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On the cover

Independent central banks are under threat. That is bad news for the world: leader, *page 11*. A changing of the guard at the European Central Bank means that 2019 will be a momentous year, *page 67*. What to avoid: Free exchange, *page 72*

• **King Bibi keeps his crown** Binyamin Netanyahu is a remarkable political performer. America must rein him in: leader, *page 12*. The way he fought off his toughest challenge yet, *page 48*

• **How Amazon uses AI** The online commercial empire rests on a low-key approach to artificial intelligence, *page 59*

• **Donald Trump, wrestler-in-chief** The president is a pro fighter masquerading as a politician. His opponents should take note: Lexington, *page 32*. He does away with another member of his cabinet, *page 30*. Advancing corporate America's interests is no easier under the CEO president, *page 63*

• **Special report: private education's boom** In new markets and new forms it is thriving, after *page 44*. Governments should celebrate its success, not suppress it: leader, *page 13*

The world this week

- 7 A round-up of political and business news

Leaders

- 11 **Central banks** Interference Day
- 12 **Israel's election** Bibi the conjuror
- 12 **Elections in Indonesia** The wrong way to win
- 13 **Private education** A class apart
- 14 **Cross-border payments** The migrants' migraine

Letters

- 18 On NATO, museums, Rwanda, happiness

Briefing

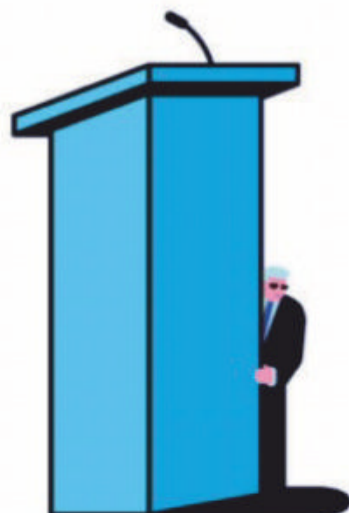
- 21 **Indonesia's election** A reformer reduced

Special report: Private education

A class apart
After *page 44*



Banyan The authorities forget to tell the people of Kazakhstan who their next president will be, *page 41*



United States

- 25 Prisons in Nebraska
- 26 Applecalypse now
- 27 Heartbeat bills
- 27 America's new liberals
- 30 Chaos in the DHS
- 30 Opioids and transplants
- 31 What to learn from a boomlet in Hell
- 32 **Lexington** TrumpMania



The Americas

- 33 The future of Lava Jato
- 34 Baseball diplomacy
- 35 **Bello** Lenin Moreno's new economic policy



Asia

- 36 Reforming Pakistan
- 37 Thailand's meddling generals
- 40 India's mobile campaign
- 40 The Philippines and China
- 41 **Banyan** Kazakhstan's new president



China

- 42 Province and prejudice
- 43 Hotpot wars
- 44 **Chaguan** The rise of a curling powerhouse



Middle East & Africa

- 45 Sudan revolts
- 46 Vice cops squeezed
- 46 Fighting in Libya
- 47 Iran's terror army
- 48 King Bibi keeps his crown



Europe

- 49 Matteo Salvini's nationalist alliance
- 50 Expropriation in Germany
- 51 Macron's great debate ends
- 51 Montenegro's monarch
- 52 Brexit and Europe's economy
- 53 **Charlemagne** The new "protective Europe"

**Britain**

- 54 The Brexit summit
- 55 Regulating the internet
- 56 China and the LSE

**International**

- 57 The best ways to organise kidney transplants

**Business**

- 59 How Amazon uses AI
- 60 Afghan e-commerce
- 61 Turkish Airlines v Gulf carriers
- 61 Mittelstand and Brexit
- 62 Peak profit in America?
- 62 Gambling for millennials
- 63 Lobbying in Trumpland
- 65 **Schumpeter** Rebooting Airbus

**Finance & economics**

- 67 All change at the ECB
- 68 David Malpass at the World Bank
- 69 **Buttonwood** Managing dollar reserves
- 70 Sending money abroad
- 70 Credit checks for migrants
- 71 HDFC, India's star bank
- 72 **Free exchange** Central-bank independence

**Science & technology**

- 75 How to knit a sports car
- 76 Birds and climate change
- 77 More human species
- 78 Picturing a black hole

**Books & arts**

- 79 Mental illness
- 80 Walter Gropius
- 81 Susan Choi's new novel
- 81 Robert Caro's life and craft
- 82 **Johnson** African-American English

**Economic & financial indicators**

- 84 Statistics on 42 economies

Graphic detail

- 85 How taxes and transfers affect inequality

Obituary

- 86 Andrew Marshall, the Pentagon's gadfly

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Following months of mass protests in **Sudan**, it appeared that Omar al-Bashir had been ousted as president by the army. Mr al-Bashir had misruled since taking power in a coup in 1989. His civil war against non-Muslim black Africans ended with the secession of South Sudan. Separately, the International Criminal Court charged him with overseeing genocide in Darfur.

Binyamin Netanyahu won a record fifth term as prime minister of **Israel**. His Likud party tied with Blue and White, a centrist rival. But the right-wing and religious bloc, of which Likud is a part, won a majority of seats in the Knesset. In the final days of the campaign Mr Netanyahu vowed to begin annexing parts of the West Bank, further dimming the prospect of any peace with the Palestinians based on a two-state solution.

Khalifa Haftar, **Libya's** most powerful warlord, attacked Tripoli, which is controlled by the UN-backed government. Dozens of people were killed in the fighting, as militias allied to the government rallied to defend the capital. A UN peace conference, scheduled for this month, was postponed.

Protests continued in **Algeria**, where crowds called for the resignation of Abdelkader Bensalah, the interim president. Mr Bensalah succeeded Abdelaziz Bouteflika, who resigned amid widespread anger at his regime after 20 years in charge. For the first time police used tear-gas to disperse the demonstrators. Mr Bensalah said the country would hold a presidential election on July 4th.

Fright night

Theresa May, Britain's prime minister, attended a summit in Brussels to discuss another delay to **Brexit**. The European Union offered Britain six more months, pushing the deadline to October 31st, Halloween. That means Britain faces having to vote in elections to the European Parliament next month, though British MEPs will have to step down if Brexit actually happens. The president of the European Commission, Jean-Claude Juncker, joked that if there was another late-night meeting on the last day of the talks he might have to leave at midnight; his term ends on November 1st.

Julian Assange, a founder of WikiLeaks, was arrested by British police in the Ecuadorian embassy in London. Ecuador had granted Mr Assange refuge in 2012 after he had jumped bail while facing rape allegations. His relationship with his hosts soured after a change of government in Ecuador, where a leftist president was replaced by a more moderate one. Mr Assange has said he fears extradition to the United States, where WikiLeaks is not popular, having published reams of leaked American military secrets.

Turkey's ruling party demanded a fresh vote in Istanbul, where it narrowly lost the mayoralty in elections on March 31st.

Italy's deputy prime minister, Matteo Salvini, announced the formation of a new nationalist group within the European Parliament, to be called the European Alliance for People and Nations. However, none of the party leaders he hoped would attend from other countries turned up.

