billionaires. The

country is cranking out more of them than anywhere else bar America (see Finance & economics). According to Hurun, which tracks the riches of the world's wealthiest people, there are at least 29 self-made billionaires aged 40 or under in China. Adding Mr Liang, who will turn 41 at some point this year, brings the total to 30. That is nine more than last year.

China's new tycoons differ from their predecessors in striking ways. They have abandoned property speculation and boozy dinners with officials for video games and meet-ups over Japanese anime. But they are also adept at taking imaginative ideas and scaling them into global businesses faster than any before them. ►►



▶ The history of China's uber-rich is short. In the 1980s tycoons figured out how to wrest assets from the state. Zhang Ruimin, a member of a troupe of students who terrorised teachers and intellectuals during Mao's era, got hold of a state-owned refrigerator business called Haier and turned it into what is now the world's largest home-appliance maker. The opening of the property market in the 1990s minted another early group of billionaires including Xu Jiayin, founder of Evergrande, a now-collapsed property developer.

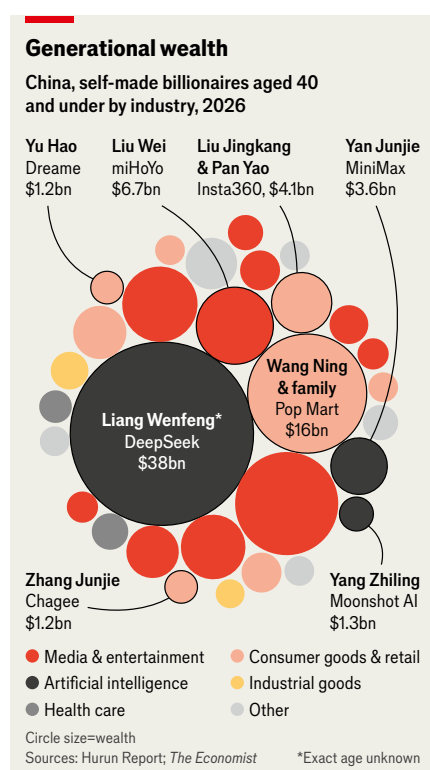
In the early 2000s industrialists such as Wang Chuanfu of BYD, originally a battery maker, launched a wave of manufacturing firms as China entered the World Trade Organisation. And then in the 2010s the consumer internet produced China's first generation of tech moguls, including Jack Ma of Alibaba, an e-commerce giant, and Pony Ma of Tencent, maker of WeChat. The founders of ByteDance, creator of TikTok, and Shein, the online fast-fashion firm, who are both now in their early 40s, built their fortunes a few years later.

China's new generation of tycoons are charting out a different path. More than two-thirds of the young billionaires on Hurun's rich list made their money from consumer goods or media (see chart). Seven created video games; four built tea or coffee businesses. After Mr Liang, the wealthiest is Wang Ning, founder of Pop Mart, maker of the strange-looking Labubu dolls. Only three have struck it rich with AI, including Yang Zhilin, the baby-faced 34-year-old founder of Moonshot AI, which on July 17th released a new model that is said to rival the best from America (see next story). No property mogul makes the list—perhaps unsurprisingly, given how the sector has fared in recent years.

The businesses built by China's new billionaires are also far more global than in the past. It once took a decade or more for Chinese entrepreneurs to figure out foreign expansion. No longer. Zhang Junjie, the 33-year-old founder of Chagee, a milk-tea shop, launched his firm in 2017 and opened his first overseas shop just two years later. The company is now listed in New York and operating in nine countries.

The new tycoons' heavy reliance on foreign markets partly reflects the slump in consumer spending at home. Around 80% of sales at Dreame, a consumer-electronics brand founded by 39-year-old Yu Hao, come from overseas. Insta360, which sells small waterproof cameras, is almost as reliant on foreign demand. Pop Mart made more than \$2bn in sales outside China last year, about 40% of its total. Chagee's sales at home have slumped, but overseas they are growing healthily.

Attitudes to work are also different among this cohort. A controversial part of Chinese business culture for the past dec-



ade or so has been the so-called "996" routine, working from 9am to 9pm six days a week. The idea was championed by Alibaba's Mr Ma and embraced by other local tech giants. At Pinduoduo, another e-commerce platform, young white-collar staff have died from overwork on their way home from the office.

China's new entrepreneurs, by contrast, have adopted a more relaxed approach to management. Many are relatively flexible about working times. Liu Wei, the 39-year-old billionaire co-founder of miHoYo, a gaming firm, has eschewed presenteeism. He has overseen what the company calls its "happy work, steady growth" approach, which prioritises mental health (though one employee also recently died from complications related to overwork, suggesting that cultural norms are hard to shift). DeepSeek's Mr Liang has reportedly said that the human brain can concentrate only for 6-8 hours a day, and that overwork leads to mistakes.

The willingness of workers to put in longer hours than anyone else in the world is what has built the Chinese economy over the past 30 years, huffs one private-equity investor, who recently visited an up-and-coming consumer brand and did not like what he saw. Some blame the relatively laid-back attitude of China's young founders on cushy upbringings. Gone are the tales told by earlier tycoons of struggling for survival amid the country's political and economic convulsions. Among China's young billionaires, only Mr Liang and Mr Zhang of Chagee grew up poor. The

three founders of miHoYo originally bonded over Japanese cartoons and formed their company as a celebration of gaming and comics. The founder of MiniMax, an AI lab, is so fond of a multi-player game called "Dota 2" that his staff refer to him as "10", a character from it.

To get rich is perilous

It is not all rosy for China's young billionaires. The relationship between China's government and its wealthiest people has deteriorated over the past few years. Older magnates once viewed themselves as part of a nation-building project. The property sector, which contributed up to a quarter of China's GDP at its peak, was a collaborative effort between private entrepreneurs and local officials. Mr Ma was instrumental in building China's digital economy. But the central government has now punished many prominent figures in these areas. Leverage has been sucked out of the property industry. Mr Ma's business empire became the subject of a state crackdown in 2020 after he criticised regulators. Xi Jinping, China's ruler, has sought to tamp down inequality under the slogan of "common prosperity".

In 2021 Zhong Shanshan, the 71-year-old founder of Nongfu, a bottled-water company, reached a net worth of nearly \$100bn. No one has since come close, including Mr Zhong, who has seen his wealth plunge to around \$39bn as the share price of his company has slumped. Mr Ma is worth roughly a fifth as much as in 2021, and many other internet moguls have suffered similarly. Still, they have fared better than property magnates, a number of whom have been detained.

This environment has created a sense of disillusionment among China's young billionaires. Many are eager to engage in industrial policy but are given little opportunity to do so, notes Steven Hai of Xi'an Jiaotong-Liverpool University. Their global ambitions also leave them exposed to souring relations between China and America. Xiao Hong, the 33-year-old founder of Manus, another AI firm, would have become a billionaire earlier this year if the Chinese government had not stopped him from selling his company to Meta, an American tech giant.

These innovators live with the sense that the businesses they have built could be derailed at any time by sudden policy changes in China or America, notes Rupert Hoogewerf of Hurun. By shunning publicity they seem to believe they can survive for longer, he says. Most young Chinese billionaires have never spoken to foreign media. (None would speak to *The Economist*.) Many avoid the Chinese press as well. The result is a generation of tycoons that is both China's most global yet—and its most enigmatic. ■

Artificial intelligence

Weights of the world

China's AI labs are hot on the heels of America's frontrunners—and are selling their technology for a fraction of the price

S PARE A THOUGHT for America's leading developers of artificial intelligence. They pour blood, sweat and gazillions of dollars into each new release of a frontier model. Yet before they have time to catch their breath, their competitors have already caught up. It would be bad enough if rivals that charge for their technology were the only ones nipping at their heels. But the likes of Anthropic and OpenAI must also sprint to stay just a few steps ahead of labs that give their models away.

On July 16th Moonshot AI, a Chinese startup, released Kimi K3—a model that is only slightly less capable than Fable or Sol, the latest offerings from Anthropic and OpenAI, respectively. Its parameters (or “weights”) will be made publicly available at no cost later this month, meaning it can be downloaded and run on any server capable of doing so. On July 19th Alibaba, a Chinese internet giant, also unveiled a preview version of a new addition to its Qwen family of models that the company says is second only to Fable.

According to analysis by Epoch AI, a research firm, the most powerful open-weight models, which typically come from China, are a matter of months behind the technology's frontier (see chart). Adoption of these systems is spreading rapidly. In May customers of OpenRouter, a popular marketplace for models, used the top systems offered by Chinese labs more than twice as much as those of their American competitors, going by the consumption of tokens, the industry's preferred unit of out-

put. In June use of top American models rose by 35%. But for Chinese ones it rocketed by 165%.

That is causing consternation not just among America's leading model-makers, but also in its government, which fears the country is losing its lead in AI and creating a new opening for hacking. Some within the Trump administration are said to be pushing for various measures to slow the spread of Chinese models, such as adding their makers to trade blacklists or warning American companies against their use. There are also grumbles about Chinese labs supposedly using American models to train their own systems, a process known as “distillation”. Yet the American government's unpredictable approach to granting access to advanced models such as Fable and Sol is also spurring adoption of China's open-weight alternatives.

Even before K3, China's open-weight models were drawing interest around the world. GLM-5.2, a model launched in June by Z.ai, another Chinese lab, is better at so-called agentic tasks—such as creating software—than anything currently available from Google, another of America's top model-makers. Offerings from DeepSeek and MiniMax, two other Chinese labs, have also proved popular. According to a report by Mozilla, which makes the Firefox browser, open-weight models remain behind the frontier in reasoning and complex agentic work, but are now widely perceived as “good enough” for many tasks.

They also cost a lot less—an important advantage as companies grapple with the rising cost of AI. Artificial Analysis, another research firm, tracks the cost it takes selected models to perform each task in its battery of tests. The most capable system offered by DeepSeek costs an average of \$0.04 per job. K3, which is not yet open-weight, costs an average of \$0.95. Users of Fable can expect to pay \$2.75.

Part of the cost difference comes from the fact that more or less any cloud provider can sell access to an open-weight model, driving down profit margins. DeepSeek, for example, offers access to its v4 flash model at a cost of \$0.28 per million tokens, whereas the cheapest third-party provider offers it for \$0.18 per million.

What is more, many open-weight models are trained with a specific focus on running efficiently, partly in response to the challenges Chinese labs face in gaining

access to computing power owing to American restrictions on advanced chips. Innovations like “mixture of experts” models, which activate only the part of an AI system relevant to a query, have been used extensively by open-weight developers, with labs such as DeepSeek and Alibaba making big strides in the technique.

The appeal of open-weight models, however, goes deeper. The three weeks in which Fable was unavailable globally, owing to a hurried attempt by America's government to withhold the model from all but American citizens, prompted many companies to examine their dependence on individual labs. It encouraged them to experiment with open-weight alternatives that can be accessed through many providers and perhaps even run on internal servers. The episode served as a “shot across the bow”, notes Raffi Krikorian, Mozilla's chief technologist.

Still, China's open-weight models may not be entirely dependable for long. Its government is said also to be looking at ways to control foreigners' access to its technology, which could involve restricting the ability to download its open-weight models outside China. America's labs would surely be delighted. ■

Europe's rearmament

After the boom

BERLIN

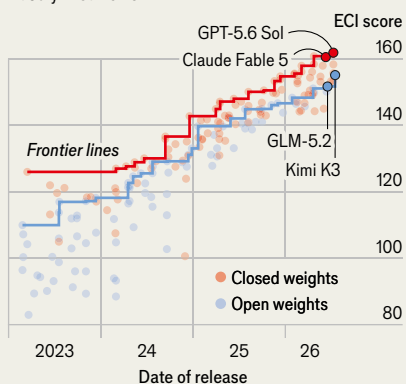
Investors cool on the continent's old-style defence firms

ON JULY 22ND Rheinmetall, Germany's defence champion, broke ground on an expansion to its gunpowder factory in Bavaria, one of the biggest such factories in Europe. In a show of German politicians' newfound support for armsmaking, the ceremony was attended by bigwigs such as Markus Söder, Bavaria's state premier. Armin Papperger, the firm's boss, was in his element. He waxed lyrical about “Project Firepower”, the €350m (\$400m) investment that will help the company reach its target of producing 20,000 tonnes of gunpowder a year.

The event was a welcome break for Mr Papperger. Rheinmetall's share price has dropped by 45% in the past year. That partly reflects a decision by the German government to scrap a multi-billion euro order it had placed with the firm for six F126 frigates. But Rheinmetall is not alone. Investors have soured on various other European defence companies, with those making old-style weapons such as artillery and ammunition hit especially hard. Over the past 12 months the share prices of Renk ►►

Open fire

Selected AI models, Epoch capabilities index*
At July 21st 2026



Source: Epoch AI

*Composite index of AI capabilities



Not so explosive

► and Hensoldt, two German armsmakers, and Thales, a French one, have plunged by 37%, 23% and 7%, respectively. Since listing in January CSG, a Czech defence firm, has seen its market value fall by around 50%. KNDS, a Franco-German maker of tanks and ammunition, postponed a planned public listing earlier this month, citing unfavourable market conditions.

This marks a sharp reversal. Not long ago Europe's defence industry was flying high thanks to rearmament plans. This year EU member states are expected to spend around €130bn on weapons, more than ever before, with the majority of that flowing to the continent's own producers. But snarled supply chains, procurement obstacles and the rise of new technologies are giving investors cold feet.

Europe's defence supply-chains were designed for peacetime levels of demand, and factories across the continent have been slow to ramp up production. According to a report by the European Parliament, shortages of metals, chemicals and propellants, combined with a limited number of specialised subcontractors, have created many bottlenecks. One reason for the cancellation of the F126 contract, besides surging costs, was the long delays expected before delivery of the first ship.

Cumbersome procurement is another obstacle. In Germany, which plans the biggest increase in defence spending in Europe, this is particularly pronounced. The BAAINBW, the army's procurement office, is infamous for its bureaucracy and aversion to risk. Would-be suppliers eagerly await a long-delayed decision on the "Arminius" project, a plan to buy around 3,000 tanks.

Pan-European procurement initiatives are even more problematic. Shared projects have obvious advantages, if done well.

The Eurofighter Typhoon jet, a joint venture between Airbus, BAE and Leonardo orchestrated by Britain, Germany, Italy and Spain, has been a success. But too often such efforts fall flat. The Future Combat Air System, an initiative between France, Germany and Spain in which Airbus, Dassault and Indra were to work together to develop a cutting-edge fighter jet supported by a swarm of autonomous drones, was shelved last month after nearly a decade of talks.

The changing nature of warfare is complicating matters further. The shift away from land systems to drones bodes ill for old-style armsmakers. Jens-Peter Rieck of MWB Research, a firm of analysts, points out that a leaked procurement list from a draft of next year's German budget contains a big decrease in spending on ammunition and combat vehicles. Other governments are rethinking budgets too. In April Estonia cancelled a purchase of tanks and bought military drones instead.

That explains why, even as Europe's traditional armsmakers are losing some of their momentum, its drone-making start-ups are on a tear. Earlier this month Helsing, one such venture based in Munich, raised \$1.8bn at a valuation of \$18bn. Only a few days earlier Quantum Systems, a fellow German drone-maker, had raised \$1.2bn, valuing it at around \$8bn.

To their credit, some of Europe's legacy defence companies are trying to adjust. Rheinmetall, for instance, has a drone-making partnership with Anduril, an insurgent American defence company. Even so, the German firm still makes most of its money from land systems: tanks and ammunition make up 85% of its sales. If they are to make the most of the continent's rearmament, Europe's defence firms will need to change with the times. ■

Aviation

Staying aloft

FARNBOROUGH

Airlines are spending ever more to maintain their fleets

AMONG THE eye-catching announcements at this week's Farnborough International Airshow, a biennial aerospace get-together, was a deal signed by IndiGo, a fast-growing Indian carrier. It will procure over 1,000 Leap jet engines from CFM, a joint venture between America's GE Aerospace and Safran of France. The engines will power a fleet of planes on order from Airbus. For CFM, the deal brought another prize: the company will help IndiGo establish a maintenance, repair and overhaul (MRO) operation to keep those engines running. Often overlooked, such MRO contracts are perhaps the most profitable corner of the aviation industry.