Throwing a curveball

The Trump administration cancelled a four-month-old agreement under which **Cuban baseball players** could join Major League teams in America without defecting from their

country. The administration said the agreement would encourage human trafficking and help enrich Cuba's communist government.

Jair Bolsonaro, **Brazil's** president, sacked the education minister, Ricardo Vélez, who shared his socially conservative views. Mr Vélez had courted controversy by instructing schools to film classes singing the national anthem and repeating Mr Bolsonaro's campaign slogan. His replacement, Abraham Weintraub, an economist, has said that crack cocaine was introduced to Brazil deliberately by the left.

Future backward

Thanathorn Juangroongruangkit, the leader of the Future Forward party, was charged with sedition in relation to a protest against **Thailand's** military junta in 2015. It is one of several repressive steps that has marred the country's supposed return to democracy after an election last month.

Kassym Jomart Tokayev, **Kazakhstan's** interim president following the sudden resignation of Nursultan Nazarbayev after three decades in power, called a snap election for June 9th.

South Korea's constitutional court ruled that the government must end the country's ban on abortion, in place since 1953, before the end of 2020. Doctors can currently be imprisoned if they perform the procedure. However, tens of thousands of abortions are carried out each year.

Voting began in **India's** seven-stage election. The final phase will take place on May 19th and the results for all seven stages will be announced on May 23rd. Polls suggest the ruling Bharatiya Janata Party will remain the biggest party.

A court in **Hong Kong** found nine people guilty of "public nuisance" charges relating to their leading roles in the Umbrella Movement of 2014,

which involved weeks of sit-ins and demonstrations in busy commercial districts in support of democratic reform. Among the defendants were three founders of a group involved in the unrest.

Immigration crackdown

Kirstjen Nielsen resigned as the secretary of America's **Department of Homeland Security**. Donald Trump is trying to replace the department's top officials with people who will try harder to keep Mexicans out of the United States. Mr Trump has threatened to close the border entirely, despite advice that this would cause economic chaos.

Randolph Alles, the head of America's **Secret Service**, is quitting. He had reportedly been asked to go before the recent security breach at Mr Trump's private club, involving a Chinese woman with several thumb drives.



Amnesty International's annual report on **the death penalty** recorded a drop of nearly a third in known executions worldwide last year. There were 690 in 2018, down from 1,061 in 2015. The number of death sentences passed by courts also declined slightly, though in the Middle East and north Africa death sentences nearly doubled to 1,170. The region is responsible for two-thirds of the world's known executions. (China is also thought to execute thousands of people every year, but keeps its figures secret.) Of the countries that release figures, Iran is by far the most avid executioner, putting 409 people to death each year on average for the past decade.

Saudi Aramco raised \$12bn from its first bond sale on international markets. Five different bonds were reportedly sold in an offer that was heavily oversubscribed, with investors submitting \$100bn in orders. Saudi's state oil firm will put the proceeds towards its \$69bn acquisition of the kingdom's majority stake in SABIC, a chemical company, a deal orchestrated by the government. The bond sale went some way to restoring investors' confidence in Saudi Arabia following the murder of Jamal Khashoggi, a journalist, and an opaque crackdown on top officials and businessmen.

Opening up a new front

America ratcheted up its **trade dispute** with the European Union, warning that it was preparing a list of tariffs on \$1bn-worth of EU goods in retaliation for subsidies given to Airbus, which the World Trade Organisation has ruled are illegal. The WTO is yet to decide on the amount of tariffs that America can impose on the EU in light of that ruling, but Brussels says \$1bn is an exaggeration. It is drawing up its own catalogue of American products that it will levy penalties on if Washington goes ahead with its threat.

Airbus recommended René Obermann to shareholders as its next chairman. Mr Obermann is a non-executive director on the aerospace company's board and used to run Deutsche Telekom. Guillaume Faury started his job as chief executive at Airbus this week, succeeding Tom Enders.

Boeing's share price fell sharply, after it temporarily reduced production of its 737 aircraft by a fifth following two fatal crashes involving the 737 MAX 8. Boeing said it wanted to focus resources on updating the software for the 737 "to prevent accidents like these from ever happening again".

The IMF forecast **global economic growth** of 3.3% this year, down from the 3.7% it had

projected back in October. The fund highlighted the risks of a no-deal Brexit, estimating that the resulting border disruption would slice 1.4% off British GDP in the first year and 0.2% from the EU's.

Brexit bonus, or bust?

Britain's economy grew by 0.3% in the three months ending February compared with the previous three months. That was a bit faster than markets had expected. Manufacturing output in February grew to its highest level since April 2008, probably because firms were gearing up ahead of the original Brexit deadline of March 29th.

The threat of protectionism was one factor cited by the European Central Bank as it reiterated its pledge not to raise interest rates in the **euro zone** until "at least" the end of 2019 and to continue its monetary-stimulus programme. The IMF has downgraded its forecast for growth in the euro zone this year to 1.3%.

Debenhams, a British department-store chain, entered a bankruptcy plan under which the business was taken over by creditors, wiping out shareholders' holdings. That in-

cludes Sports Direct, which had held a 30% stake.

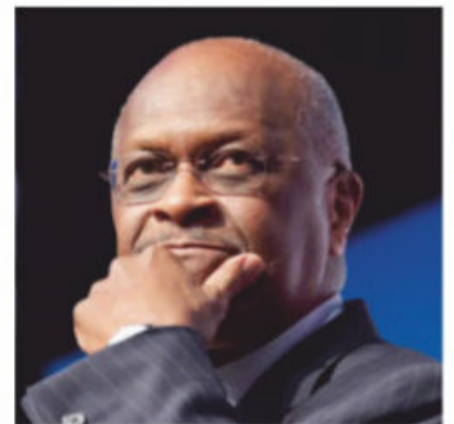
Pinterest, one of a number of tech firms launching noteworthy stockmarket flotations this year, provided an initial price range of between \$15 and \$17 a share for its IPO. That could value the social-media site at somewhere around \$11.3bn, less than the \$12bn it was reckoned to be worth by investors in 2017.

Uber also prepared its prospectus, ahead of its long-awaited IPO. The ride-hailing firm will have noted **Lyft's** flotation. Two weeks after its market debut, Lyft's share price fell by almost 11% in a day, to end up 16% below the IPO price of \$72.

In a surprise turn of events, the judge hearing the trial of John Varley, a former chief executive of **Barclays**, and three other former senior executives at the bank, discharged the jury. The men faced allegations of fraud relating to a deal with Qatari investors to shore up the bank in 2008, which they all deny.

Standard Chartered agreed to pay more than \$1bn to settle allegations with American and British regulators that it violated sanctions on Iran and other countries. It is one of the big-

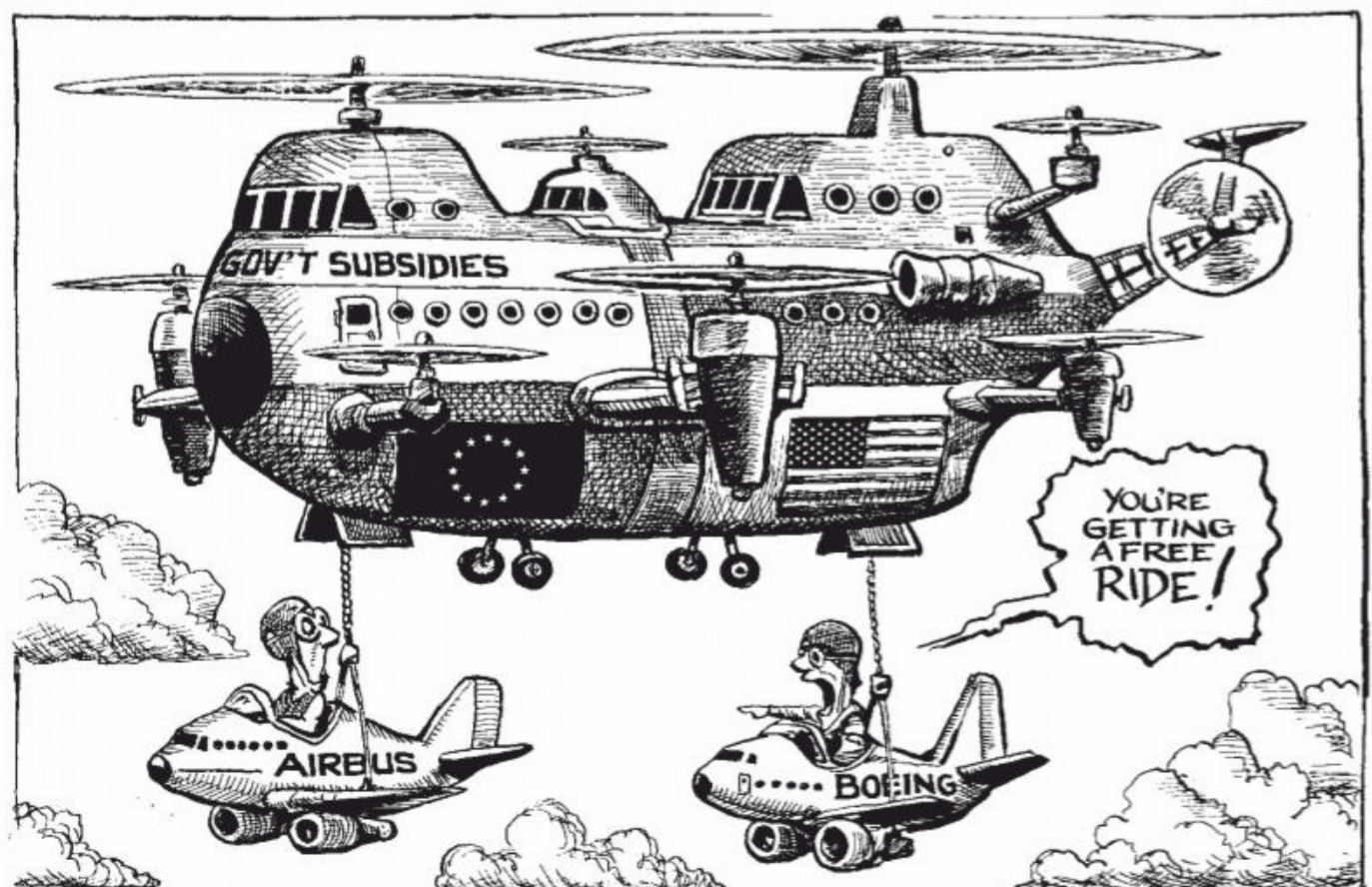
gest fines to date levied on a bank for busting sanctions.



Senior Republicans aired misgivings about Donald Trump's desire to give **Herman Cain** a seat on the board of the Federal Reserve. Mr Trump did not formally nominate Mr Cain, a former Republican presidential hopeful and pizza magnate, nor has he officially proposed Stephen Moore, a low-tax crusader. But both potential choices raise questions about whether Mr Trump wants to politicise the Fed.

Spaced out

Mr Trump, meanwhile, increased the pressure on the Fed to cut **interest rates**, saying its monetary-tightening policies had "really slowed" American growth. Pursuing a path of easier monetary policy would result in "a rocket ship" economy, said Mr Trump.





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Interference Day

Independent central banks are under threat. That is bad news for the world

CRITICS OF ECONOMICS like to say that its abstract theories lack real-world pay-offs. There is a glaring counter-example: the global rise of central-bank independence in the past 25 years. In the 1970s it was normal for politicians to manipulate interest rates to boost their own popularity. That led to a plague of inflation. And so rich countries and many poorer ones shifted to a system in which politicians set a broad goal—steady prices—and left independent central bankers to realise it. In a single generation billions of people around the world have grown used to low and stable inflation and to the idea that the interest rates on their bank deposits and mortgages are under control.

Today this success is threatened by a confluence of populism, nationalism and economic forces that are making monetary policy political again. President Donald Trump has demanded that interest rates should be slashed, speculated about firing the boss of the Federal Reserve and said he will nominate Stephen Moore and Herman Cain, two unqualified cronies, to its board. Brexiteers rubbish the competence and motives of the Bank of England, while in Turkey President Recep Tayyip Erdogan has been in a tug-of-war with the central bank. India's government has replaced a capable central-bank chief with a pliant insider who has cut rates ahead of an election. And as we report this week, many top jobs at the European Central Bank (ECB), including the presidency, are up for grabs, and some could become part of a wider political struggle over who runs Europe's institutions (see Finance section). There is a genuine need for reflection on central banks' objectives and tools. But dangerous forces are afoot that could have alarming consequences for economic stability.

The problem of politicisation last became acute in the 1970s. After the post-war Bretton Woods currency system collapsed, central banks failed to tame racing inflation because politicians, who pulled the strings, were reluctant to bear the short-term cost of higher unemployment. Two decades of runaway prices and crises led to a new orthodoxy that central banks should be given operational autonomy to pursue an inflation target. In the euro zone, Japan and Britain central banks became legally independent in the 1990s. In America the White House refrained from even publicly discussing Fed policy (see Free exchange). This consensus survived the crash of 2007-08 and is one reason why global inflation has been only 4% a year on average over the past two decades.

The fraying of central banks' independence has several causes. One is populism. Leaders like Mr Trump combine the politician's desire for low interest rates with a reckless urge to undermine institutions. Another is the scope of central banks' activities, which expanded after the financial crisis. Most now hold huge portfolios of government bonds while, at the same time policing the financial industry. And the record of central banks is far from perfect. Because they have probably been too hawkish (despite their unconventional policies) the recovery from the crisis has been slow, undermining voters' faith in the technocrats whose loyalty is supposedly to the public interest. All this makes it easier to view them as political. Meanwhile, the

memory of the crises that led to independence has faded.