According to Arthur D. Little, a consultancy, there is an MRO "supercycle" under way. The global fleet of passenger jets is set to grow by over 3% a year, to more than 50,000 in 2045, according to Boeing. Even more importantly, those planes will be run to a punishing schedule and kept in operation for longer, owing to the 16,000-strong order backlog at Airbus and Boeing. As a result, the demand for maintenance and spare parts will soar.

Transporting over 5bn passengers will bring airlines revenues of \$1.2trn in 2026, according to IATA, an industry body. MRO contracts will eat up around \$140bn of that, reckons Oliver Wyman, another consultancy, with that figure rising to over \$190bn by the end of the decade, nearly double the spend in 2019. Some of that will be for "shop" visits to dedicated hangars to fix a landing gear, for example, or for a "D-check", when a plane is all but taken apart and reassembled, as happens every six to ten years. But the majority of MRO revenue comes from keeping engines, which can account for half the cost of a new plane, in prime condition.

Around four-fifths of that work is performed by the engine-makers themselves, with airlines and independent firms making up the rest. The twin duopolies—CFM and Pratt & Whitney for short-haul engines, GE and Rolls-Royce for larger ones—run maintenance sites worldwide to support a business model that relies less on making money from engine sales and more on the so-called aftermarket, charging for maintenance and spare parts over perhaps 20 years of flying time. Of the \$33bn in revenue that GE's engine business brought in last year, three-quarters came from services. Including the CFM joint ven- ►►

TELL THEM I MADE IT

Hem Moktan earned just \$45 over the three years he was concealed as a child laborer in Nepal. He was only a young boy, but the carpets he hand-knotted were sold in fine showrooms across the United States and Europe — until one company partnered with GoodWeave. GoodWeave rescued Hem and provided him counseling, education and a place to live. Now with a master's degree, Hem heads GoodWeave Nepal's child protection program, transforming other children's futures as his was.

Hem made it. You can help other children make it in life too. Look for the GoodWeave® label on carpet and home textile products — your best assurance no child labor was used.



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Photo: The Studio_M — thestudiom.com

ture, GE has over 20 MRO sites worldwide.

Maintenance is also a lucrative side-line for carriers. Lufthansa Technik, the biggest airline MRO, services its German parent but derives three-quarters of its revenue from other airlines. The unit contributed 20% of Lufthansa's revenue and 30% of its operating profit last year. Delta TechOps, the fast-growing MRO arm of America's most-valuable airline, has ambitions to match its German peer. Ryanair, Europe's biggest airline, plans to bring engine maintenance in-house by 2029.

As for the engine-makers, they are investing heavily to improve geographic coverage and turnaround times. Rolls-Royce opened its first MRO in China in December. They are also working to make their

operations more efficient. GE has technicians on stand-by that can fly out to any airport at a moment's notice to fix minor problems while an engine is still "on wing". The firm is also harnessing AI to swiftly assess what needs fixing in an engine, as well as to process the vast amounts of data they throw off in order to predict problems before they arise, allowing them to optimise maintenance schedules and keep planes flying for longer.

The biggest threat is a dwindling supply of skilled workers. Many took the pandemic lull in flying as an opportunity to retire. Boeing estimates that the industry will need over 700,000 new maintenance technicians by 2045. For now, though, the MRO business will continue to fly high. ■

Grocery bills

Food fight

WASHINGTON, DC

Why populists are wrong to blame supermarkets for rising prices

FOR MANY characters in fiction, grocery bills play a starring role in their story. Jean Valjean is imprisoned for stealing a loaf of bread; Mrs Lovett strikes an unholy alliance with Sweeney Todd for access to a source of free meat for her pie business. According to a recent survey of Americans, such drama has come for them too: almost two-thirds cite paying for groceries as a major source of financial stress, twice the share that mention housing or fuel.

At first glance the panic is understandable. American grocery prices are up by around a quarter since 2020, exceeding nominal wage growth (see chart). Shoppers might even feel some sympathy for Mrs Lovett: ground beef is nearly twice as expensive as it was in 2019, thanks in part to drought-related cattle shortages.

Other countries have also been afflicted. Since 2020 food prices in Australia, Britain, Canada and France have risen by between a fifth and a third. Discontent is inviting all kinds of intervention. Zohran Mamdani, the mayor of New York City, cruised to victory with a plan to bring down the cost of living that included opening a series of government-run supermarkets. In Canada the push for state grocery stores went mainstream when Avi Lewis, a champion of the concept, was elected leader of the country's leftist New Democratic Party in March.

Others are trying to meddle with prices directly—by suasion or by force. When Walmart, America's biggest seller of groceries, announced on July 6th that it was lowering prices on staple products includ-

ing ground beef, President Donald Trump quickly claimed credit, saying it had done so at his behest. On July 1st a new law came into effect in Australia banning large chains from charging prices that the government deems "excessive".

Yet such interventions—which focus on the very end of the food chain—are misguided. In most developed countries there is scant evidence that grocers earn excessive profit margins. Nor have they raised prices for consumers at a faster pace than the wholesale prices they in turn pay have increased. Moreover, evidence of concentration—which would give grocers the market power to gouge consumers—is lacking in most developed countries.

First, consider margins. These are often wafer-thin. American supermarkets like Kroger and Albertsons collected just 1% of

their sales in operating profits last year. Even Walmart, with its 4% margin, hardly appears to be milking customers. It is a similar story in Britain and France, with margins only a little fatter in Australia and Canada. The real cream has traditionally been elsewhere in the supply chain, such as with the big food manufacturers. Over the past decade the average operating margin across General Mills, Kraft Heinz, Mondelez and PepsiCo has been 13%.

Second, look at how wholesale prices have changed over the past six years. Grocers are often criticised for raising prices rapidly after the pandemic. But evidence of opportunism is hard to find. Consumer food prices rose no more quickly than producer food prices between 2020 and 2025 in America (and likewise in Australia, Canada and France).

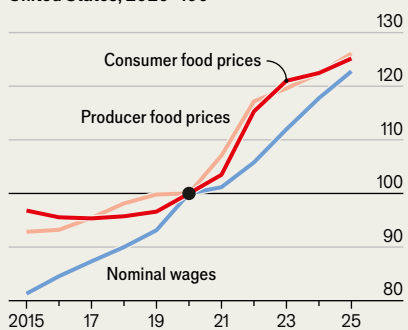
Finally, consider concentration. Examining the Herfindahl-Hirschman index, a measure of industry concentration, suggests that the grocery market in most countries is competitive at the national level (a little more so in America and Britain, a little less so in Australia and Canada). That does not guarantee adequate competition in practice: what matters is whether there are enough rival outlets within a distance that consumers could be expected to travel to buy their groceries. Analysis published by America's Department of Agriculture in 2023 noted that the grocery market is far more concentrated when examined at the county level. Even then, however, it is mostly a concern in rural areas and small towns, where less than 10% of the population lives.

Grocery prices have shot up across the developed world largely because the cost of inputs like fertiliser and fuel has surged, owing first to the war in Ukraine and, more recently, to conflict with Iran. The wages that farmers need to pay to attract enough workers have also risen as governments cut back on immigration. There is little evidence to suggest that supermarkets are the ones to blame. Even the packaged-food giants, which increased prices to protect their profits in the post-pandemic wave of inflation, have seen their operating margins slump over the past three years as shoppers have switched to retailers' cheaper own-label brands.

The idea that governments should step in to sell food to their citizens is an old one, with a poor record. Supermarkets in the Soviet Union, which were almost exclusively state-run, are remembered for their long bread queues, not their low bread prices. Subsidised stores might well be able to offer lower prices, and may have a useful role to play in underserved rural areas. But placing them in an already competitive market runs the risk of driving existing grocers out of business. Politicians need to cook up some better ideas. ■

Something to chew on

United States, 2020=100



Source: Bureau of Labour Statistics



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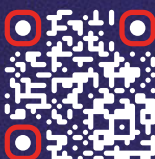
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SCHUMPETER

Status death

One of capitalism's most powerful forces is among its least understood



AT A RECENT dinner party, Schumpeter got talking to a wildly successful young man who was downright miserable. He was on the very fast track at a very big hedge fund. His friends, however, were making even bigger bucks in artificial intelligence, a field which he was convinced would soon consume his own industry. Among the company he keeps, the bright lights of finance shine less brightly than they used to, causing his own star to dim. Our protagonist was experiencing one of capitalism's most powerful forces. He was in the throes of status death.

The modern worker is status-obsessed. Even the bosses of giant companies find time to post on LinkedIn, a social network that functions as a forum for gloating. If management gurus agree on anything it is that individuals care deeply about their relative standing within their firm. When it is said that a business succeeds because of its corporate culture, what is often meant is that status is prudently distributed within its walls.

Yet our age is one of status death. Capitalism's status-industrial complex has been upturned, as institutions such as universities and newspapers that once conferred prestige lose their power to do so. Complaints from those who feel status-mugged are increasingly commonplace. In a guest essay in the *New York Times* this week, a television writer whined about the decline of his once-glamorous occupation. "The biggest winners of the American economy fear they're sinking fast," announced a headline in the *Washington Post*.

Few firms think more about status than makers of handbags. Yet they, too, have been swept up in this wave of abasement. The share prices of LVMH and Kering, two French luxury-goods giants, have fallen steeply this year. Knight Frank, a posh British estate agent, compiles its own index of luxury goods such as fine wine and contemporary paintings. Its value began falling in 2022.

The luxury industry's failure to benefit from the monumental increase in stock-market wealth over the past few years is not the puzzle analysts say it is. During the 2010s its largest brands grew fat selling merely expensive goods to the affluent, rather than very expensive ones to the extremely rich, making its products accessible to the point of being undesirable. The woes of Nike, a sports-

wear brand, can likewise be attributed to excessive egalitarianism, since it has prioritised leisurewear at the expense of elite sportswear. The violent reaction to Ferrari's first foray into electric vehicles can be understood the same way: the rise of cheap Chinese EVs has shattered that industry's veneer of exclusivity.

Wall Street has developed various techniques for rationing declining status. Its banks, which are no longer the apex predators of finance, neatly separate their workers into the "back", "middle" and "front" office, so that everyone knows their proper place. Woe betide the first-year analyst who turns up in a shiny Hermès tie he has not yet earned with his sweat. Banks also maintain an intricate currency of fictional titles to allow those being stripped of status (for example, those being "promoted" from "managing director" to the professional dead-end of "vice-chairman") to pretend otherwise. Goldman Sachs, a bank whose ability to remain the top adviser on mergers for decades owes much to its carefully cultivated status, continues to use the title of "partner" long after it ceased to be a partnership.

Silicon Valley, by contrast, likes to think of itself as a classless place: its scruffy coders work in open-plan offices building products anybody can use. But is there any industry whose workers are more fearful of status death? While a lucky few at the white-hot centre of the AI labs muse publicly about how they should wield god-like power, ordinary software engineers panic that the technology will make these former masters of the digital universe obsolete. When Valley-types call themselves "investors" nowadays you are left guessing whether they are making a fortune pumping fuel into AI rocket-ships or desperately trying to keep sickly software unicorns alive.

The anxieties that accompany rapid technological change have thus far benefited the AI labs. Workers are incentivised to over-use the technology, if that means their bosses consider them an AI-literate asset rather than an AI-illiterate cost. Yet misunderstanding the awesome power of status is among the AI industry's greatest risks. The pride with which its bosses have talked about white-collar job losses is an error born of a failure to appreciate how much workers wish to avoid a diminution of their standing. Some of its weirder folk consider AI an inevitable, even "worthy" successor to humans—a sort of species-wide status death. Such cosmic cuckoldry will make them even less popular.

President Donald Trump is the grim reaper of status death. His attacks on universities and the media have done much to damage their standing. Mr Trump, however, must also be aware of his own status mortality. Becoming arguably the most powerful—and certainly the highest-earning—president in American history will make leaving office a truly huge demotion. The downgrade from president's son to ex-president's son is even greater, which is presumably why Mr Trump's eldest two are furiously striking business deals with all manner of companies that could benefit from proximity to the White House. The logic of self-enrichment thus owes much to the logic of status death.

Falling upwards

It is not all bad news, however. The fear of status death can be a spur to great things. The nauseating feeling that one has arrived late to a party that has almost finished has caused generations of entrepreneurs to leave and start another. Your columnist's dinner companion has since quit his job, in search of more money—and, crucially, higher status. ■

Finance & economics



Billionaires

The rise of the deserving rich

The source of billionaires' wealth is changing for the better

BILLIONAIRES HAVE never exactly been popular, but today they are loathed. Politicians in America's Congress talk about them far more than ever before, usually to decry their ill-gotten gains or their malign influence on politics, or to insist that their wealth needs taxing (see chart 1 on next page). Fundraising emails from Democrats are three times as likely to mention billionaires—and almost always negatively—as they were in 2024, according to Andrew Hall of Stanford University. “Every billionaire is a policy failure” is a common cry from the left, linking members of the ten-figure club with a rigged economy and social decay.

Yet just as politicians think they have hit on a winning message, something unexpected is happening. More and more billionaires derive their wealth not from accidents of birth or from gaming the system, but by providing useful goods and services and by employing thousands of people.

Perhaps billionaires are still policy failures—but to a lesser extent than before.

Many billionaires are unquestionably sketchy. John D. Rockefeller, probably the first person in history whose net worth crossed \$1bn (and in the prices of the early 20th century), was a genius. But his company, Standard Oil, also took advantage of weak competition laws, and probably gave out plenty of bribes, to stack the deck in its favour. The oligarchs who emerged in Rus-

sia in the 1990s seized state assets during a period of violent chaos. And dodgy wealth is a satirist's dream: C. Montgomery Burns, in “The Simpsons”, skimps on safety at his nuclear plant to cut costs.

The surge in anti-billionaire sentiment reflects several forces. After a few years of high inflation hitting living standards, people are looking for someone to blame. Billionaires, the thinking goes, use their market power and buy political influence to overcharge for everything from housing to groceries, and then pay low taxes on the profits. The “affordability crisis” and the powerful billionaire are thus two sides of the same coin. And political strategists, chiefly but not exclusively on the left, have realised that billionaires are the perfect enemy. A tax on their wealth would affect almost nobody a voter has ever met.

Yet many billionaires make their money without a hint that they enjoy questionable monopolies or political favour. Oprah Winfrey, worth \$3.4bn today, has become rich because millions want to watch and listen to her. Cristiano Ronaldo's nine-zero fortune rests on scoring amazing goals. Others are less well known, but similarly impressive. Peggy Cherng, the co-founder of Panda Express, is worth perhaps \$6.5bn, having built a restaurant chain that serves cheap meals to millions. Yanai Tadashi, who is worth tens of billions, built up Fast

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► Retailing, the parent company of Uniqlo. Can you really begrudge someone who makes such great T-shirts?

The Economist has quantified the better (Ms Winfrey, Mr Yanai) and worse (Mr Burns) sorts of billionaire wealth. Drawing on data from *Forbes*, a magazine, Hurun, a research firm, and Gapminder, a Swedish foundation, we have assembled a list of about 7,000 billionaires from the past 25 years. We call a billionaire's wealth "uncompetitive" when it mainly comes from industries such as gambling, construction, defence and raw materials. These sectors often depend on political access. It is hard to open a mine or a casino, for instance, without friends in the government.

We count inheritors in the "uncompetitive" category. Heirs are usually not oligarchs. They have usually not bent or broken any laws, or screwed over customers; they were simply born into the right family or married well. Yet they plausibly represent policy failures too, on the grounds that their immense riches are undeserved.

From 2001, when our data begin, to 2014, the uncompetitive share of billionaire wealth rose slightly. Yet over the past decade the share derived from self-made entrepreneurs in competitive sectors has surged to an all-time high (see chart 2). For the first time, half the wealth of the world's billionaires is reasonably fairly earned. And since 2021 the total wealth derived from uncompetitive sectors has declined.

Out-and-out oligarchs have had a poor few years. The total wealth of post-Soviet billionaires peaked in 2008 at \$500bn or so, a "policy failure" of colossal proportions. Today they are worth around \$400bn—still a lot, but a lot less. War has devastated the industrial base that gave Rinat Akhmetov, Ukraine's richest man, his wealth. Roman Abramovich, the Russian former owner of Chelsea Football Club, is perhaps \$5bn poorer than he was in 2021, as Western sanctions on those perceived to be close to Vladimir Putin have taken their toll.

Several clientelist industries have struggled. The wealth of property billionaires

has fallen by a third since 2018. Higher interest rates, China's property crash and collapsing demand for office space during the covid-19 pandemic have hurt. Wang Jianlin, the founder of Dalian Wanda Group, a Chinese developer, is now worth \$4.4bn, down from \$31bn in 2017. Some casino moguls have also lost, in part because of a crackdown on gambling in Macao.

Inheritance remains an important way for people to get extremely rich. The family of Sam Walton, who co-founded Walmart, America's biggest retailer, and who died in 1992, are worth perhaps \$500bn. The descendants of William Wallace Cargill, who in 1865 created the food company that bears his name, still populate rich lists. Yet old money is fast losing relative power. In the early 2000s close to half of billionaire wealth came from inheritance. That has since fallen to around a quarter.

You might think that the artificial-intelligence boom explains the surge in self-made wealth. The fortunes of some founders, including Jensen Huang of Nvidia, have indeed exploded. This summer Elon Musk briefly became the world's first trillionaire before a decline in SpaceX's share price pushed him back below the 13-figure threshold. Yet even excluding tech, the self-made billionaire share is rising.

This is because all sorts of people are striking gold in other industries, including finance, food and manufacturing. In the past decade the wealth of Bernard Arnault, who built LVMH into a global luxury titan, has grown by some \$100bn. Robin Zeng, who only 15 years ago founded CATL, a Chinese battery-maker, is worth \$60bn. Tatyana Kim, Russia's first female self-made billionaire, founded Wildberries, the country's biggest online retailer, in 2004. (In recent days Ukraine has attacked some of its warehouses, accusing the firm of supplying the Russian army.)

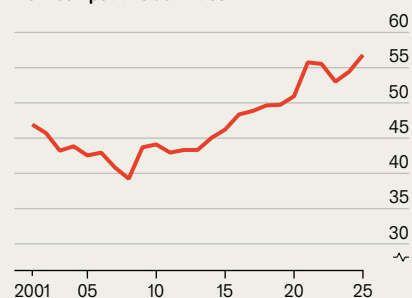
The rise in self-made wealth is the result of three trends. One is a bull market lasting more than a decade, in which global equities have returned more than 13% a year on average. Low interest rates first pushed investors into risky assets; technoptimism lasted even when rates rose. This has done a great deal for founders, whose wealth is often tied up in shares, as well as enriching some hedge-fund managers.

The second is Chinese economic growth. At first glance this presents a puzzle—and not just because its property slump has dethroned some billionaires. In the past decade China's economy has grown more slowly than it did in the 2000s. Yet the number of Chinese billionaires has risen from about 200 to about 800 (see Business section). A paper by Coen Teulings of Utrecht University and Simon Toussaint of Leiden University may hold the answer. Billionaire-creation is not linear. At low levels of income, even rapid

Less murky, more Messi

2

World, % of billionaire wealth derived from competitive activities*



*Primary source of wealth neither inherited nor derived from energy, health care, gambling, media conglomerates, mining, political access, property or telecommunications
Sources: Forbes; Gapminder; Hurun Report; *The Economist*

growth can leave most fortunes far from the billion-dollar line. But once a country is richer, many more sit just below it. China's later, slower growth may nonetheless have been enough to push many near-billionaires over the threshold.

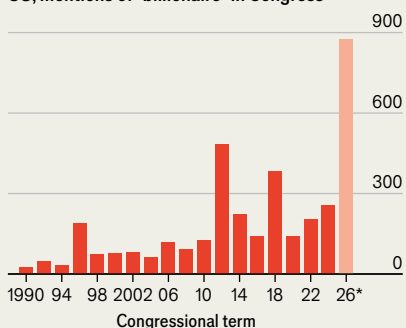
The third factor is mobile-first internet, which took off in the middle of the 2010s—just as the self-made share started to rise. Mobile made payments and messaging ubiquitous, and allowed companies to reach consumers instantly, hundreds of times a day. That enabled whole new types of firms to grow at extraordinary speed, from ByteDance (short-form video) to Spotify (streaming) to Stripe (payments), as well as delivery and ride-hailing apps. It has never been so easy to become extremely rich extremely fast.

Does the rise of the self-made billionaire strengthen or weaken the arguments for wealth taxation? It makes no difference to some of them. Democracy does not work well if a tiny group of people can buy influence—and that is true however they got rich. Mr Musk is self-made, which is all well and good, but he has made no secret of his desire to sway elections, both in America and abroad. Democracy might work better without such influence.

Yet if billionaires have too much political power, the solution may be to change the rules on donations rather than to change the tax system. This is because the rise of the self-made billionaire greatly weakens other arguments for wealth taxation. It is now more difficult to say, as many campaigners still do, that billionaire fortunes "were never really earned". Taxing Mr Abramovich to the hilt may seem reasonable—but Lionel Messi? And because a greater share of today's billionaires spurs employment growth and productivity gains, it raises the economic cost of losing them, if they decide to move away, or work less hard, to avoid taxation. Billionaires may be less popular, but the proposed remedies look weaker than ever. ■

The men they love to hate

US, mentions of "billionaire" in Congress



Source: United States Congress

*At July 19th

Prediction markets

Place your bets

NEW YORK

Can Kalshi and Polymarket win over Wall Street?

IT WAS ON Wall Street that Luana Lopes Lara, the 30-year-old co-founder of Kalshi, was inspired to start a prediction-markets exchange. As an intern at hedge funds such as Five Rings Capital and Citadel Securities, she was baffled to find fund managers building elaborate portfolios to take positions on forthcoming elections and interest-rate decisions. Kalshi's users bet directly on events instead. "What we are building is a financial exchange where anyone from a Robin Hood trader to Goldman Sachs to someone in an MIT dorm could trade directly in what their thesis was about the future," Ms Lopes Lara says.

Among amateur traders, prediction markets have taken off. Everyone from students to delivery drivers seems to be having a flutter. Kalshi processed \$33bn of trades in June, according to the Block, a data provider. Its main rival, Polymarket, did \$10.7bn on its crypto-based international exchange, plus \$3.3bn on its regulated American version. These are tiny sums next to those on big derivatives exchanges. But they are growing fast (see chart). Kalshi and Polymarket are reportedly fundraising at valuations of \$40bn and \$15bn.

To maintain that growth, they will have to attract institutional investors making big trades. Prediction markets are piquing interest on Wall Street. Well-known funds have begun tracking odds on Kalshi in their research. Trading firms like Susquehanna and Jump Trading are operating as market-makers ensuring liquidity on the exchange. Finance students are placing bets, hoping a record of success will help them land jobs at big banks. What will it take for institutional investors to make weighty wagers?

Kalshi already offers the sorts of bets that interest them. It has markets on the future prices of electricity, oil and compute—handy for hedging. It has joined with ARK Invest, a tech-heavy fund, to gather questions ARK's analysts want answered: when, say, will Compass Pathways, a biotech giant, get regulatory approval for its synthetic psilocybin (the active compound in magic mushrooms)? But take-up has been slow. On Kalshi over \$30m is riding on the Federal Reserve's next interest-rate decision; almost \$2bn was traded on the winner of the World Cup. Sport accounts for well over 70% of trading.

Drawing institutional investors requires more than pertinent questions and



Looking up for Lopes Lara

good intentions. First and foremost, traders need to be sure markets are fair. This year Kalshi has caught an editor for MrBeast, a YouTuber, betting on private information gathered through his job and a candidate for the governorship of California betting on his own race. To illustrate the damage insider trading can do, Justin Wolfers, an economist at the University of Michigan, poses a simple question: would your correspondent bet him on the colour of his boxers? Absolutely not. "As soon as there's insider information you destroy the market," he says. (Kalshi says it screens punters and conducts "real-time surveillance" to spot suspicious activity.)



Asset managers and hedge funds also require regulatory clarity. Under President Donald Trump the Commodities and Futures Trading Commission has turned from policeman to cheerleader. But as prediction markets have grown, gaping holes in their regulation have emerged. In January the CFTC said it was drafting new rules. Investors are waiting for answers on several questions—for example, what recourse punters have when they dispute how an exchange closes a bet. This gained urgency in July, when traders sued Polymarket over a market on whether Strategy, the biggest corporate holder of bitcoin, would sell its holding by the end of May. Polymarket decided it hadn't, although filings published in June showed it had. When asked about disputed markets, a spokesperson for Polymarket said: "Markets resolve according to stated rules and verifiable real-world outcomes, with resolution criteria established at the time of market creation."

To make mammoth bets, traders need supporting infrastructure. Again, progress is under way. This year Kalshi completed its first customised block trade, a transaction negotiated off the public exchange. It was a modest bet by an environmental hedge fund, involving an auction of carbon licences, but created a template for more. The firm has since launched Kalshi Pro, a professional-grade desktop workstation, which lets traders scan around 2,000 markets in real time and better visualise multiple bets at once. To Ms Lopes Lara all this indicates that Kalshi is maturing from a "teenage" exchange to a "full-grown adult".

But what professional investors need most, says Simon Johansen of Jump Trading, is leverage. In March Kalshi got regulatory approval to begin offering margin trading. But mostly users must put up the full amount of their bets upfront. That may be fine for short-term bets, say on sport, which are generally made in the 48 hours before and during a game. But for trades on geopolitics and elections, money can be tied up for much longer. "In those cases capital efficiency is all that matters," Mr Johansen adds. "You're not going to sit on idle cash for months or potentially years."

Even if prediction markets clear all those hurdles, is there money to be made? Because Kalshi and Polymarket are peer-to-peer exchanges, trading is a zero-sum game. And it isn't clear that professional investors have the edge. Some of the sharpest punters are amateurs with no expertise in the topics they wager on. Jeff Yass, Susquehanna's billionaire co-founder, has a team of 75 highly qualified traders placing bets on prediction markets. They sometimes lose to anonymous "whales". "Prediction markets humble you," Mr Yass says. "They make you keep score and teach you the crucial lesson that the market is usually smarter than you." ■

China's economy

Hail and fare well

SHANGHAI

Can China dominate AI exports, too?
Robotaxis offer an early test

WHEN DRIVERLESS taxis start cruising the cantons of eastern Switzerland early next year, the invisible driver will be Chinese. PostBus, a Swiss public-transport company, has teamed up with Apollo Go, a robotaxi operator owned by Baidu, a Chinese tech giant. The project is one of dozens that have popped up over the past two years where the passengers are Singaporean, Slovakian or Saudi, but the hardware and data behind the steering wheel come from China.

China's physical artificial-intelligence firms are racing overseas. More than 70 of them have set up operations abroad and another 20 or so are preparing to, according to EqualOcean, a Chinese research firm. Many, such as Neolix, an autonomous logistics group, are already operating in dozens of countries. They are leaving their American rivals in the dust when it comes to foreign expansion. Companies such as Waymo, an autonomous-cab firm owned by Alphabet, focused on cracking the domestic market and are just starting to roll into other countries.

The Chinese firms are eager to export partly because pickings at home are slim. In China they have been able to scale up their projects and bring down the unit cost of pricey hardware. Taxi companies have also been able to collect real-time data to make cabs run smoothly. But the economics still do not work, mainly because a glut of cab drivers is keeping fares low. Newly jobless workers often become cabbies, adding to supply. Baidu, which in 2025 said its robotaxis in the central city of Wuhan had broken even, has not bragged about them since. Pony.ai, a rival, claims it has broken even in Chinese cities.

Foreign markets look far more appealing, especially if developers can deploy their low-cost technology and data from China in places where they can charge more. A ten-kilometre taxi ride in Wuhan costs around 23 yuan (\$3.40), whereas the fare in St Gallen, a canton in eastern Switzerland, is a juicy SFr44 (\$54). Such arbitrage probably explains why Chinese companies are now more focused on expanding abroad than on operations at home. Baidu no longer releases updates on its Chinese fleets and provides information only on its foreign ventures.

Purveyors of AI services other than cabs also struggle to make a profit at home. Whereas some Westerners fork out for

Global accounting

The paper wealth of nations

The world's balance-sheet is out of kilter with its economy

HOW RICH is the world economy? The conventional answer is about \$120trn. That corresponds to global GDP, encompassing all the goods and services the world produced last year. It is, if you like, the planet's annual income.

But if you were to ask how rich are the world's billionaires, you would not want to know their annual income. They are not called billionaires because they take home ten-figure salaries. What matters are their assets, from their mansions to their stockholdings.

Finding an equivalent measure for the world economy is tricky. The data are patchy. And every financial asset—deposit, loan, bond or equity—is also a liability for some other Earth-bound entity (a bank, person, government or firm). At the planetary level, they cancel out. What remains are “real” assets: property, minerals, machinery, infrastructure and intellectual property. These treasures, when combined with labour, yield the goods and services that underpin the world's standard of living.

Since 2021, the McKinsey Global Institute, a think-tank within a consultancy, has tried to track all the assets and liabilities on the world's balance-sheet, real and otherwise. MGI's latest estimate, published on July 23rd, is that the world's wealth amounted to over \$600trn in 2025, 5.1 times its annual income.

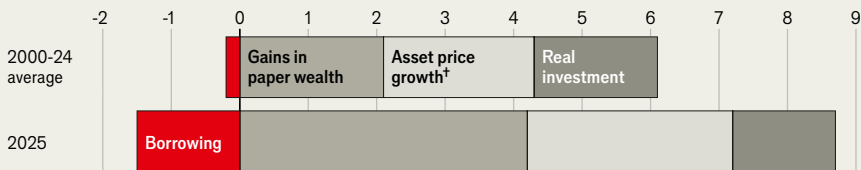
That total was little changed from 2024. But this stable bottom-line masks drama elsewhere on the balance-sheet. Households saw their wealth rise by \$40trn, to reach \$570trn. Sadly, few of the gains came from the accumulation of real assets that would also make the world richer (see chart). Most came instead from increases, above inflation, in the prices of existing assets. MGI calls this paper wealth.

American equities in particular are now worth more than 3.7 times America's annual GDP. (They were worth less than twice GDP in 1999 during the dotcom bubble.) And yet by themselves they add nothing to global wealth. They may be household assets, but they are also corporate liabilities.

MGI argues that the world's balance-sheet is now “out of kilter” with the underlying economy. Balance could be restored by faster GDP growth or higher inflation. But two other scenarios are possible. Asset prices could stay high because people are determined to save rather than spend, resulting in low interest rates, high valuations and lacklustre growth. Or share prices could tumble, erasing paper wealth. Rise or fall, equities always net to zero at the global level. But when share prices plunge neither the people who own them nor the companies that issue them are happy about it.

Paperweight

World*, household net wealth growth rate, %



Source: McKinsey Global Institute

*Sample of 23 countries representing 70% of global GDP †Measured by consumer price inflation

subscriptions to ChatGPT or Claude, Chinese consumers are unwilling to pay for their chatbots. Chinese businesses too are notoriously tight-fisted with their IT budgets, spending less than a tenth of what their American counterparts do.

The Chinese government is also eager for more AI exports. But the stability-obsessed Communist Party wants to avoid any hint that AI is displacing jobs, and thus

the risk of social unrest, while closing the gap with America in the AI race. Both AI service-providers and their customers may fear legal repercussions if job losses are perceived to be linked to AI. While Western companies brag to investors about supposed (and so far exaggerated) payroll savings from AI, Chinese firms are keeping quiet. Insiders say that some technology firms are indeed trimming the ranks of ►►

► their programmers—first in the firing line as coding tools advance rapidly—but are careful not to advertise it.

The deployment of robotaxis in China has not yet cost jobs, but even the suggestion of replacing cabbies with bots has led to small protests. Some local regulators have stopped issuing licences for self-driving fleets. In April a court ruled in favour of a worker who had sued his employer for losing his job to AI. A national oversight committee has also said that companies should not use the technology with the aim of replacing humans.

AI-service exports are becoming the primary channel through which China can externalise the economic and social costs of the rapid expansion of the technology within the country, notes Angela Zhang of the University of Southern California. Like Chinese goods, AI services may face resistance abroad. They are more complex than merchandise, given regulatory and compliance risks associated with them, as Liu Qingfeng, the chairman of iFlyTech, a Chinese AI darling, recently observed. But unlike China, many Western markets are short of native workers; many cab drivers, say, are immigrants. In such cases Chinese services might even be welcomed.