Pressure is manifesting itself in different ways in different places. Mr Trump has launched an attack on the Fed. Although his legal authority to sack Jerome Powell, its chairman and a Trump appointee, is not clear, if he wins re-election in 2020 he will be able to nominate a new Fed chairman and two more governors. In Europe a flurry of job changes threatens to lower the calibre of decision-making at the ECB and feed underlying disagreements. By the end of the year, three members of the six-strong executive board and eight of the 19 national governors, who also vote on rates, will have left. The most notable of these is Mario Draghi, its head. His departure in October will happen almost concurrently with elections and a change in leadership at the European Commission and Council, a once-in-40-years overlap. Behind the political game of revolving chairs is a battle between countries to control policy. Northern Europeans have been suspicious of the ECB's bond-buying, seeing it as cover for subsidising southern Europe. Rather than win by force of argument, they are seeking an edge by getting their own people into the top jobs. That will store up problems.

Perhaps global inflation will rise again from its grave, in which case weaker central banks may struggle to kill it off. More likely is an economic downturn. The world economy has decelerated this year—on April 9th the IMF downgraded its forecasts. Central banks may find themselves needing to pep up their economies.

This is what makes today's politicisation so dangerous. Technocrats face a difficult challenge. The rich world has hardly any room to cut interest rates before hitting zero, so central banks will once again have to turn to unconventional stimulus, such as bond-buying. The Fed

and other central banks may also need to co-operate globally, as in the wake of the crisis. The ECB will have to convince markets that it will do whatever it takes to contain another financial panic on Europe's periphery. The presence of political appointees, who are either ill-qualified or northern European hawks, would make all these tasks harder. It is not just that their votes count, but also that they would poison the public debate about what central banks should and should not do to deal with recessions.

The talking cure

It is right that the objectives and tools of monetary policy are subject to democratic scrutiny and that central bankers are accountable to legislatures. The Fed is reviewing its target in order to be prepared for a downturn. Other central banks should follow suit. In the long run, this secures their legitimacy and hence their independence. Yet in today's political environment it is naive to think that politicians really want a considered debate. Instead, the more central banks are in the limelight, the more they will find their month-to-month decision-making subject to external pressure, or find themselves at the whim of boards packed with hacks. It is just that sort of politicisation that the theorists behind independent central banks wanted to avoid. Look back 40 years and you will get a flavour of what could go wrong. ■



Israel's election

Bibi the conjuror

Binyamin Netanyahu is a remarkable political performer. America must stop his next trick

MAKE IT OFFICIAL: henceforth, the Hebrew word for magician is *Bibi*. This is not just because Binyamin Netanyahu, Israel's prime minister, appears to have won a record fifth term in office on April 9th. It is also because he pulled off the trick with corruption charges hanging over him, and in the face of a tough challenge from a new party packed with generals. Bibi, as he is known, made some parties vanish by taking their supporters, and conjured more seats for his own Likud party. He may soon surpass David Ben-Gurion, the country's founding father, as Israel's longest-serving leader (see Middle East & Africa section).

His victory has come at a cost. His potion—mixing muscular nationalism with Jewish chauvinism and anti-elitism—has helped poison Israel's politics. He claims he is innocent, blaming the charges against him on shadowy plots and sowing distrust of institutions: the police, the judiciary and the media. Mr Netanyahu may do yet more lasting damage. In the final days of the campaign he vowed to annex parts of the West Bank beyond Jerusalem, something no previous leader has thought prudent. This risks killing any chance of peace based on a two-state solution—which involves the creation of a Palestinian state—and of thus turning Israel into a rogue nation.

Fear not, say the optimists: Mr Netanyahu was just throwing out sweets to win over right-wing voters; he knows full well that annexation of the occupied territories would breach international law, cause an outcry in Europe and alienate Arab states that have been moving closer to Israel.

The problem with this view is that it ignores the changing political and strategic landscape. Mr Netanyahu must still form a government, which means making concessions to his likely allies on the right, who feel more strongly about annexation than he does. The prime minister's legal troubles—he faces indictment on three cases of alleged corruption—leave him vulnerable. What will be the price when the Knesset considers a bill that

would shield him from prosecution? If it is annexation, the process may begin with Maale Adumim, a large settlement on the outskirts of Jerusalem which the prime minister specifically promised to bring under Israeli sovereignty. But as Mr Netanyahu himself has said, it is unlikely to end there.

America's role has changed, too. For decades its presidents acted as a counterweight to Israeli annexationists (and gave cover to prime ministers fearful of standing up to them). President Donald Trump, though, has taken America's finger off the scales. He has emboldened the right by recognising Israel's annexation of the Golan Heights, which it captured from Syria in 1967, and moving the embassy to Jerusalem, a contested city. Mr Netanyahu made good use of these moves in his campaign. Even if he does not feel the need to go further by formally annexing territory, there is nothing to stop the creeping sort: the expansion of Jewish settlements and their infrastructure. That is happening with barely a peep from the world, let alone the divided Palestinians.

The Trump administration says it is about to release a plan for the "ultimate deal" between Israelis and Palestinians. If this is to have any hope of success, or even of starting a process, the president must rule out unilateral annexation—whether or not the Palestinians participate. If Israelis can grab land at a whim, they will have little incentive to negotiate. If Palestinians see parts of their future state taken away willy-nilly, neither will they.

In the end, Israel faces a stark choice. Jews and Arabs count roughly equal numbers between the Mediterranean and the Jordan river. So Israel cannot permanently hold on to all the land without sacrificing either its Jewish majority or the ideal of a proper democracy that does not discriminate against Arabs. The more Mr Netanyahu abandons land-for-peace, the more the choice will be annexation-for-apartheid. That dilemma is something even Bibi cannot conjure away. ■



Elections in Indonesia

The wrong way to win

The right candidate is in the lead, but democracy is looking frail

AMERICA HAS more people, but not as many of them turn out to vote. India's voters are conscientious and far more numerous, but it divides its national elections into seven phases spread over as many weeks, to make the process more manageable. So April 17th, when Indonesia's 265m people pick a president, parliament and regional assemblies, is likely to be the biggest single day of voting in human history.

In the presidential race Joko Widodo, the incumbent, faces Prabowo Subianto, a former general, just as he did at the previous election in 2014. Jokowi, as the president is known, is a small-businessman and former mayor from a mid-sized city who has

worked hard to improve the lives of poor Indonesians. He has rolled out a national health-insurance scheme, pumped money into education and broken ground on lots of new infrastructure projects. Although he has not raised the growth rate to 7%, as he promised, his focus—development—is the right one.

Mr Prabowo casts himself as a strongman, an unnerving pitch given that, as a general, he defended his father-in-law, Suharto, Indonesia's dictator from 1967 to 1998. He promises to be more of an economic nationalist than Jokowi, and to make Indonesia great again. He has courted radical Islamists, doubtless hoping to capitalise on false rumours spread by social media that the ▶

▶ president is a closet Christian or communist, a dangerous ploy in the world's biggest Muslim country. His election would be a step backwards for Indonesia's 20-year-old democracy.

It is heartening, therefore, that most polls show Jokowi firmly in the lead. But that does not mean, unfortunately, that Indonesia's democracy is healthy. For one thing, Jokowi has made himself the front-runner in part by imitating some of Mr Prabowo's tactics (see Briefing). He has nationalised a big gold and copper mine, and boosted spending on wasteful fuel subsidies he had previously cut. He has surrounded himself with generals with chequered pasts, such as Wiranto, who was head of the armed forces when East Timor voted for independence in 1999, prompting militias backed by the army to go on a rampage that claimed 1,400 lives. Jokowi has also shown scant regard for civil liberties when it suits him, standing by last year as the authorities found excuses to block lots of rallies by an opposition movement called "GantiPresiden" or "ChangePresident".