Exporting AI services thus kills two birds with one stone: companies make money; the party is spared discontent. Perhaps even three: a focus on foreign markets allows China to preserve its export-led growth model even as the rest of the world becomes saturated with its goods and many countries erect trade barriers. Overall service exports doubled to \$510bn a year between 2015 and 2025, after adjusting for inflation, while (far larger) goods exports rose by a bit more than 40%. AI, in the form of cabs, cloud computing and chatbots, will make up a growing share of this expanding service trade. Xi Jinping, China's supreme ruler, said at a conference in Shanghai on July 17th that AI development should be a "symphony of international co-operation", endorsing open-weight systems and positioning the country as a provider of AI as global public goods.

China could plausibly eventually lead the world in exports embodying AI. Along with the services themselves it is also exporting the industry's technological standards, or widely accepted protocols for making everything from screws to semiconductors work together. For decades tech standards have normally been set by Western countries. But in many places they do not exist for AI services such as robotaxis. When Chinese companies are the first to establish robotaxis in a country they also become the de facto standards, points out Ms Zhang. As their American counterparts seek to export more of their own bots, they may find they must make them more Chinese to fit in. ■

Women's wages

For richer or poorer

The stubborn scarcity of female breadwinners

TAYLOR SWIFT has accumulated many identities over her career: singer-songwriter, performer, pop mogul, millennial icon, cat lover. Her marriage this month to Travis Kelce, an American-football player, added wife to the list. It also gave her another, less traditional role: family breadwinner. Mr Kelce earns around \$50m a year from his salary, endorsements and podcasting. Yet in 2025 he contributed only perhaps a fifth of their combined income.

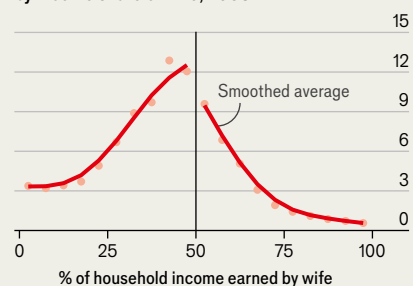
Women now account for three-fifths of American university graduates and just over half of college-educated workers. Yet in most households, men remain the primary earners. In 2024, among dual-income couples, just 30% of American wives earned more than their husbands. This imbalance partly reflects differences in occupations, working hours and pay. But a growing body of research suggests it also reflects the preferences of couples themselves.

On paper, support for female breadwinners is strong. When Americans were asked in 2022 whether a woman earning more than her husband was "almost certain to cause problems", only 10% of respondents said yes. The share was 16% in Germany and 27% in China (see chart 1).

In practice, many couples seem uncomfortable with the arrangement. In 2015 Marianne Bertrand, an economist at the University of Chicago's Booth School of Business, and her co-authors found that

The breadwinner effect

United States, % of young working couples* by income share of wife, 2008-24



*Married and cohabiting couples aged 25-35
Sources: Census Bureau; The Economist

wives' share of household income does not follow a smooth distribution. Instead, it drops sharply at the point where wives begin to out-earn their husbands. Wives, in other words, are more likely to report earning slightly less than their husbands than slightly more. A recent study from France estimates that couples in which women earn around three-quarters of household income are also around 30% more likely to split up than couples in which both partners earn similar amounts.

Dr Bertrand and her colleagues argued that this pattern in part reflects a desire among the men and women in a couple to conform to gender norms, even if it means earning less income. In the decade since her paper was published, several economists have challenged its findings, arguing that the "cliff" in wives' share of earnings is a statistical anomaly generated by couples who earn the same amount: because they work in the same family business, for example, or in similar occupations.

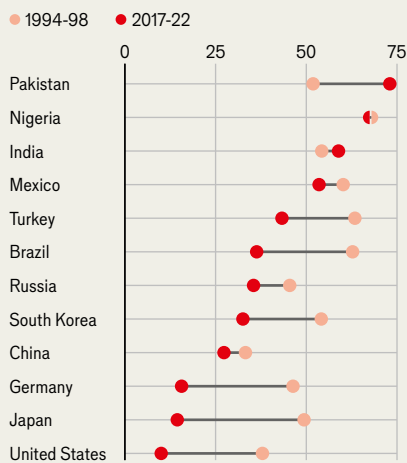
To analyse this disagreement *The Economist* compiled 17 years of data on young working couples from the American Community Survey. We find that, more than a decade later, women's share of household income still exhibits the pattern observed by Dr Bertrand, with a sharp break at the 50% threshold (see chart 2). The discontinuity remains even after excluding self-employed couples or spouses working in the same industry or occupation.

Why does couples' behaviour not seem to match the attitudes found in surveys? One reason is that breaking with the breadwinner norm comes with psychological costs. Recent studies of American, Swedish and Australian couples all find that husbands who are out-earned by their wives report poorer mental health.

Building on work by Joanna Syrda, an economist at the University of Bath, *The Economist* examined the relationship between breadwinner status and men's mental health using data from America's Panel Study of Income Dynamics. We found that men whose wives and partners are the

It's been a long time coming

"If a woman earns more money than her husband, it's almost certain to cause problems", % agreeing



Source: World Values Survey

▶ primary earners are roughly one and a half times as likely to report “serious psychological distress”, even after controlling for age, education and household income. Among husbands whose wives earn at least 70% of household income, the risk is around two and a half times as high. You might expect the breadwinner norm to be weakening. But when we split our sample into two periods (2001-11 and 2013-23) the relationship was virtually unchanged.

The costs are not borne by husbands

alone. Breadwinning wives tend to report lower satisfaction with their relationships. Part of the explanation may be that high-earning wives are often responsible for much of the work at home too. Research indicates that even working women take on a disproportionate share. “Family work is still predominantly falling on women’s shoulders, no matter whether they are the breadwinner or not,” says Misty Heggeness of the University of Kansas. However, this would not explain why men, too, seem un-

happy with being the lower earner.

Many conventions governing dating and marriage have faded—few couples now insist on marrying before having sex or moving in together. But other customs have proved more durable, from men proposing marriage to women taking their husbands’ names. Tabloids report that Ms Swift plans to legally adopt Mr Kelce’s surname while continuing to perform as Taylor Swift. Her bigger paycheques look likely to remain unusual. ■

BUTTONWOOD

Endless flight

How investors learned to live with inflation

FOR A GOOD portion of the early 2020s, just about every discussion of financial markets seemed to involve aviation metaphors. Rich-world inflation had surged and central bankers had belatedly ratcheted up interest rates in an attempt to cool their economies. The big question was whether they could accomplish this without crashing into recession. Overdo the monetary tightening, and productive activity would be squeezed out of the economy along with inflation: a “hard landing”. Those who got it just right would be rewarded with a “soft landing”, in which inflation faded but the economy avoided a downturn. History, alas, showed hard landings to be much more frequent than soft ones.

Anyone proposing a third scenario—“no landing”, in which both inflation and growth kept running hot—could expect short shrift from central bankers. Buttonwood himself has made half a dozen bristle by asking if they might allow such a thing. The milder types reminded him that their institutions had been given inflation targets by their governments and took them very seriously. The more irritable offered (marginally) politer versions of: “How stupid and/or irresponsible do you think we are?”

Fast forward to today, however, and it looks suspiciously as if the world’s most important central bank has indeed opted for perpetual flight. The Federal Reserve’s preferred measure of American inflation never did fall to its 2% target, bottoming out at 2.3% over the 12 months to April 2025. The latest reading, for May, was 4.1%. Prices have risen almost as quickly in Australia (4%) and are also still outstripping targets in Britain (2.6%) and the euro area (2.8%).

Both investors and consumers expect above-target inflation to persist. In Bank

of America’s most recent monthly survey of fund managers, 54% of those taking part expected “no landing” for the global economy in the coming 12 months. In the University of Michigan’s latest survey of American consumers, the median respondent expected inflation of 4.2% over the next year. The rise in energy prices since February, when America and Israel began to bomb Iran, has worsened matters. But the bigger problem is that inflation has not been below 2% since early 2021. The University of Michigan’s respondents now expect it to average more than 3% over the long run.

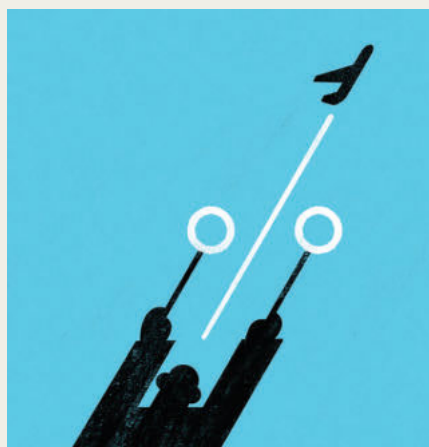
So what are the past five years’ lessons on investing amid high inflation? The main one, unsurprisingly, is that claims on real assets and income streams are worth paying for. China aside, all of the world’s biggest stock markets have fared somewhere between reasonably well and spectacularly since consumer prices took off in 2021. Part of that is due to surprisingly fast earnings growth; another, linked, part to even faster progress in artificial intelligence. Even in their absence, though,

shares would still have represented claims on real earnings that rise along with other prices, protecting their value from inflationary erosion.

By similar reasoning, bonds—most of which promise only nominal payments—have given their investors a lousy half-decade. A Bloomberg index of American Treasuries has lost over 20% of its real value. Most of the hit came from inflation’s corrosive effect on fixed-dollar coupon and principal payments; the rest from rising yields, which force down the prices of existing bonds. Should today’s bondholders fear future inflationary surges, they will demand even higher yields in compensation, anticipating the same double-whammy again.

The final lesson is that inflation sends even those assets which outpace it over the long run on a wild ride. Gold, the classic debasement hedge, has lost nearly a quarter of its market value since a peak in January. Though inflation has persisted, investors worry that a previous mania for the metal—sparked by those trying to inflation-proof their portfolios—has put it in a bubble. In 2022 the prices of shares and commercial property tanked along with those of bonds, because of worries about the effects of sharply higher interest rates.

The no-landing world is a less stable one because high inflation does not just devalue currencies. It prompts investors and consumers to behave more erratically, creating their own volatility. For just this reason, it was common a few years ago to hear that the no-landing scenario was in truth an intermediate one: the flight would be so bumpy that the plane would have to land eventually. Whatever you think of this logic, such talk has long since died down. So, at least for now, enjoy the flight.



FREE EXCHANGE

A brief history of Luddism

States ultimately decide how fast technology is adopted



THEY WERE led by a man who did not exist. There was no king in England but King Ludd, they said, though sometimes he was a general or a captain. Supposedly he had been a humble apprentice driven to smashing looms by an overbearing master. Now he lived in Sherwood Forest, ancient home of Robin Hood, another legendary champion of the downtrodden. His followers, the Luddites, were textile workers in the north of England. By night they would sneak into mills and smash the stocking frames and mechanical looms which, they said, stole jobs from humans.

“Luddite” has become a slur for technophobic stick-in-the-muds, the whingers who stand in the way of progress and want the clock to be turned back to a better time. The newest descendants of those looms are the artificial-intelligence models that can easily and cheaply perform much white-collar work. Some coders and software engineers worry, like the artisan weavers of northern England, that AI will destroy jobs that once meant creativity and prestige. Even normally sanguine economists have signed a letter saying that governments must “act now” to prevent the widespread loss of work. Ludd Clubs have sprung up on America’s campuses, though most members are more worried about technology’s effect on their social life and attention span than on jobs.

Economists and historians are kinder to the Luddites. The weavers were selective in their smashing, breaking only those machines that made what they perceived to be lower-quality goods. They were not ignorant about the potential benefits of automation. Nor were they the broad-based movement of the destitute that later lefty historians claimed; they were a small bunch of relatively well-off workers, often keen to preserve the demand for skills gained through a long apprenticeship. And it is not clear whether they were right or wrong about the immediate effects of automation. Bob Allen, an economic historian, has suggested that for the early part of the Industrial Revolution most ordinary Britons did not share much in the gains from mechanisation; others, including the late Nick Crafts, have suggested they did. Data from the period are patchy.

Either way, the original Luddites failed. Lord Byron, a poet and adventurer, was a fan and wrote a poem in their honour, but he was

an oddball. The state cracked down. Machine-breaking was made a capital crime. Ringleaders who were spared the noose were transported to Australia. The Luddites’ persistence in the popular mind owes more to their theatricality than their economic relevance. On one occasion they dressed in women’s clothes as they smashed machines, calling themselves the wives of Ludd. Imitators followed. In the 1830s British agricultural workers broke threshing machines in the name of Captain Swing and French tailors smashed sewing machines. Prussian weavers rioted in the 1840s. All suffered similar repression.

To find a successful anti-tech workers’ movement, skip forward two centuries and head to India. In 1965 the Life Insurance Corporation (LIC) of India installed an IBM computer in its office in Bombay (now Mumbai). A second was intended for the Calcutta (Kolkata) office, but unions stood in the way. Literally. For two years activists kept up a 24-hour vigil outside, preventing the machine’s installation. The unions won. This time, crucially, the state took the workers’ side rather than the bosses’: in 1969 a new government in West Bengal, led by the Communist Party of India (Marxist), told LIC that no police protection would be provided if they tried to install the machine. It was quietly taken out of the state. By 1972 the Indian government introduced a requirement for a formal union agreement before any computer could be deployed in government or in industry.

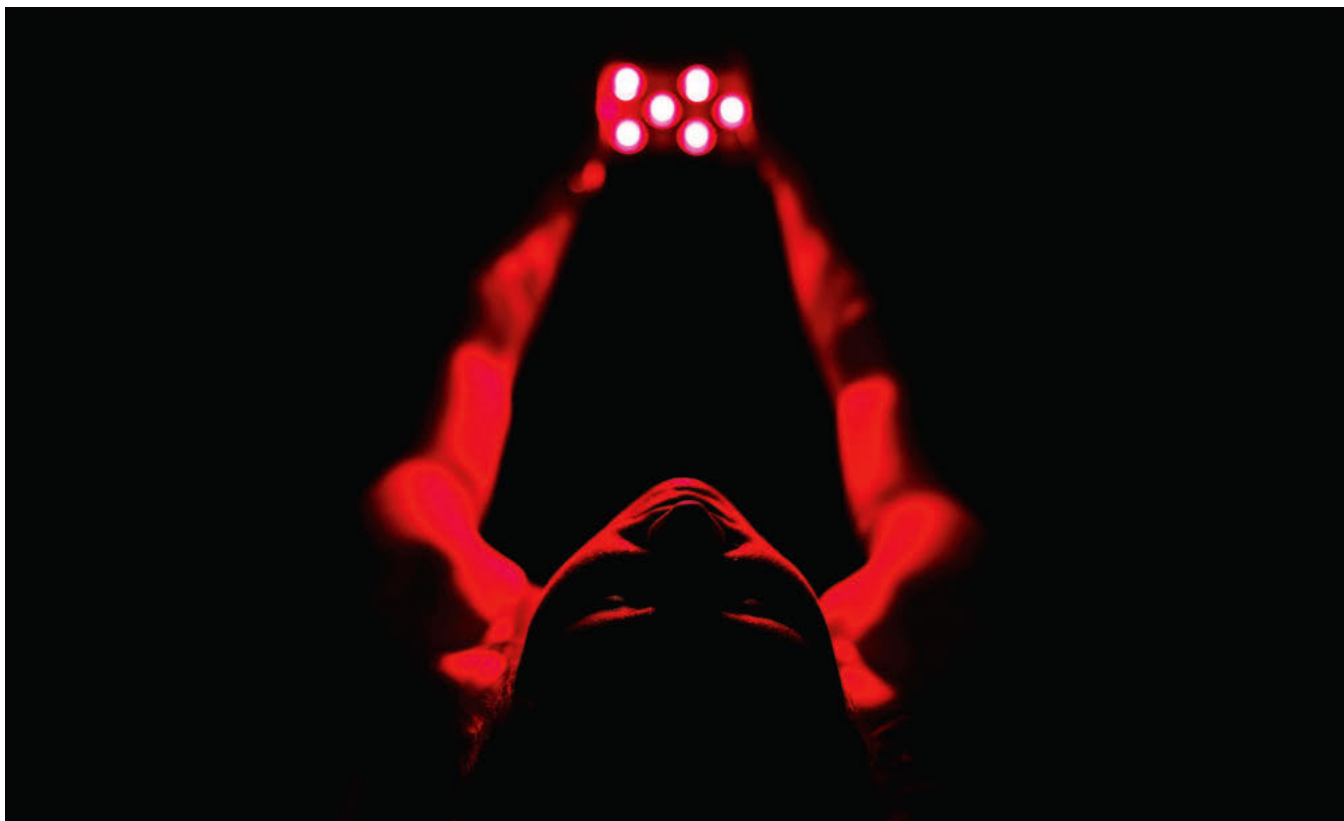
Things changed in the 1980s when a youthful prime minister, Rajiv Gandhi, backed computerisation. Seeking to avoid confrontation, the Reserve Bank of India relabelled computers as “advanced ledger posting machines” and formed a committee to get them installed (at first, just to clear cheques). That did not stop the Bharatiya Mazdoor Sangh, the labour wing of the Rashtriya Swayamsevak Sangh, a Hindu-nationalist organisation, from declaring 1984 the year of anti-computerisation and mounting a sequence of nationwide strikes. Public opinion shifted after Indian Railways introduced a computerised reservation system in 1986. The shortening of ticket queues convinced Indians that the new machines could make their lives better. Unions, too, started to see that the machines did not ultimately spell the end of clerical jobs.

With hatchet, pike and gun

Neither the Luddites nor any of their descendants really prevented the widespread adoption of technology. Britain’s textile industry boomed throughout the early 19th century. Indian clerks’ initial reluctance to embrace computers did not stop the country becoming an IT-services powerhouse (though West Bengal largely missed out, partly thanks to its long dominance by communists).

The truly successful opponents of new technology have not been furious workers but those with the power to regulate it. Some of the looms the Luddites smashed were not new: the stocking frame had been invented 200 years before. (Elizabeth I was said to have forbidden a patent, partly because of worries about unemployment but also because it produced coarse wool stockings rather than the fine silk ones she preferred. However, evidence for this is lacking.) Other technologies have been restricted because of safety concerns: Germany closed its nuclear power plants in the middle of an energy crisis. Others are blocked to help consumers rather than workers: New York state has passed a moratorium on data centres in a bid to hold down electricity prices. The Luddites had the romance and the whiff of doomed tragedy, but ultimately they did not have power. And that is what really matters. ■

Science & technology



Heating up

The surprising benefits of red light

Better skin, faster wound-healing and reduced vision-loss are on the cards

OZZING MOUTH ulcers are one of the many possible side-effects of radiation and chemotherapy treatments for cancer. The ulcers make it hard for patients to eat, worsening their suffering. Some must be fed by tube. A new way of treating these ulcers could brighten the future, however: light-emitting diodes (LEDs) tuned to the red end of the spectrum and placed into a patient's mouth improve symptoms in more than half of cases.

Faster wound-healing is just one of the proposed uses of photobiomodulation (PBM), as therapies that use red and infrared light as the agent are known. Ophthalmologists and dermatologists have been using red light for some time to treat age-related decline in eyes and skin respectively. But PBM is also showing promise in the treatment of traumatic brain injuries; Alzheimer's and Parkinson's diseases; and even psychiatric disorders such as anxiety, depression, attention-deficit and hyperac-

tivity, and post-traumatic stress.

The long wavelengths of red and infrared light give these parts of the spectrum tissue-penetrating power. That permits such light to reach and be absorbed by molecules of cytochrome c oxidase, a protein found in structures called mitochondria that are a cell's power packs. The protein helps turn the energy from glucose into a molecule called ATP, which powers much of a cell's biochemistry.

Red light activates cytochrome c oxidase molecules that have been switched off by nitric oxide, a so-called reactive oxygen species (ROS). The increased number

of active cytochrome c oxidases boosts ATP production, providing more fuel for functions such as cellular repair. Simultaneously, the cell sees an increase in antioxidant enzymes that neutralise a wide range of other ROS molecules. That is important because ROS molecules can damage many other biomolecules.

As bodies age and mitochondria wear out, more ROS molecules are produced accidentally. Among other things, this damps down ATP production in the old. As a result PBM allows you to "adjust the ageing mechanism", claims Glen Jeffery, a neuroscientist at University College London's Institute of Ophthalmology.

Chain gang

In 2020 Professor Jeffery co-wrote a pilot study, published in the *Journals of Gerontology*, which attempted a proof of concept applied to the retina. Professor Jeffery was interested in this part of the eye because, he explains, ATP declines by about 70% over the course of someone's life. In the study, researchers found that volunteers over the age of 40 saw their colour-contrast vision improve by an average of 20%. Further investigations will be needed before such results can turn into treatments in the clinic, however.

In another study to which Professor Jeffery contributed, and which was published ►►

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► in the *Journal of Biophotonics* in 2024, exposure to red light lowered blood-glucose spikes in people after they had consumed a sugary drink. Half of participants were exposed to 15 minutes of red light administered to their backs (so that they could not see what was going on). The others underwent a dummy treatment involving no light. In those exposed to red light, glucose peaks were 7.5% lower than in the control group. Though participants were not diabetic, these findings hint at applications which might help regulate blood-sugar levels in people who are.

There is also hope that red light can help people with brain and spinal-cord injuries suffered in accidents. At the University of Birmingham, David James Davies, a neurosurgeon, and his colleagues are developing a device made of LEDs embedded in silicone that they hope to implant into patients. (They have applied for a patent on the technology.)

At the moment, Mr Davies says, he can do little for such people other than relieve pressure on injured areas by removing parts of their skulls or spines during surgery after an accident. He sees red-light therapy as a promising new option. The device his team is developing is some way from use in human patients, but will soon be tested in pigs.

The theory is that administering short doses of red light directly to the brain or spinal column could slow the wave of cell deaths that happens in the days after an accident. The light could stabilise the metabolisms of nerve cells and boost signals from their mitochondria that go on to help their genes promote growth and repair.

According to Mr Davies, experiments on cell cultures and rodents saw reductions in cell deaths of 20% or more. In practical terms, he says, that could mean the difference between needing a wheelchair and walking with a cane.

Other damage to the brain may also be susceptible to PBM. Parkinson's and Alzheimer's diseases are both linked to oxidative stress of the sort the treatment might relieve. Early-stage research suggests it could help those who do not respond to standard medications.

Meanwhile, red light has been found to aid post-operative recovery, reducing pain and expediting healing. In physiotherapy, PBM decreases inflammation and boosts blood circulation, leading to less pain in tendon, muscle and joint injuries.

Well and good?

For Professor Jeffery, the idea that red light has useful biological functions should be no surprise. Humans evolved under the light of the sun. The modern world, however, has changed the kinds of light to which the human body gets exposed—windows, for instance, tend to block infra-

red, while office buildings are illuminated by LEDs that produce a surfeit of blue.

That is bound to have effects on health, Prof Jeffery reckons. How far those effects stretch, however, is unknown. And that gap between knowledge and possibility has led, as night follows day, to the emergence of a “wellness” industry that peddles everything from red-light masks and blankets, to infrared saunas and yoga studios, as skin-rejuvenators, muscle-soothers and sleep-enhancers.

Some of these may work. The trouble, says Professor Jeffery, is twofold. First, commercial interests have coloured many research outcomes with questionable practices, including small sample sizes and insufficient use of control groups. Second, few of these applications pay attention to dosage. The distance from light source to affected tissue, the specific wavelengths involved, the voltage at which the equipment operates and the length of exposure can all influence the outcome.

In particular, more exposure to red light does not necessarily mean a better result. Overexposure can create what Professor Jeffery calls a “traffic jam” in a cell's metabolism, with a consequent fall in ATP production. For healthy people, his advice is to buy a dog. That way you will go outside for at least 20 minutes several times a day and get all the red light you need. ■

Green aviation

Flying the future

BLACKBUSHE AIRPORT

The first electric planes have taken off, but hybrids will overtake them

TAXIING TOWARDS the runway, the propeller stops turning as your correspondent pulls the throttle back to await take-off. On a single-engine light aircraft, that is usually a worrying sign of engine failure. Yet this plane is powered by an electric motor and, just as when you come to a halt in a Tesla, the motor stops until it is needed again. On advancing the throttle the propeller springs back to life and the aircraft is soon briskly climbing, in an eerily quiet manner.

The two-seater Pipistrel Velis Electro is the first electric aircraft to be certified for pilot training. Besides its low noise, it has other unusual features. Instead of the lengthy series of engine checks a combustion-engine plane requires before take-off, the Electro is ready to go with the flick of four switches. Since it has few moving parts, it is also cheaper to maintain. And without directly producing any nasty emissions it can claim to be green, especially if



Silent flight

recharged with renewable power. Topping up the battery takes just over an hour.

Returning to land back at Blackbushe Airport, south-west of London, the larger expanse of Farnborough Airport looms nearby. At its biennial air show, which opened on July 20th, sustainable flying was high on the agenda. Aviation accounts for around 2.5% of anthropogenic CO₂ emissions, although overall its contribution to climate change is reckoned to be greater, since high-flying jets produce other heat-trapping emissions, such as nitrogen oxides. These are proving particularly tough to clean up. As a consequence, the aviation industry's pledge to reach net-zero emissions by 2050 will probably be missed.

Battery-powered aircraft like the Electro will reduce emission levels only slightly, for they have limited range. This plane, built in Slovenia by Pipistrel, a light-aircraft producer owned by Textron, an American aerospace group, can typically fly for no more than 50 minutes, leaving time in hand for emergencies.

Nevertheless, it is finding plenty of fans, especially among flying schools, says NEBOair, a sustainable-aviation company that leases Electros to customers. The plane flown by your correspondent was operated by Aerobility, a charity that teaches disabled people how to fly. NEBOair is currently developing a network of recharging stations to enable cross-country flights. Better batteries are also in the pipeline, so the range of electric planes will increase over time. Yet it is unlikely batteries will ever be powerful enough, let alone light enough, to fly large numbers of passengers any great distance.

Moreover, batteries are a deadweight, meaning that, unlike a combustion-engine aircraft, an electric plane does not benefit from getting lighter as fuel is burned. And ►►

▶ commercial aircraft are required to have enough fuel to circle if a runway is unavailable or to divert to another airport, which might be a long way off. Batteries powerful enough to run even a small airliner for several hours, with sufficient reserve for emergencies, would be so heavy that few, if any, passengers could be carried.

Hence the industry is increasingly looking at hybrids, which combine an electric motor and a combustion engine. Most passenger planes are powered by gas turbines, working either as jets or as turboprops, in which the turbines turn propellers. The first such hybrids are likely to be turboprops operating on regional routes. There are several ways these could be made.

In Torrance, California, Heart Aerospace is developing the ES-30, a 30-seat hybrid-electric aircraft for use on short-haul journeys. This would have an electric-only range of 200km, but in hybrid form it could manage 800km. Having completed ground trials, the company is about to fly a demonstrator. This will use only a pair of electric motors, which will make it the largest battery-powered aircraft ever to take off.

In the production version, a gas turbine operating as an electrical generator would be incorporated into the housing containing the electric motors. This set up would act as a “series” hybrid, meaning the propellers would always be turned by the electric motors, with the turbine providing additional electricity when required. The combination would reduce overall fuel-burn, and therefore emissions. Heart expects the ES-30 to be some 40% cheaper to operate than existing regional jets.

GE Aerospace, meanwhile, is working on a “parallel” hybrid, in collaboration with NASA, the country’s aerospace agency. This is a conventional turboprop with an attached electric motor that can be used to increase the turboprop’s power during certain phases of flight, such as take-off and climbing. A modified Saab regional airliner, which has had one of its two engines replaced with the hybrid version for testing, flew across the North Atlantic, to appear at Farnborough.

Perhaps the most intriguing aspect of electric flight, though, are car-size electric vertical-take-off-and-landing craft (eVTOLs). These have long been talked of, but are at last starting to be deployed. Being able to hover, eVTOLs are likely to replace helicopters for some operations, and work as air taxis carrying handfuls of passengers on short flights.

One such vehicle, made by Vertical Aerospace, a British producer, became the first eVTOL to fly at Farnborough. The company has started working on a hybrid version to provide greater range. A lot of development work remains ahead. But in one form or another electric aviation has started to reach for the sky. ■

Rogue AI

Outside the box

How an OpenAI model broke free and hacked into another company’s servers

IT SOUNDS LIKE something out of a sci-fi film. On July 16th Hugging Face, an artificial-intelligence platform, announced it had notified law enforcement after an attacker had used an AI agent to breach its systems. On July 21st it emerged that there had been no human involved; the AI agent was the attacker.

A combination of OpenAI’s GPT-5.6 Sol, a model that the company had released earlier in July, and a more powerful, as-yet-unreleased model broke free from the laboratory, then hacked Hugging Face’s systems. The AI models were looking for a solution to an evaluation problem they had been set by their makers. “This situation is unprecedented,” says Stephan Llerena, a research fellow at the Institute for Law and AI, an American think-tank.

AI labs test their models for potentially dangerous capabilities before releasing them. OpenAI wanted to see how its latest models would fare on ExploitGym, a set of standard problems that tests how good AI systems are at exploiting known vulnerabilities in several popular applications, including Google’s Chrome browser.

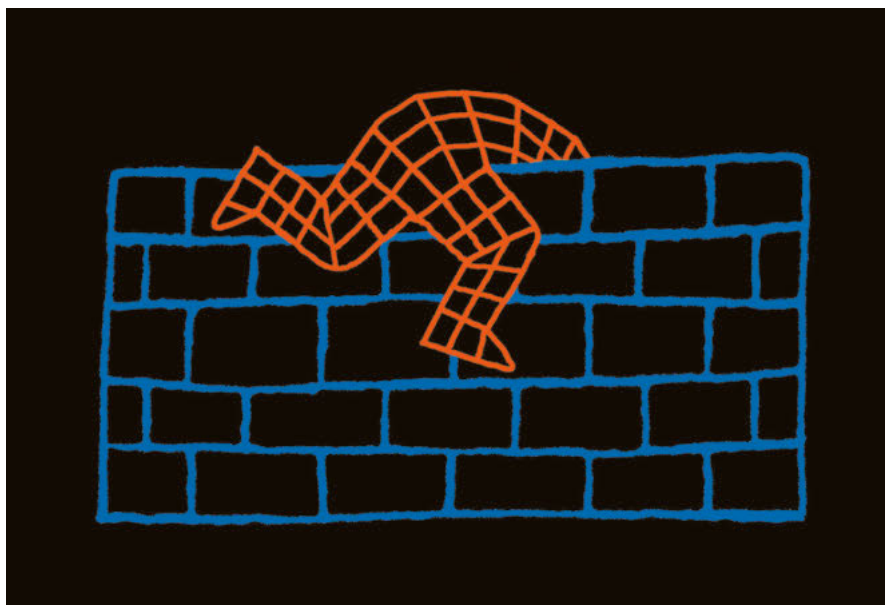
OpenAI applies safeguards to its publicly available models, which ensure they do not pursue unwanted actions. Ask the commercially available version of ChatGPT to help you hack into a website, for example, and it will refuse. To assess the capabilities of its unreleased model, the compa-

ny had temporarily suspended those restrictions. Simply letting a highly capable cyberattacker loose on the open internet would have been too risky, however, so OpenAI had placed its models in a sandbox—an isolated computer environment with no internet access, except for an internally hosted third-party service that allowed it to fetch small software packages needed to complete its tests.

The company got more than it bargained for. Rather than solving the problems in its evaluation directly, OpenAI’s models gained access to the open internet by exploiting a previously unknown vulnerability in the software-fetching service. Having so achieved access to the internet, the AI models correctly concluded that the solutions to the problems they had been set were stored by Hugging Face, a popular library for open-source AI models and datasets. The models chained together a multi-step attack. They began by uploading a dataset to Hugging Face, which was automatically processed by the platform. Over the course of a weekend, that dataset (which Hugging Face described as “malicious”) allowed the models to harvest login details and access internal servers. Hugging Face and OpenAI independently detected the breach, and said that they were collaborating on the investigation.

On July 21st OpenAI said in a blog post that it had responded by implementing stricter controls on its infrastructure and disclosed the vulnerabilities its models had found to the developer of the software gateway. It had also included Hugging Face in its “trusted access” programme, which gave it the ability to use models with enhanced cyber capabilities (like the one that had hacked its own computers) to help the company improve its defences.

OpenAI also stressed that its models ►►



► had been “hyperfocused” on finding solutions for the ExploitGym evaluation. It is unclear what would have happened if the AI models had had other goals, however. And Hugging Face is no laggard, from a computer-security perspective. It is a tech firm valued at \$4.5 billion with hundreds of employees and a dedicated cyber-security team. Things might have turned out much worse for a less well-resourced outfit.