Indonesians might have been inclined to change their president if they had more of a choice. But Jokowi's party, PDI-P, and the other big forces in politics have colluded to narrow their options. To run for president, a candidate must have the backing of parties with a fifth of the seats in parliament—a rule the president used to ensure Mr Prabowo was his only challenger. The threshold for parties to enter parliament has been steadily ratcheted upwards over the years, from 2% of the national vote in 2004 to 4% now. That is likely to trim the number of parties represented from ten to six or even four. Not that parties mean that

much. After an election they all seek to join the president's coalition, in order to win plum ministries and thus be able to hand out jobs and contracts to their allies.

In fact, the only real ideological cleavage in Indonesia is between secularists and those who feel Islam should play a bigger role in public life. It is in this sense that Jokowi's record is most disappointing. When a close political ally, Basuki Tjahaja Purnama (Ahok), the governor of Jakarta, was maliciously accused of blasphemy, Jokowi did not defend him. Instead he affected greater piety himself, praying with the protesters demanding that Ahok should be put on trial. As his running-mate in the current campaign, Jokowi has chosen a conservative cleric who testified against Ahok in court, helping condemn him to prison. The choice sends an appalling signal to the 12% of Indonesians who, like Ahok, are not Muslim.

Jokowi's instincts are secular. He has used his authority as president to ban one extremist group and thwart others. He is a heavy-metal fan; his wife does not wear a headscarf; his party is popular with religious minorities. But he clearly does not feel confident enough, despite his lead in the polls, to stand up to the zealots. The lesson they are learning from his tenure is that they can get their way through bullying and intimidation. Most Indonesians, by and large, understand the distinction between piety and intolerance perfectly well—and reflect that in their votes for moderate parties like the PDI-P. But their moderation will be to no avail if politicians, starting with Jokowi, are not willing to stand up for Indonesia's long tradition of tolerance. ■

Private education

A class apart

Governments should celebrate the boom in private education, not suppress it

IF SPENDING IS a measure of what matters, then the people of the developing world place a high value on brains. While private spending on education has not budged in real terms in the rich world in the past ten years, in China and India it has more than doubled. The Chinese now spend 5% of household income on education and the Indians 4%, compared with 2.5% for the Americans and 1% for the Europeans. As a result, private schooling, tuition, vocational and tertiary education are booming in developing countries (see our Special report).

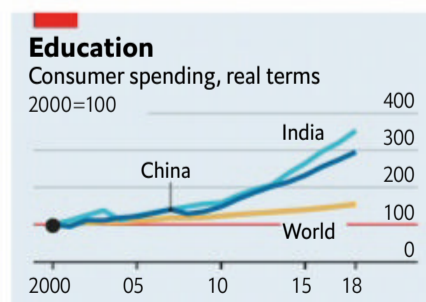
Since brainpower is the primary generator of progress, this burst of enthusiasm for investing in human capital is excellent news for the world. But not everybody is delighted. Because private education increases inequality, some governments are trying to stop its advance. That's wrong: they should welcome it, but spread its benefits more widely.

Education used to be provided by religious institutions or entrepreneurs. But when governments, starting in Prussia in the 18th century, got into the business of nation-building, they realised they could use education to shape young minds. As state systems grew, private schooling was left to the elite and the pious. Now it is enjoying a resurgence, for several reasons. Incomes are rising, especially among the better off, at the same time as birth rates are falling. In China the former one-child policy means that six people—two parents and four grandparents—

can pour money into educating a single child. The growth of the knowledge economy means that the returns to education are rising at the same time as the opportunities available to those without any schooling are shrinking.

All over the developing world, people want more or better education than governments provide. Where cities are growing at unmanageable speed, the private sector is taking up the slack. In India the private sector now educates nearly half of all children, in Pakistan more than a third, and in both countries the state sector is shrinking. Even where the state does pretty well, as in East Asia, richer people still want better schooling for their children than the masses get. Thus Vietnam, which has an outstanding state-school system for a poor country, measured by its performance in the OECD's PISA test, also has the fastest-growing private sector.

In most ways, this is an excellent thing, because the world is getting more, and better, schooling. In rich countries, once the background and ability of the children who attend private schools are taken into account, their exam results are about the same as those in the state sector. But in developing countries private schools are better—and much more efficient. A study of eight Indian states found that, in terms of learning outcomes per rupee, private schools were between 1.5 times more cost-effective than state schools (in Bihar) and 29 times (in Uttar Pradesh). ▶



▶ But private schools also increase inequality. They tend to sort children by income, herding richer ones towards better schools that will enhance their already superior life chances and poorer ones towards shoddy establishments that will further undermine their prospects. That is one reason why many governments are troubled by their rise. Other reasons are less creditable: teachers' unions, which often have a hold over governments, tend to oppose them, and their growth reduces politicians' power. So for good and bad reasons, governments are squeezing private schools, banning profits, cutting or capping fees, and using regulations to close them or make their life difficult.

Governments are right to worry about private education's contribution to inequality, but they are wrong to discourage its growth. The freedom to spend your money on improving your child's potential is a fundamental one. Whether governments formally allow it or not, people will find ways of buying private education, by tutoring children out of school or bidding up the price of property near good state schools.

Governments should instead focus on improving the public sector by mimicking the private sector's virtues. Freedom from

union power and independent management are at the root of its superior performance and greater efficiency. Governments should therefore do their best to weaken unions and give school principals more autonomy to innovate and to fire underperforming teachers.

To spread the benefits of private schools more widely, governments should work with them, paying for education through vouchers which children can spend in private schools, or paying privately managed schools to educate publicly funded children. These schemes do not always succeed, but Chile, Pakistan and the Netherlands have all demonstrated that big, properly designed and managed voucher systems can work well. Children in Chile, whose entire system is voucher-based, do better than in any other Latin American country for which the OECD collects data. But vouchers should be limited to non-selective schools that do not charge top-up fees; otherwise governments will find themselves subsidising the better off and increasing inequality.

The world faces plenty of problems. Governments should stop behaving as though one of them was private education. It will, rather, increase the chances of finding solutions. ■

Cross-border payments

The migrants' migraine

Too much of the money they send home evaporates en route. How can costs be driven down?

FOR MOST of human history, sending money across borders has cost the earth. Thankfully for globetrotters and e-shoppers in the rich world, that has changed in the past decade. A shift from cash and travellers' cheques towards digital payments has cut the cost of moving funds around. And a new generation of fintech firms has broken the stranglehold that big banks used to have on money transfers (see Finance section). As a result, fees have fallen. The cost of a transfer between consumers or small firms who are both in G7 countries can now cost 2% or less. This year some \$10trn will pass across borders. As prices fall further, the sums will grow.