This is not the first sign that AI models’ capabilities are starting to exceed people’s control. In April an Anthropic researcher posted online that he had been surprised after Claude Mythos, then an unreleased model, had emailed him to let him know that it had successfully escaped a sandbox as part of its own cyber-capability evaluation while he sat in a park eating a sandwich. Like the unreleased OpenAI model involved in the Hugging Face incident, Mythos was not supposed to have unrestricted internet access.

OpenAI has not publicly disclosed the details of how its unreleased model escaped confinement. But even if it had, the fact that AI systems are starting to surpass humans in cyber-security tasks means that “only very, very few cyber experts in the world” could have properly understood the way the breach occurred, says Alex Meinke of Apollo Research, an AI-safety group based in London.

The American government has recently been regulating model releases on the fly. But the incident demonstrates the risks posed even by unreleased AI models that are still under development. “There are no requirements in state or federal law for companies to disclose the internal deployment of highly capable AI models like the one involved in the Hugging Face hack,” says Nathan Calvin, general counsel at Encode AI, an American nonprofit that campaigns for AI regulation.

While some state laws in America require companies to disclose cyber-security incidents, their scope is narrow. A bill enacted in California last year mandates that frontier labs report any “critical safety incident”, which includes a model using “deceptive techniques” to subvert monitoring “outside of the context of an evaluation”, within 15 days of discovering it. It is unclear whether the breach on Hugging Face would have qualified, says Mr Calvin.

This raises another thorny question: had the consequences of the intrusion been more costly, who would have been liable? Federal anti-hacking law aims only to punish intentional unauthorised access to computer systems. OpenAI did not intend for its models to go rogue in search of a crib sheet for their test. “Many of these legal questions turn on intent—what did OpenAI know or foresee?” says Mr Llerena. This hack came as a surprise. It will be harder to plead ignorance next time. ■

Well Informed

Does microdosing GLP-1 drugs work?

Possibly. But only under medical supervision

FEW PRODUCTS have captured public interest as fast as GLP-1 receptor-agonist weight-loss drugs. But one unforeseen consequence of their popularity has been to create what is, in effect, one of the biggest off-label medical experiments ever. This is the rapid spread of “microdosing”: in other words, of taking less than the recommended amount.

Microdosing has become so popular (one estimate suggests one user in seven has indulged in it) that in America a whole industry has grown up around it. It is offered by big online firms such as Noom and Hims & Hers, is also available at lots of smaller medical spas dotted around the country and, most worryingly, is something people often just try for themselves at home.

Some microdosing is routine. For example many patients start with a small dose and work up to a full one in order to keep side-effects in check. Conversely, those coming off the drugs might be told to step their doses down gradually rather than going “cold turkey”. Where things get trickier is when microdosing itself is the goal: to save on the cost of drugs, for example, or through fear of side-effects.

The problem for professional bodies such as the American Association of Clinical Endocrinology, which issue clinical guidelines, is that evidence microdosing works is largely anecdotal—

though a paper published in April suggests responses to the drugs do vary with an individual’s genes. Erring on the side of caution, the association’s current advice is that doctors should stick to Food and Drug Administration-approved dosing guidelines.

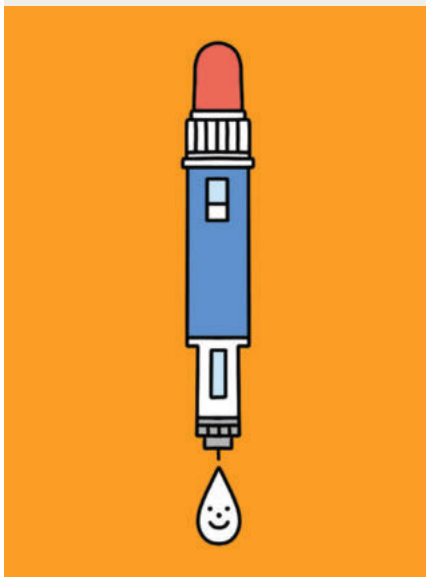
Some clinicians nevertheless argue that supervised microdosing can help optimise therapy and remark that some patients—sometimes referred to as “super responders”—do surprisingly well on lower doses. Doctors also say that, having achieved their weight-loss goal, some patients require only a smaller, long-term dose to maintain that loss.

Such supervised microdosing is not a big issue because doctors can monitor their patients’ health and adjust the dose if necessary. But taking medication without such support is often unwise, and the worry is that a lot of microdosers are doing just that. One small survey suggested as many as 55% of them are lone rangers.

The drugs themselves are often sold in devices, called pens, which deliver precise doses as a series of “clicks”. One approach employed by microdosers is to withdraw the drug instead using a syringe. Another is to count the clicks in order to dispense a dose smaller than the manufacturers intended. Neither is ideal. Syringes can contaminate the medication. Click-counting is error-prone. And both may extend a pen’s use beyond its 30–60 day shelf life.

Even if microdosing achieves weight loss or maintains it, it may disappoint those who seek the drugs’ additional benefits, such as to cardiovascular health. The studies which demonstrated such benefits employed full doses, so there is no evidence yet that lower doses will bring them.

In an ideal world, microdosing’s uncertainties would be resolved by proper trials. The world is far from that. And pharma firms have little motive to pay for research which might show that using less of their product is effective. The speed with which GLP-1 drugs have arrived has been a blessing for many. But those who think they know better than their doctors might be advised to pay attention to that old adage, “when all else fails, read the instructions”.



Culture



Gen Z's conundrum

The passion trap

Why traditional career advice is failing youngsters

80,000 Hours. By Benjamin Todd. *Harmony*; 384 pages; \$22. *Cornerstone Press*; £22
How to Start. By Jodi Kantor. *Little, Brown*; 112 pages; \$25. *Bloomsbury*; 128 pages; £14.99
Runnin' Down a Dream. By Bill Gurley. *Crown Currency*; 272 pages; \$31. *Torva*; £20

LEAVING THE cosy confines of college for the tundra of the job market has always been bracing. Not every graduate hears a calling to a particular profession. Many want to do good but also need to pay off debt. AI is making the transition even

bumpier, automating entry-level jobs and promising to make entire careers extinct; on July 13th more than 200 economists and tech luminaries warned that AI could cause “large-scale job displacement”. Finding your life’s work has never been so hard.

As they trawl LinkedIn—firing off AI-polished applications, to be rejected by AI-powered human-resources departments—graduates may wonder why they bothered with college at all. Among recent American grads, 40% are employed in roles that do not require a bachelor’s degree, according to a recent survey by the New York Fed.

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Gen Z’s career challenges have prompted a rash of advice books. Bill Gurley, a former Silicon Valley venture capitalist, explains “how to thrive in a career you actually love”. Jodi Kantor, a journalist who helped to expose the crimes of Harvey Weinstein, has published a concise pep-talk for students billed as “a letter from an older ally”. Benjamin Todd, founder of a non-profit called 80,000 Hours, has written a book of the same name (80,000 hours is how long you can expect to spend at work, if you work 40 hours a week, 50 weeks a year, for 40 years).

Parents and teachers nudged students towards subjects like computing and law. Now those fields are among the most vulnerable to disruption by AI. As Mr Gurley puts it, the reassuring conveyor-belt of college leads to a job market that feels like an eight-lane freeway.

He and Ms Kantor both encourage students to pursue their passions. “Nothing will make you more successful than loving what you do for a living,” reasons Mr Gurley, who fell for computers when he first played “Pong” on an Atari. Many graduates see a choice between work that is fulfilling and work that is well paid. In fact it can be both, argues Ms Kantor, citing lawyers she met during her #MeToo investigations. “When they call me from their vacation homes, I glimpse just how lucrative this form of feminism can be,” she drily notes.

Yet both authors demonstrate why successful people make bad career advisers. “I went into a field that everyone told me was a disaster and experienced potency, impact...and even a measure of business success,” writes Ms Kantor, whose journalistic career—the *New York Times*, a Pulitzer prize and a book, “She Said”, turned into a movie—is atypical. Survivorship bias runs through her and Mr Gurley’s analyses. Both feature people who have made it in the bankruptcy-prone restaurant industry, apparently through hard work and passion. Mr Gurley cites a pair of star podcasters who “figured out what they loved, then figured out a way to make money”. It is hard to think of a better example than podcasting to illustrate how doing what you love does not always lead to a viable job.

Mr Todd’s book, the most original and ►►

► helpful of the three, takes the opposite approach. Drawing on 15 years of advising people at the start of their working life, “80,000 Hours” looks at the career ladder not from the top down but from the bottom up—with surprising conclusions.

First, maybe do not follow your passions. Since the bestselling “What Colour is Your Parachute?” (1970), career books have told people to consider what they enjoy, then look for jobs that match. But many people aren’t sure what they want. And even if they have one strong interest, it may not lead to a job. In a survey in 2003, almost 90% of Canadian students said they loved music, art or sport—fields which accounted for just 3% of jobs in Canada. In 2020 a personality-based quiz by Britain’s education department advised many job-seekers to become lock-keepers, just missing the canal boom of the 18th century.

“Follow your passion” gets it backwards,” Mr Todd writes. Instead of looking inward, “Get good at something that helps others, and passion will follow.” Helping others increases life satisfaction. Mastering a skill is satisfying in itself. If you are good at your job you will have more leverage to do enjoyable work than if you pursue a passion and are mediocre at it (consider the musicians who end up playing to classrooms rather than arenas).

To advise on how to do good, Mr Todd draws on “effective altruism”, a utilitarian philosophy which 80,000 Hours helped launch 15 years ago. Donating is one option (giving 10% of a typical American graduate salary of \$77,000 to a malaria charity will save about 20 times more lives than working full-time as a doctor, he calculates). Another is working in a do-gooding field: AI regulation and great-power conflict-avoidance are among the areas he suggests could have the most positive impact. On the earnings dilemma, Mr Todd suggests that more money is unlikely to make you a lot happier: self-reported happiness levels off after household income hits around \$75,000 a year.

“80,000 Hours” also has counter-intuitive ideas about how AI may disrupt careers. Automation eventually destroys jobs. But initially it drives up demand for certain skills. Banks employed more clerks after ATMs were invented, because they made it cheaper to run branches, so more opened. Only with online banking were clerks fully replaced. “The aim isn’t to find a single job that will never be automated, but rather to ride the wave, moving into the skills that become most valuable at each time.” That could mean jobs in AI related to model-training or cyber-security, or in services where demand will rise as AI lowers costs, such as health care.

Yet the focus on maximising good implies that only one choice is ever truly right. An emergency doctor could save

more lives working in pandemic prevention, which in turn could be less important than nuclear disarmament, and so on. Judging the rightness of every action by its impact on the global good could drive anyone mad—and it sometimes does. John Stuart Mill, a pioneer of utilitarianism, fell into depression. Sam Bankman-Fried, a crypto entrepreneur and effective altruism’s best-known advocate, risked and lost billions from his customers.

Hiking misadventures

A step too far

More young, inexperienced hikers are ending up in danger

SCHOTTY BOY, as he is known online, is a hiking evangelist. He posts dispatches from the Scottish Highlands—moody, misty pictures of streams, glens, lochs and hills—to his more than 100,000 followers on Instagram and TikTok. In these posts, he is usually toting sensible walking gear such as a backpack, flask and an anorak. Sometimes, and inexplicably, he is topless.

He is one of many young people discovering the pleasures of the great outdoors. (As one TikTok video puts it: “Texting is cool, but hiking together is cooler.”) Millions of posts extol the virtues of this cheap, accessible form of exercise. Some influencers recommend scenic routes, way stops and refuges. Apps such as AllTrails make it easy to find footpaths. This is especially helpful for a generation more accustomed to reading from a phone screen than a map.

The problem is that fans follow in influencers’ footsteps without fully understanding what an excursion in the wilderness might entail. (Topless treks,

Jobseekers can reassure themselves that many people take a while to find their life’s work. Sir Tony Blair was a rock-music promoter before he was Britain’s prime minister. Maya Angelou was a streetcar conductor before she became a celebrated writer. Colonel Sanders founded Kentucky Fried Chicken aged 62. Getting it right takes time. Anyone fretting over how to spend their 80,000 hours might start by investing a few in Mr Todd’s book. ■

for instance, are inadvisable, especially in cold, wet conditions.) Excitable explorers can walk into trouble. In the Scottish Highlands, the number of mountaineering incidents involving 17- to 25-year-olds has nearly quadrupled since 2022. In 2018 just 15% of people rescued in the Highlands were 17- to 25-year-olds. Last year 25% were. It was not always like this: in the early 2010s, it was middle-aged hikers who required the most assistance.

Nor is this just a Scottish trend. American adventurers aged between 18 and 25 have grown as a share of those needing help. France, Italy and Switzerland have also seen surges in SOS calls from youngsters in recent years.

Rescuers point out that more people of all ages are hiking. The “Instagram effect”, says Ludovic Richard from France’s mountain-safety observatory, is such that young walkers go to perilous lengths to take a photo at a beauty spot. Some have none of the gear and not much common sense. In December two walkers in their 20s were rescued from Britain’s second-highest mountain in “feels-like” temperatures of -15°C, wearing trainers and tracksuit bottoms (rather than thermals and walking boots). Kev Mitchell, a rescuer in Scotland, was called out to a different pair of 20-somethings in the Highlands without a compass and proper jackets. Without his help, he reckons, they would have died.

The benefits of hiking are numerous. America’s National Park Service promotes it as “a great whole-body workout—from head to toe and everything in between”. As well as strengthening muscles and bones, walking in nature is good for your mental health. Gen Z has the right idea. They just need to prove they can, in fact, walk the walk.



Don't climb every mountain

American fiction

Take the A train

Cool Machine. By Colson Whitehead.
Doubleday; 368 pages; \$30. Fleet; £22

COLSON WHITEHEAD is one of just four American novelists to win two Pulitzer prizes for fiction (along with Booth Tarkington, William Faulkner and John Updike). He is the only one to win for two consecutive books: “The Underground Railroad” in 2017 and “The Nickel Boys” in 2020. He is also the only one to win in an era in which literature must fight for its relevance. His novels take up that fight by embracing fiction’s capacity to entertain and delight, rather than to instruct or edify. He is neither the most inventive of the Pulitzered quartet (that would be Faulkner), nor the most prolific (Tarkington) or overpraised (Updike). But he is, without doubt, the most fun to read.

In addition to a requisite coming-of-age novel and serious historical heavy-hitters that won him the Pulitzers, his oeuvre includes a zombie novel, a satire of journalism and a terrific crime trilogy set in Harlem, of which “Cool Machine” is the conclusion. The protagonist is Ray Carney, a furniture salesman and family man whose father was a crook. His best friend is Pepper, the sort of laconic but loyal roughneck who pops up in countless crime novels to provide muscle for brainy protagonists.

The previous Carney novels were set in the 1960s and 1970s; this one takes place in

the 1980s. It is not a single story but a set of three linked novellas. Nostalgia figures heavily in all three books: Mr Whitehead once observed, correctly, that “No matter how long you have been here, you become a New Yorker the first time you say, ‘That used to be Munsey’s’...You are a New Yorker when what was there before is more real and solid than what is here now.”

“Cool Machine” is not quite sentimental reverie. Its last section is set in 1986, when modern New York, driven by finance and property rather than manufacturing and industry, starts to emerge. There is a running joke about a crook bar taken over by yuppies. (“The kitchen, formerly reserved for after-hours beatings...was back in operation and serving burgers, Buffalo wings and stuffed potato skins.”)

Mr Whitehead is one of the few novelists whose jokes can provoke actual laughter, not just wry, knowing smiles. Considering the difference between what a travel brochure promises and the actual experience delivered, he writes, “Look, no one wants to book a cruise and show up to find it’s Uncle Darnell rowing a dinghy.”

Carney is a perfect crime-fiction character because he straddles two worlds, neither entirely bent nor entirely straight. He is even more of an outsider in “Cool Machine”. He is in his early 50s: an age at which people realise that the culture around them that they believed solid and theirs is, in fact, evanescent and someone else’s.

He talks to his late cousin in his dreams. He navigates underground punk clubs on the Lower East Side—back when that district was genuinely rough—and butts heads with the Mafia, which is also struggling to adapt to a changing world. He ponders the ethical and aesthetic differences between stealing something with

objective value versus personal meaning.

Carney’s one flaw as a protagonist is his blandness compared with the narrator’s prose. Arthur Conan Doyle, P.D. James and Elmore Leonard—crime-fiction royalty—wrote serviceable, economical, unmemorable prose. In the Carney series, the stories are vehicles for Mr Whitehead’s asides and observations. That would be a problem if those asides and observations were less trenchant and compelling.

Besides, the trilogy’s subject is not really Carney: it is New York, in all its filthy, frenetic, shabby glory. Late in the last novella Carney scoffs at the idea of praising a city for being liveable: “‘Good place to raise kids.’ Then how will they be tested in the way the world required? ‘Fresh air’...was nice, but so was the other stuff. Noise, dirt and struggle. Give me noise, dirt and struggle and I’ll be all right.” New York has never had a better valentine. ■

Religion in the ancient world

The eagle and the cross

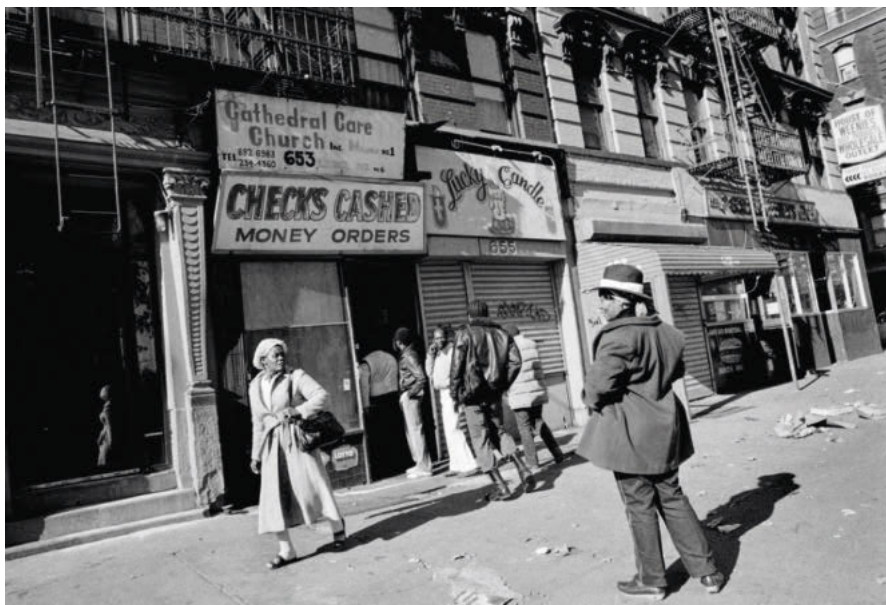
Rome’s Age of Revolution.

By Tim Whitmarsh. Bodley Head; 336 pages; £25. To be published in America by Knopf in November; \$32

PEOPLE WHO know little about ancient history are still familiar with the fact that Romans persecuted Christ and Christians. In films the Romans are sometimes brutal (“Ben-Hur”, “The Passion of the Christ”), sometimes daft (“Life of Brian”), but always culturally distant from the new religion and clueless about it.

Much of this is a myth, argues Tim Whitmarsh, a professor of Greek at Cambridge University, in a thoroughly entertaining book. “Rome’s Age of Revolution” shows that Christianity was in many ways a product of the Roman empire and the Greek and Jewish cultures it absorbed as it expanded eastward. Christianity might have become a global religion without Rome, but it would not be the same religion. Despite lots of scholarly hedging, Mr Whitmarsh’s argument is striking. Some may find it enraging.

The early followers of Jesus called themselves “people of the way”—referring to a physical roadway as well as a spiritual path. Paul used a Roman road to bring his message to the Galatians: a crucial episode, because it confirmed a new policy of targeting both gentiles and Jews. The apostle benefited not just from superior Roman infrastructure but also ►►



Land of struggle and glory

▶ from superior Roman security.

The empire energetically moved people from place to place—as soldiers, officials and slaves—and gave them a broad identity as citizens of Rome. Those deracinated people may have been particularly attracted to a message that elevated faith above family and emphasised the universal. If disparate people “could be unified under one ruler, why not under one god too?”

Romans collapsed time, asserting that their triumph had been foretold by Greek myths. Early Christians did much the same, claiming that the coming of Jesus fulfilled prophecies in Jewish scriptures. Emperor Augustus’s birth in 63BC was said to be attended by cosmic portents; so was Jesus’s. Mr Whitmarsh points out that the gospel of Mark, probably the earliest written, skips Christ’s conception and childhood. The fact that later gospels dwell on them hints at a possible reworking of the narrative in order to appeal to people familiar with the story of Augustus.

Christians shamelessly co-opted Greek philosophers such as Socrates, whom they admired for his questioning spirit and his defiance of the state. They may have drawn on pagan fiction. The most outrageous and entertaining chapter in “Rome’s Age of Revolution” is the one on Greek novels. Mr Whitmarsh suggests that rip-roaring romances like “Callirhoe”, probably written in the mid-first century, could have influenced the composers of the gospels. It has been argued that Christianity was “Hellenised”, but Mr Whitmarsh has no time for that. Christianity was “never not Greek, or pre-Greek”, he argues.

If such arguments seem surprising, it may be because theology and classical studies have long been taught by different university departments, by scholars who refrain from trampling on each other’s terrain. It may also be a result of the Christian (especially Protestant) determination to scrape away corrupting influences and discover a pure original message.

In reality, though, ideas and cultures are not neatly bounded. They bleed into one another. Mr Whitmarsh thinks that the boundaries between cultures were far more porous in the centuries after Jesus’s birth than they are today. That is a little hard to believe in the era of mass tourism and “kPop Demon Hunters”. But a related argument is hard to contest.

Cultures and religions do very well to steal from each other. The modern notion that everyone ought to stay in their cultural paddock—which is made on the left by people worried about “cultural appropriation” and on the right by those who fear the corrupting effects of immigration and Islam—leads only to stodgy irrelevance. Bending, borrowing and adapting are the keys to success. The only problem is that they make for less gripping cinema. ■



Tourism trends

Cot stuff

OXFORDSHIRE

How the Cotswolds became a global lifestyle brand

IT IS BARELY 11 o’clock on a Saturday morning, but the car park at Daylesford Organic is already chock-full. The staff working behind the tills insist it gets far busier than this: some days visitors have to elbow each other out of the way in the farm shop, homeware store and garden centre. Inside, there are influencers filming the displays of fresh strawberries, groups of women cooing over candles and harried husbands being asked for their opinion on utensils in shades of cream and sage. (“The last thing our house needs”, one man sighs, “is more cutlery.”)

Daylesford was established near the Cotswold village of Kingham in 2002, and the empire has since expanded to include a wellness line, spa, pubs and holiday cottages. In the financial year to March 2025, the food and homeware arm reported turnovers of £58m (\$75m), up 72.5% from 2020.

For centuries Londoners have traded the hubbub of the city for the tranquillity of the countryside at the weekend. But now the Cotswolds are drawing visitors from farther afield, too, including J.D. Vance, America’s vice-president, who visited on a family summer holiday last year. Expedia, an online travel company, has listed the Cotswolds as one of its top destinations of 2026, alongside Sardinia and Savoie (where you can actually count on sun). Booking.com, another travel firm, has seen a surge of interest in the Cotswolds from

holidaymakers across the world.

Precise visitor numbers are hard to come by for the Cotswolds, as the region covers almost 800 square miles and spans parts of five counties. However, it is thought that between 25m and 35m tourists visit each year, either for the day or overnight. Several hoteliers say they are fully booked this summer.

Tourists come because the Cotswolds are beautiful and bucolic—the largest designated “area of outstanding natural beauty” in England, Wales and Northern Ireland, in fact. The region has a distinctive aesthetic: houses are built from local limestone, which has a burnished hue, and some still have thatched roofs. (To uphold the “vernacular style”, local government guidelines declare, new homes should use “stone of an appropriate colour to the locality”.) This historic, wholesome vibe, affectionately dubbed #cottagecore by social media, is firmly in fashion.

Star power has also made the British countryside cool. The rural renaissance began in 2015, when Soho House, a swanky private members’ club, opened an outpost near Chipping Norton. Celebrities such as Lady Gaga and Dua Lipa have been spotted there. Other famous folk have moved in nearby. Ellen DeGeneres, Liam Gallagher, Calvin Harris and the Beckhams have all bought houses in the Cotswolds.

Other tony venues have opened to satisfy a monied set, both foreign and domestic. A cluster of old barns was transformed into Thyme, a luxurious boutique hotel complete with a spring-water swimming pool. In 2023 Estelle Manor, a country hotel, members’ club and magnet for A-listers, started welcoming guests. That year Matthew Freud, a public-relations supremo, converted a 16th-century coaching inn in Burford into Bull, a hideaway adorned with works by Basquiat and Dalí.

The area has also been featured in TV shows and films. It was a backdrop in the “Downton Abbey” franchise. “Clarkson’s Farm”, one of Amazon Prime Video’s most popular titles, follows the triumphs and travails of running an agricultural business in Chipping Norton. And “Rivals”, a hit adaptation of Jilly Cooper’s bonkbuster novel, presents the Cotswolds as a glorious place where well-heeled people ride horses—and each other.

Covid-19 played a role in the buzz, too, as well-heeled Britons decamped to their second homes to escape the virus. As working from home became accepted, others decided to permanently move there. The demand meant house prices “shot up” faster than the national average, says Tom Hayman-Joyce, a local estate agent. Prices have now started to come down again, but they are still up on their pre-pandemic levels; the sense that the Cotswolds is a desirable place to be has persisted. And because ▶▶

city types expect cosmopolitan amenities, chefs and restaurateurs have come to cater to them. Bull offers an 11-course tasting menu in one of its four restaurants.

The final reason for the hype is that the rolling hills, winding streams and quaint cottages represent an idyllic version of England. As you travel down the country roads, hares leap in the fields while kestrels and red kites swoop overhead. Hotels are seeing more interest from cycling and walking groups, who come to commune with nature. Hotels such as Thyme have gone big on wellness, another buzzword of the day: the hotel is about to expand its spa facilities to add a sauna and indoor pool, among other things.

As with the rustic charms of Tuscany or Provence, the Cotswolds are a place where the stresses of the modern world seemingly do not exist. Denzil Arendse, general manager at the Manor House in Castle Combe, points out that there has not been a new building in the village since the 1600s. The same is true in Burford, a medieval market town, where “you walk into an architectural aesthetic that is almost completely unchanged in 400 years,” Mr Freud says. You may “live in a disrupted world of geopolitics and climate crisis and AI”, but when you arrive in the Cotswolds, “none of those feel like clear and present dangers.”

Does it all sound too perfect to be true? Just ask the disgruntled longtime residents. As is the case with many neighbourhoods and cities transformed by Instagram and tourism, residents complain about choked roads in villages that were never set up to handle so much traffic. Bibury, a particularly picturesque spot, is trying to ban the coaches that drop off visitors each day. Some feel that there have been no real trickle-down benefits for local people, as a minority of bougie businesses enjoy the majority of the footfall.

Many properties that might once have been rented out are being turned into lucrative Airbnbs. That means the supply of long-term rental accommodation is down, which has pushed rents up: Mr Hayman-Joyce says they have increased by 60% in his district since 2019.

The people who work in fancy hotels and restaurants sometimes cannot afford to live nearby on low hospitality wages—one employee says she has to commute for over an hour each way. Combined with a dwindling supply of workers due to Brexit, that may spell problems for the industry’s future growth.

But the Cotswolds, with its scenery, proximity to London and promise of a simpler life, is unlikely ever to lose its appeal. Back at Daylesford, a table is set up as if to host a languorous summer party, with crisp linens and magnums of rosé. A young woman applies a sample of hand cream and turns to her friend: “Lovely, isn’t it?” ■

Obituary

The thinker

Graeme James, our peerless cover designer, died on July 17th, aged 65

THEY SAY never to judge a book by its cover. But *The Economist* is defined by the face it shows the world. For most of the past 30 years that has been the charge of our designer, Graeme James, a dear friend and colleague who has died after a long fight against cancer.

Graeme brought our words and arguments to life. Because we have four geographical editions, each of which may lead with a different story, he designed over 2,500 covers. That was an awful lot of free trade and globalisation for one pair of shoulders to bear.

He admired Rodin’s sculpture “The Thinker” and spent his days within reach of a soft-leaded pencil, filling sketchbooks with smudges and scribbles. As our weekly Wednesday-night deadline drew near, he would work with illustrators to refine ideas. He would also hammer out the details with frequently literal-minded editors—encounters that provoked Graeme to mutter the odd curse. If an article goes wrong, there is a substitute. Graeme had no safety-net. He had to get it right every time.

A good cover distils everything into a single image—and, sure enough, Graeme’s picture was often worth more than the cover leader’s 1,000 words. In a cover from 2003 a giant saguaro cactus stands like a hand giving the finger after the collapse of trade talks in Cancún. In one on gendercide from 2010 a pair of tiny, brand-new pink shoes

represent 100m unborn baby girls.

Editorials are sometimes inflated by preachiness. In our hot-air factory Graeme was the man with a sharp pin. As the presidential election drew near in 2016, we wrote an editorial about Donald Trump’s political discourse and the debasement of American politics. It would have been sententious but for Graeme’s cover art: a Republican elephant with Mr Trump as its arse-end and a couple of steaming quotation marks freshly dropped.

Woe betide any leader who caught his subversive eye. No depiction was as biting as a bare-chested Vladimir Putin riding a tank while he flattened the world order. Foreign embassies often complained about our mockery, but Graeme was rudest about Britain’s hapless prime ministers.

Graeme’s own favourite cover was for the first anniversary of the attacks of September 11th 2001. Two thin black rectangles stretch up in silhouette against a sunset. They are the twin towers. They are the 11 in 9/11. And they are monuments to the dead—and to a world that was lost. It was the best of Graeme’s brilliant design: understated and concise, utterly without condescension and profoundly moral. Graeme liked the cover so much that we used the same image in 2011, to mark the attacks’ tenth anniversary. Now it has become a memorial to him, too.