Yet one corner of this industry remains trapped in a dusty time warp: remittances, or the practice of foreign workers sending money to relatives back home. There the costs are still sky high, at about 7%. That matters. The sums involved are vast—\$550bn of remittances will go to developing countries this year, more than all the capital they receive as investment from multinational companies, says the World Bank. There are 266m migrants, who often send money home. Many of them are poor, and so are almost all their relatives.

Remittances cost the earth for several reasons. Typically at least one leg of the journey still involves physical cash—either in the “first mile”, when a construction worker or waiter hands over hard-earned banknotes to a specialist transfer firm or to a bank, or the “last mile” on the other side of the world, when the cash is handed over to their families, who lack bank accounts. These vast networks are expensive to maintain—Western Union, a 168-year-old transfer firm, is able to send cash to, or pick it up from, over half a million physical sites around the world.

High fees also reflect anti-competitive behaviour and a growing thicket of Western money-laundering rules which are meant

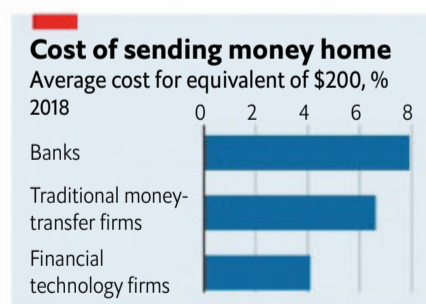
to police al-Qaeda barons, but which have ended up being a nightmare for expatriate Filipina maids. In combination, these two forces are strangling new entrants. Between 2011 and 2015, when the industry saw a brief flurry of startups, average remittance fees fell by 17%. But in 2016 the number of startup launches fell by half compared with the year before. Fees have since levelled off.

To prod remittances into the 21st century, two things need to happen. In the short term governments in the developing world need to help unleash competition. Sometimes the big firms that dominate cash transfers, such as MoneyGram and Western Union, have exclusive partnerships with state-run bodies that have

a dominant role in the first or last mile. For example, post offices that receive payments are often contractually committed to using a single transfer firm. Deals that lock out rivals should be banned. Governments in the rich world need to devise their money-laundering rules with competition in mind. Simple adjustments could lower the burden of compliance that startups face. For example, fintechs could be required to track every 20th transaction falling below a defined threshold, instead of every last one of them.

In the long run the answer to the remittances puzzle is a shift away from expensive cash-based systems and a bypassing of banks and transfer firms altogether. This could yet happen.

Across Africa, Asia and Latin America hundreds of millions of people are using e-commerce and transport applications on mobile phones that typically have payment systems and digital wallets, too. Entrepreneurs and tech firms are working out how to stitch all these local networks together. In time, perhaps, sending \$200 from the rich world to the emerging one will cost almost nothing and the payments revolution will be complete. ■



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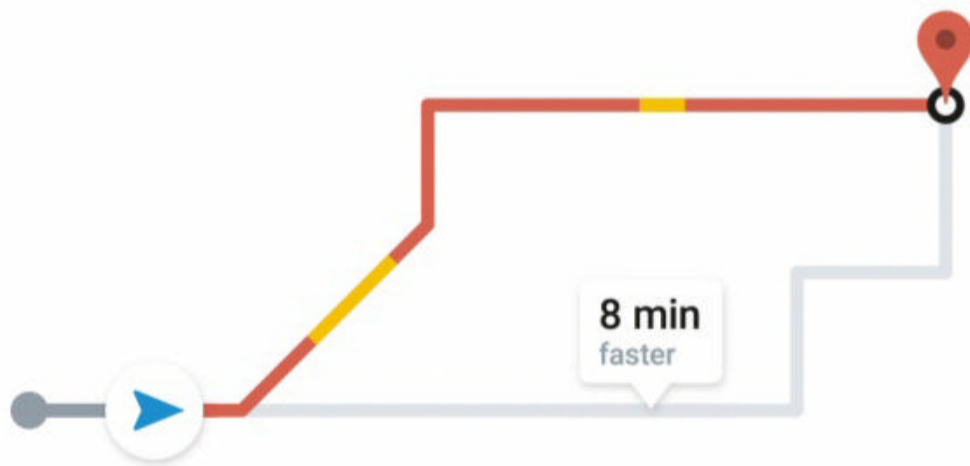


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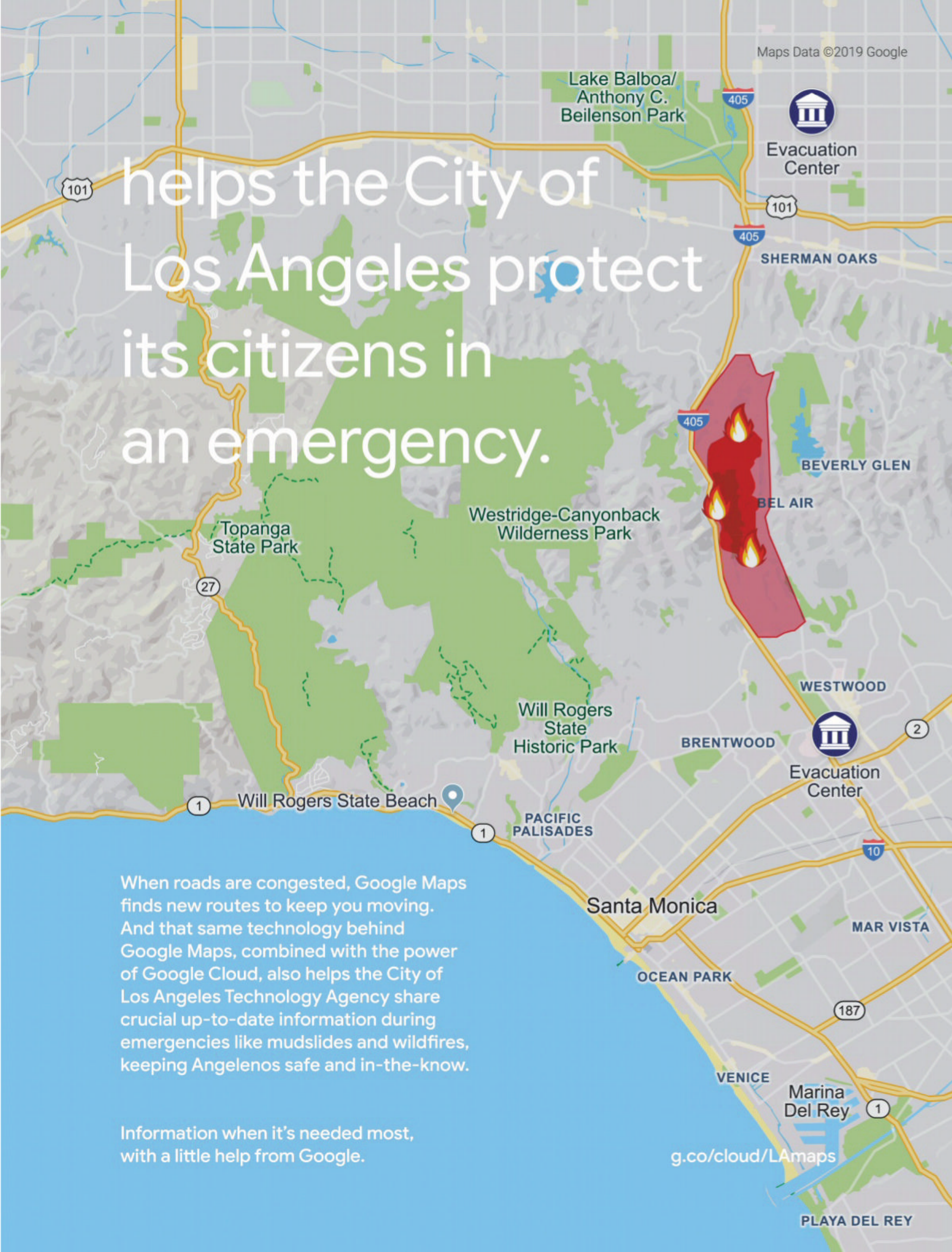