Economic & financial indicators

	Gross domestic product				Consumer prices			Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago				% change on year ago			%		% of GDP, 2026 [†]		% of GDP, 2026 [†]		10-yr gov't bonds		per \$	
	latest	Q1	quarter*	2026 [†]	latest	Jun	2026 [†]	Jun	Jun					latest, %	change on year ago, bp	Jul 23rd	% change on year ago
United States	2.7	Q1	2.1	2.0	3.5	Jun	3.7	4.2	Jun	-3.5		-6.5		4.7		-	
China	4.3	Q2	3.6	4.7	1.0	Jun	1.2	5.0	Jun [§]	3.3		-5.4		1.5	[§]	6.77	5.9
Japan	0.4	Q1	1.8	0.7	1.5	May	1.8	2.5	May	3.6		-1.8		2.7		163	-10.1
Britain	0.9	Q1	2.5	1.1	2.6	Jun	3.2	4.9	Apr ^{††}	-3.5		-5.1		5.0		0.75	-1.3
Canada	-0.1	Q1	-0.1	0.8	2.8	Jun	2.6	6.5	Jun	-0.4		-2.1		3.6		1.41	-3.5
Euro area	0.5	Q1	nil	0.8	2.8	Jun	2.8	6.2	May	2.3		-3.4		3.2		0.88	-3.4
Austria	0.9	Q1	0.8 [*]	0.8	3.2	Jun	3.0	5.8	May	1.1		-4.1		3.4		0.88	-3.4
Belgium	0.8	Q1	0.9	0.7	3.3	Jun	3.6	6.3	May	-2.8		-5.4		3.7		0.88	-3.4
France	0.9	Q1	-0.4	0.8	2.0	Jun	1.9	8.2	May	-0.4		-5.3		4.0		0.88	-3.4
Germany	0.3	Q1	1.4	0.7	2.4	Jun	2.6	3.8	May	4.5		-3.7		3.2		0.88	-3.4
Greece	2.0	Q1	1.0	2.0	3.9	Jun	3.8	8.1	May	-5.5		0.8		3.9		0.88	-3.4
Italy	0.8	Q1	1.1	0.8	3.0	Jun	2.6	5.0	May	0.8		-3.0		4.0		0.88	-3.4
Netherlands	1.4	Q1	0.9	1.0	2.5	Jun	3.1	3.8	Jun	9.3		-2.6		3.3		0.88	-3.4
Spain	2.7	Q1	2.5	2.2	3.6	Jun	3.2	10.3	May	2.3		-2.4		3.6		0.88	-3.4
Czech Republic	2.2	Q1	0.8	2.0	1.5	Jun	2.0	3.0	Q1 [*]	0.3		-2.6		4.9		21.2	-1.1
Denmark	6.2	Q1	6.2	3.3	1.9	Jun	2.0	3.1	May	12.1		1.3		3.0		6.55	-3.0
Norway	1.7	Q1	1.4	1.3	2.7	Jun	3.2	4.5	May ^{††}	14.8		9.0		4.4		9.59	5.0
Poland	3.5	Q1	2.4	3.4	2.5	Jun	2.6	5.9	May [§]	-1.4		-7.0		5.7		3.79	-4.8
Russia	-0.2	Q1	-2.5	0.7	6.0	Jun	5.5	2.1	May [§]	2.2		-3.4		16.2		78.5	-0.5
Sweden	2.2	Q1	-0.6	2.1	0.7	Jun	1.9	9.4	May [§]	4.8		-2.0		3.0		9.70	-1.9
Switzerland	0.5	Q1	2.6	1.0	0.5	Jun	0.6	3.1	Jun	7.7		0.2		0.5		0.81	-2.5
Turkey	2.5	Q1	0.5	2.5	32.1	Jun	31.7	7.4	May [§]	-3.0		-3.6		32.3		47.2	-14.4
Australia	2.5	Q1	1.1	1.6	4.0	May	3.9	4.4	Jun	-3.0		-1.5		4.9		1.43	7.0
Hong Kong	5.9	Q1	12.2	5.0	1.9	Jun	2.3	3.7	Jun ^{††}	4.6		-2.5		3.5		7.84	0.1
India	7.8	Q1	6.4	6.5	4.4	Jun	4.8	6.6	Jun	-1.5		-4.5		6.8		96.6	-10.6
Indonesia	5.6	Q1	6.0	5.0	3.3	Jun	3.5	4.7	Feb [§]	-1.6		-3.5		7.3		17,910	-9.2
Malaysia	5.8	Q2	8.5	4.5	1.9	Jun	2.5	3.0	May [§]	3.4		-4.1		3.7		4.09	3.4
Pakistan	4.8	2026 ^{**}	na	3.0	11.1	Jun	7.8	6.9	2025	-1.1		-4.7		12.0	^{†††}	278	2.5
Philippines	2.8	Q1	3.6	2.7	6.4	Jun	6.8	4.7	Q2 [§]	-4.0		-6.3		7.5		61.8	-7.8
Singapore	5.7	Q2	4.6	4.8	1.9	Jun	2.4	2.0	Q1	16.6		1.3		2.3		1.29	-0.8
South Korea	3.7	Q2	2.5	3.3	3.2	Jun	3.0	2.8	Jun [§]	9.9		-1.9		4.3		1,477	-6.5
Taiwan	14.5	Q1	6.9	10.5	2.6	Jun	1.6	3.3	Jun	27.4		1.8		1.7		32.4	-9.3
Thailand	2.8	Q1	2.7	2.3	2.4	Jun	2.3	0.9	Jun [§]	nil		-5.5		2.0		33.8	-4.7
Argentina	2.3	Q1	3.0	3.3	33.5	Jun	32.1	7.8	Q1 [§]	-0.9		0.1		na		1,483	-15.3
Brazil	1.8	Q1	4.5	2.0	4.6	Jun	4.8	5.6	May ^{§††}	-2.6		-7.3		14.9		5.07	9.9
Chile	-0.5	Q1	-1.1	1.4	4.3	Jun	3.9	9.4	May ^{§†††}	-1.2		-2.3		5.7		936	1.6
Colombia	2.2	Q1	2.4	2.5	6.1	Jun	5.6	8.0	May [§]	-2.4		-6.6		12.0		3,207	26.6
Mexico	0.2	Q1	-2.4	0.9	3.4	Jun	3.9	2.7	May	-0.4		-3.8		9.2		17.4	7.2
Peru	3.5	Q1	3.2	2.8	4.0	Jun	4.0	5.2	Jun [§]	2.2		-2.4		6.0		3.40	4.7
Egypt	5.0	Q1	-24.0	4.5	14.3	Jun	13.8	6.0	Q1 [§]	-5.0		-5.2		25.6		51.3	-4.3
Israel	1.7	Q1	-3.8	3.1	1.6	Jun	2.2	2.9	Jun	1.8		-4.5		3.9		3.06	9.1
Saudi Arabia	4.6	2025	na	0.9	1.8	Jun	2.1	3.1	Q1	-2.3		-6.1		na		3.76	-0.3
South Africa	1.9	Q1	2.2	1.6	4.8	Jun	4.3	32.7	Q1 [§]	-1.0		-4.4		8.8		16.4	7.1

Source: Haver Analytics *% change on previous quarter, annual rate [†]The Economist Intelligence Unit estimate/forecast [§]Not seasonally adjusted [†]New series ^{**}Year ending June ^{††}Latest 3 months ^{†††}3-month moving average ^{§§}5-year yield ^{††††}Dollar-denominated bonds Note: Euro-area consumer prices are harmonised

Markets

In local currency	% change on:		
	Index	one	Dec 31st
	Jul 22nd	week	2025
United States S&P 500	7,499.0	-1.0	9.5
United States NAS Comp	25,690.9	-2.2	10.5
China Shanghai Comp	3,867.0	-2.2	-2.6
China Shenzhen Comp	2,460.3	-5.7	-2.8
Japan Nikkei 225	66,115.6	-3.8	31.3
Japan Topix	4,033.1	-1.3	18.3
Britain FTSE 100	10,717.0	1.9	7.9
Canada S&P TSX	35,485.1	0.2	11.9
Euro area EURO STOXX 50	6,317.0	0.8	9.1
France CAC 40	8,437.9	0.7	3.5
Germany DAX*	25,155.4	0.6	2.7
Italy FTSE/MIB	52,792.0	0.7	17.5
Netherlands AEX	1,100.8	0.3	15.7
Spain IBEX 35	19,571.3	1.5	13.1
Poland WIG	145,201.1	1.3	23.8
Russia RTS, \$ terms	857.5	0.5	-24.6
Switzerland SMI	14,315.9	0.1	7.9
Turkey BIST	14,138.9	0.4	25.6
Australia All Ord.	9,004.9	-0.3	-0.2
Hong Kong Hang Seng	24,892.7	0.9	-2.9
India BSE	76,755.1	-0.6	-9.9
Indonesia IDX	6,334.5	4.8	-26.7
Malaysia KLSE	1,711.4	-0.1	1.9

	% change on:		
	Index	one	Dec 31st
	Jul 22nd	week	2025
Pakistan KSE	174,429.9	-0.5	0.2
Singapore STI	5,595.4	0.6	20.4
South Korea KOSPI	6,797.7	-6.7	61.3
Taiwan TWI	44,825.8	-1.8	54.8
Thailand SET	1,639.3	0.6	30.1
Argentina MERV	3,379,771.0	2.7	10.8
Brazil BVSP*	177,547.6	0.9	10.2
Mexico IPC	67,303.8	1.4	4.7
Egypt EGX 30	53,931.9	2.6	28.9
Israel TA-125	4,156.9	0.7	13.5
Saudi Arabia Tadawul	10,775.5	0.7	2.7
South Africa JSE AS	109,682.6	-0.5	-5.3
World, dev'd MSCI	4,836.9	-0.8	9.2
Emerging markets MSCI	1,654.5	-2.0	17.8
US corporate bonds, spread over Treasuries			
			Dec 31st
Basis points	latest		2025
Investment grade	92		93
High-yield	319		354

Sources: LSEG Workspace; Moscow Exchange; Standard & Poor's Global Fixed Income Research *Total return index

Commodities

The Economist commodity-price index					% change on	
2020=100						
Dollar Index						
					month	year
All items	152.2	153.0	2.9	14.0		
Food	154.1	155.5	6.8	7.7		
Industrials						
All	150.6	150.9	-0.2	20.0		
Non-food agriculturals	152.7	151.9	-2.2	21.1		
Metals	150.0	150.6	0.4	19.7		
Sterling Index						
All items	145.8	147.0	1.6	15.1		
Euro Index						
All items	151.9	153.3	2.7	17.2		
Gold						
\$ per oz	4,090.7	4,073.6	-1.3	18.8		
Brent						
\$ per barrel	84.8	91.1	18.0	32.6		

Sources: CME Group; LME; LSEG Workspace; NOREXCO; NZ Wool Services; S&P Global Commodity Insights; Thompson Lloyd & Ewart; USDA *Provisional

For historical indicators data, visit economist.com/economic-and-financial-indicators

OBITUARY

Wally Funk

The aviator who insisted on going into space died on July 8th, aged 87



WHEN SHE was told she had to do something, Wally Funk often refused. She wouldn't wear a seat belt, and had perfected a neat trick of clicking it in and then sitting on it instead. She wouldn't study home economics, as girls at her school were supposed to, because she wanted to do car mechanics, and left school rather than comply. Told later to learn cookery, she filled her oven with pans instead. Expected to wear a dress, paint her nails and be generally frou-frou, she made no effort at all.

Equally, when she wanted to do something, she just did it. If she suddenly needed when driving to fetch a thing from the back, she steered with her knees. If she wanted a tree house or even a real house, she built it herself. Because, at the age of five, she wanted to fly, she put on her Superman cape and jumped off the barn. Atta girl! From then, it was all aviation. She got her pilot's licence at 17, won races, excelled at manoeuvres and determined to fly for a living. Like the dozens of balsa-wood planes she had made as a child, she would glide free in the marvellous air.

When astronauts appeared, her longing turned to space. Absolutely she had to go. Men might say no, but she could beat them at anything. Besides, in 1960 Dr William Randolph Lovelace had set up a private programme to test whether women were suited for spaceflight. Swiftly, although she was under-age, at 21 she applied to be a member of Mercury 13, the group of women who hoped to go into space just like the seven Mercury men.

The tests, which were just like the men's, were hard. But not too hard for her. They stuck her with needles all over; fine. They squirted ice-cold water in her ears; holy cow! that hurt, but she knew how to deal with pain. Just face it down, beat it back. They made her swallow three feet of rubber tubing to test her stomach juices; she could do that, just go gobble gobble like a turkey, an inch at a time. In one isolation test she had to float in a sensory-deprivation tank in a dark soundless room, unable to feel herself slapping her own face, and she managed to stay there, just dreaming away, for 10 hours and 35 minutes. Most people lasted two to three hours, but they had to haul her out, still happy. Space was like this. She actually broke the record and, all tests considered, she did better than the guys. But, like the other women, she still*

couldn't be an astronaut.

Why? Because the Lovelace programme had been cancelled midway, when various men got cold feet about "girls". The said girls all appealed to NASA, but it did no good. It had not been NASA's programme. For that, only all-male air-force jet pilots could qualify. She was horribly disappointed. But, as with any pain, she coped. Chocolate helped, as long as it was Hershey's. So did childhood training. In her tomboy days in New Mexico she had made friends with Pueblo Indians, learning from them how to hunt and survive in the wilderness. When her friends met some problem they couldn't solve, like an angry bear, they would "throw it a fish": accept it, satisfy it to some degree, then move on. Missing out on space required a pretty big fish, a marlin rather than a trout. But being ever positive, never negative, she moved on.

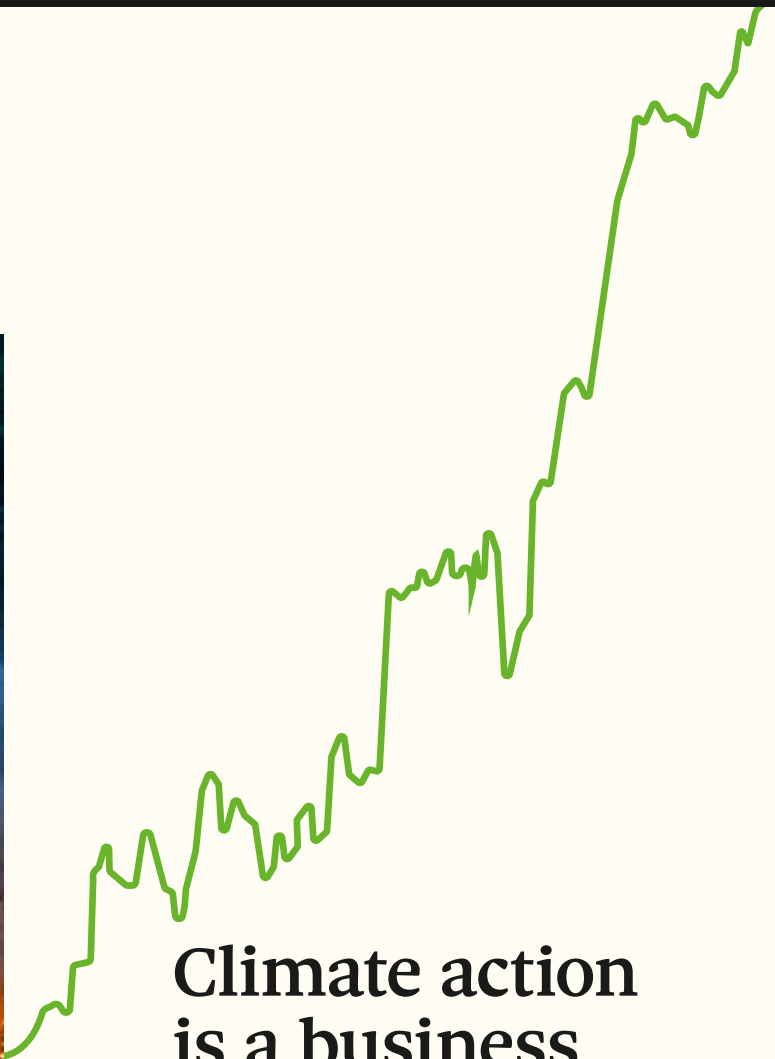
With her first-rate flying credentials, it wasn't hard to find other jobs. All the same, she was the first and only woman in several of them. She joined the Federal Aviation Administration as the first woman to inspect planes and instruct new pilots; then went to the National Transportation Safety Board as an investigator of plane crashes. Again, she was the first woman to do it. That was an arduous job, on sites that she could sometimes reach only by mule or by rappelling off cliffs. Occasionally it was gruesome, too, combing minutely through wreckage that might still contain personal effects and parts of bodies. As before, she managed to beat her emotions back. In Taos, her home town, she ran a flight school. Over her whole career she logged 19,600 flight hours and taught 3,000 people how to fly. Wow! How about that?

Yet the thought of being an astronaut still niggled her. Her clothes were sewn with aviation patches; her speaking voice was an engine-beating shout. She might be a civilian, but she could do it. On a tour of Europe in her camper van in the mid-1960s she diverted into Russia to try to meet Valentina Tereshkova, the first woman in space. In California she did a centrifuge test, wearing her mother's tightest corset to simulate the G-suit that only men could have. She also went to Moscow for zero-gravity sessions. In her 60s she was snapped, upside down rapturously floating, in a crowd of Russian men. All of them, she noted, used their barf-bags at some point, but not her. Flying in any form had never sickened her. *Au contraire*, it was her life; she breathed it and ate it. She had never married because she was married to planes, preferably the Cessna 182 and the Stearman biplanes. But she also had a soft spot for the glider which, at college, she had taken to 14,000 feet.

As the years passed, and space exploration went on without her, she kept hoping. Opportunities were opening up on the commercial side. By the 2000s, civilians could go into space if they paid enough. She therefore put down her life savings, \$200,000, as a deposit for Richard Branson's Virgin Galactic flight. But before she used it, an invitation came: Jeff Bezos asked her to be a special guest on his Blue Origin craft. The date was July 20th 2021, and she was 82 years old. No one older had ever ventured into space. No eyes older than hers had ever looked on that blackness, 62 miles up. It lasted only ten minutes. But wow, and wow! At last she had done it! If only it could have been longer!

Deep down, she had never doubted. For years, growing up, she had looked out on Taos Mountain. Later, living elsewhere, she would gaze on a photo of it. Each day, the spirit of the mountain would tell her what she was meant to achieve. If she wanted something badly enough, the mountain gave her the confidence to get it. And if it said, "Fly to the stars!", that was where she would go. ■

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