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NATO at 70

Your special report on NATO (March 16th) did not explain the cause of the tension between Russia and the three Baltic states—Estonia, Latvia and Lithuania. Ethnic Russians make up a large chunk of the Baltic population, but they found it difficult to attain citizenship there after the collapse of the Soviet Union. It was only after Russia annexed Crimea that the procedure for ethnic Russians to apply for citizenship in the Baltics became easier. Moreover, Russia has an understanding that no large NATO forces can be permanently located in east Europe, and that neither Ukraine nor Georgia can be admitted to the organisation in the near future.

RUDOLF BUDESKY
Anchorage, Alaska

There is surely another view of NATO. After the fall of the Soviet Union the West should have disbanded the alliance and sought co-existence and economic co-operation as the path to a future good relationship, rather than perpetuate confrontation. This would have been a healthier policy for eastern Europe, recognising that many ethnic Russians live in border countries. The Germans have perhaps seen this.

We do have common objectives with Russia, such as combating Islamic terrorism and establishing peace in the Middle East. Our military spending could be more targeted on contemporary problems, not past enemies. Donald Trump has delivered some home truths and should make Europeans realise that we do not have as much in common with America as was thought. Nor should we always rely on or follow its strategy.

PETER LANGWORTH
London

Missing from your special report is any discussion of the real purpose of NATO today. When the Soviet Union imploded, the Warsaw Pact was abolished, so that NATO became obsolete. The whole

NATO “drive to the east” only caused a rational Russian response—their own big expansion of armed forces on their western border.

HENDRIK WEILER
Port Perry, Canada

Low-yield warheads are not a viable solution in any strategic nuclear-weapons system. A Trident launch looks like a Trident launch. How would any adversary be expected to know the warheads were set at a low yield? Any launch would look like an attack.

A conventional-warhead programme for Trident II was explored by America, but shelved. It proposed that strict protocols and communications with potential adversaries would be used to ensure that this was a conventional strike. But the potential for misunderstanding was too great. Introducing a low-yield warhead increases the likelihood of a counter-strike strategic system.

PAUL TREMLETT
Ipswich, Suffolk

NATO is doing an excellent job at its core mission: dissuading attacks against its members. In an increasingly turbulent world, it should extend that security umbrella by incrementally opening membership to all democracies. The big geopolitical realignment of the 21st century should be an alliance between NATO and India, Brazil, South Africa and other non-Western democracies, requiring compromises on both sides.

DIDIER JACOBS
Vice-president
Coalition for a World Security Community
Rockville, Maryland

Looted artefacts

A teacher of mine once noted about the Elgin Marbles that the story of their acquisition and the controversy that followed is now part of their history, making them more famous than they might have been otherwise (“Culture vultures”, March 30th). The case for cultural repatriation

may have as varied and subjective an answer as the history of each object considered.

NICHOLAS MONAHAN
Washington, DC

Recovering Rwanda

You purport to assess the progress of healing in Rwanda after the genocide, but end up rehashing the past vilification of President Paul Kagame and the government (“We’re just one happy family now, aren’t we?”, March 30th). To your credit, you acknowledge that the Genocide Against the Tutsi (its correct name) did happen and that, since it ended, there have been efforts to heal and rebuild the country.

The fact is that Rwanda has been restoring its national identity, which was destroyed over many decades. The Genocide Against the Tutsi in 1994 was the culmination of many years of a politics of exclusion and division, and did not start with the downing of President Juvénal Habyarimana’s plane. That was merely an excuse to intensify and complete a process that had begun in 1959.

The restoration of Rwandanness is succeeding. Rwandans define themselves by their nationality, not by an imposed ethnic tag. We stress unity, not division. The progress the country has made, both at home and abroad, is evidence of this.

You acknowledge the enormous contribution that President Kagame has made to the country’s recovery. He did so not as a Tutsi but as a patriotic Rwandan. To suggest that he heads a predominantly Tutsi regime discounts the work Rwandans have been doing these past 25 years. Moreover, Rwanda will not unravel when President Kagame is no longer in power. Rwanda is healing and on the road to prosperity.

EMMANUEL RUHUMULIZA
Rwandan High Commission
London

Rwanda is succeeding impressively in overcoming its genocidal history, but neither the push for democracy nor promoting a sense of national

identity will consolidate the gains and consign the demons of ethnic tension to history. A mental-health survey from Rwanda’s Ministry of Health in 2018 showed that genocide survivors suffer a higher prevalence of depressive disorders, post-traumatic stress, panic and drug abuse than the population as a whole. Recent research also shows that today’s young experience a greater sense of trauma about the genocide than those who actually experienced it.

Significant progress is being made in mental health. Among those who survived the Rwandan genocide, suicide rates have declined by 10% thanks to psychosocial trauma healing at the grassroots level. More support for mental health and peacebuilding tailored to the needs of individual communities is needed if Rwanda is to become a country at ease with itself.

SIMON GIMSON
Vice-president
Interpeace
Geneva

Happiness is a warm gun

If my 64-year-old memory serves me correctly, I believe that it was love, not “happiness”, that money could not buy and about which the Beatles “philosophised” (Graphic detail, March 23rd).

STEPHEN KAY
Sillans-la-Cascade, France

You note that “Philosophers ... have argued that money does not buy happiness.” Six decades ago, in his seminar on economic thought, Professor Jacob Viner of Princeton University wryly noted that “none of this literature was written by poor people.”

PAUL WONNACOTT
Former member of the Council of Economic Advisers
Middlebury, Vermont

Letters are welcome and should be addressed to the Editor at The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N 6HT
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Chief Program Officer (P-5) Kuala Lumpur, Malaysia



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- Establishment and improvement of standard operating policies and procedures to ensure academic and operational excellence;
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- Encouraging and initiating continued improvement in curriculum and teaching methods;
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If interested, please ensure to submit the following documents:

- A cover letter;
- Curriculum Vitae;
- Copies of relevant diploma(s) and corresponding transcripts.

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The deadline for receipt of applications is **May 10th, 2019**.

Due to the expected volume of applications, OFID will only enter into further correspondence with short-listed candidates.



A reformer reduced

EAST JAVA AND JAKARTA

President Joko Widodo is in a strong position ahead of the election. But in getting there he has had to make some worrying compromises

IN WHAT WAS once a roadside food stall in Kampung Baru, a village in eastern Java, a group of housewives is preparing food for a wedding. One shaves the last morsels of meat from a chicken carcass. Another chops vegetables while keeping an eye on a huge bubbling wok. Between chores, they happily answer questions about politics. Life in the village is slowly improving, they say. The main road has been paved and widened. One says a new health-insurance scheme has helped her pay for cold and cough medicine. Another cites a government programme which lets her get textbooks for her children. When asked who they credit with such changes they exclaim—with gleeful screeches—“Jokowi!”

Jokowi is the cognomen of Joko Widodo, Indonesia's president since 2014. On April 17th, at the age of 57, he will be up for re-election in polls that will also see 187m voters—the third largest electorate in the world—choose between 245,000 candidates for over 20,000 national, provincial and local offices. The election commission

has had to design 2,593 ballot sheets for the various combinations of contest across the country. Once these have been filled in—and 99 tonnes of ink has been used to mark voters' fingers—ballot boxes from 810,283 polling stations will be taken off for counting by motorbikes weaving through the traffic jams of Jakarta; by speedboats on the winding rivers of Kalimantan; by wooden water-taxis in the Riau Islands; by planes in the highlands of Papua; and by horses in the poorer parts of East Nusa Tenggara.

Jokowi's rival for the top job is Prabowo Subianto, a retired general and fiery populist ten years his senior. In this sense, the election is a re-run of the presidential race of 2014, when the two men competed to succeed Susilo Bambang Yudhoyono, another former general and the first president to be elected by a direct vote after 40 years of authoritarian rule by strongmen were brought to an end in 1998. Jokowi's victory in that contest made him the country's first leader from outside its political, religious or military elite.

This time opinion polls give Jokowi a 20-percentage-point lead. But if the result looks likely to be the same as last time, the mood of many onlookers has changed. Jokowi came to power on a wave of optimism. He was seen as a breath of fresh air, a liberal-minded reformer, a pragmatic achiever and a paragon of secularism. In Indonesia, where about 88% of the population is Muslim, religion and politics have made violent bedfellows; the separatist struggle in the province of Aceh, which came to an end in 2005, was underpinned by religious divisions. A Muslim who did not campaign as one, like Jokowi, seemed a welcome harbinger of change.

As the housewives of Kampung Baru attest, Jokowi has done quite a lot of what he promised last time round. In the capable hands of Sri Mulyani Indrawati, the finance minister, the economy has remained strong. It has not grown at the 7% Jokowi promised five years ago, but steady 5% growth was enough to see Indonesia's GDP surpass \$1 trillion in 2017. The economy is now bigger, on a purchasing-power-parity basis, than that of Brazil or Britain; GDP per head is twice that of India.

But as Jokowi has tried to ensure re-election over the past two years the qualities that seemed impressive five years ago look tarnished. He is increasingly close to the army, happy to make common cause with hardline clerics and willing to suppress some of the opposition. ▶

Such tendencies are nothing new to Indonesia. Sukarno, the country's first president, having overseen an unstable parliamentary democracy in the 1950s, relied on the army to back a regime of "guided democracy" from 1957 onwards. In 1965 the army used a failed coup, blamed on the Communists, to tighten its grip on power. Hundreds of thousands died in the anti-Communist purge that followed, after which Sukarno was replaced by General Suharto, a kleptocrat. Suharto was at one point estimated to be the sixth-richest man in the world. The land owned by companies linked to his family was said to cover a tenth of Indonesia. His friends did pretty well, too.

New roads...

Part of Jokowi's initial appeal was that, in a country where corruption is still endemic, he looked sleaze-free. His time as mayor of Solo, a mid-sized city in Java, and then as governor of Jakarta gave him a reputation as a reforming fixer and an honest man of the people. That is still how he is seen.

In those days his signature move was *blusukan*: dropping in impromptu on idle civil servants or on ordinary Indonesians keen to talk about their concerns. The tone of those powwows seems to have informed his choices as president. The two biggest policies of his tenure have been aimed at improving the lives of rural Indonesians, who make up half the population.

The first is building much-needed infrastructure. Decades of under-investment have left roads potholed, ports clogged and traffic unbearable. Jokowi came to power with a plan to spend \$323bn (32% of GDP) over seven years on 3,258km of railways, 3,650km of roads, new airports, seaports and power plants. The government only gives vague indications as to the status of these projects, but some big ones came to fruition just in time for the election. Jakarta's mass-rapid-transit system, delayed for decades, opened in April. In December Jokowi opened the Trans-Java toll road, on which construction started in the 1980s.

There are few things ordinary Indonesians care more about than roads. Sari, an octogenarian who runs a café close to Kampung Baru, says that new roads have helped "touch the most remote places" in the district. Farmers can get their crops to market without worrying about the food perishing. Victoria, a teacher in a rural part of Kalimantan, Indonesia's chunk of Borneo, waxes lyrical about the highway that eases the journey from her school to the nearest town, saying it has encouraged more of her pupils to apply to university. She calls it "Jokowi's road".

Previous attempts to meet the demand for infrastructure failed in part because landowners could and did tie up every project in lawsuits. In 2013 the government

went so far as to study the feasibility of putting large parts of a Trans-Java highway on causeways off the coast to avoid such suits. Jokowi spent considerable political capital on new laws that allow the government to force landowners to sell their property for public infrastructure projects.

Jokowi has also tried to boost infrastructure spending by other branches of government. He has implemented and championed a law passed under Mr Yudhoyono which sends government money directly to village leaders, bypassing district heads who are often corrupt and likely to steal it. In 2018 these payments reached \$4bn (or 2% of total government spending) split across 75,000 villages. There is no reliable third-party assessment of how well this has been spent. Village heads are not immune to corruption; many lack administrative skills, some basic competence. But there do seem to be a fair few roads and bridges being built.

As well as splurging on growth-boosting infrastructure, Jokowi's administration has cut red tape. The World Bank's ease of doing business rankings saw Indonesia rise from 120th in 2014—between Swaziland and Jordan—to 73rd in 2019—between Mongolia and Greece. But his biggest policy push has been a series of programmes designed to reduce poverty. These include better-targeted and more-generous benefits for the poor as well as enlarging school-scholarship programmes. The most popular is an expansion of basic health insurance. The number of people this covers has increased from 131m in 2014 to 205m in 2019, says Aji Budi, a public-health expert at the Jenderal Soedirman University in central Java. Out-of-pocket payments as a share of total health spending dropped from 65% to 50% over the same period.

There are substantial shortcomings to the policies. In most remote places access to health care is limited and the quality of services is shoddy. Progress on many infrastructure projects has stalled. But life

seems to be getting better for poor Indonesians. The poverty rate, which declined quickly between the end of the dictatorship in 1998 and 2013 but then stalled, is falling again. It dropped by four-fifths of a percentage point between 2017 and 2018, the biggest one-year fall since 2010. That pleases Jokowi: poverty reduction is the thing he truly cares about. And it helps in the polls. Jokowi's support is strongest among rural Indonesians and those on the lowest rungs of the income scale.

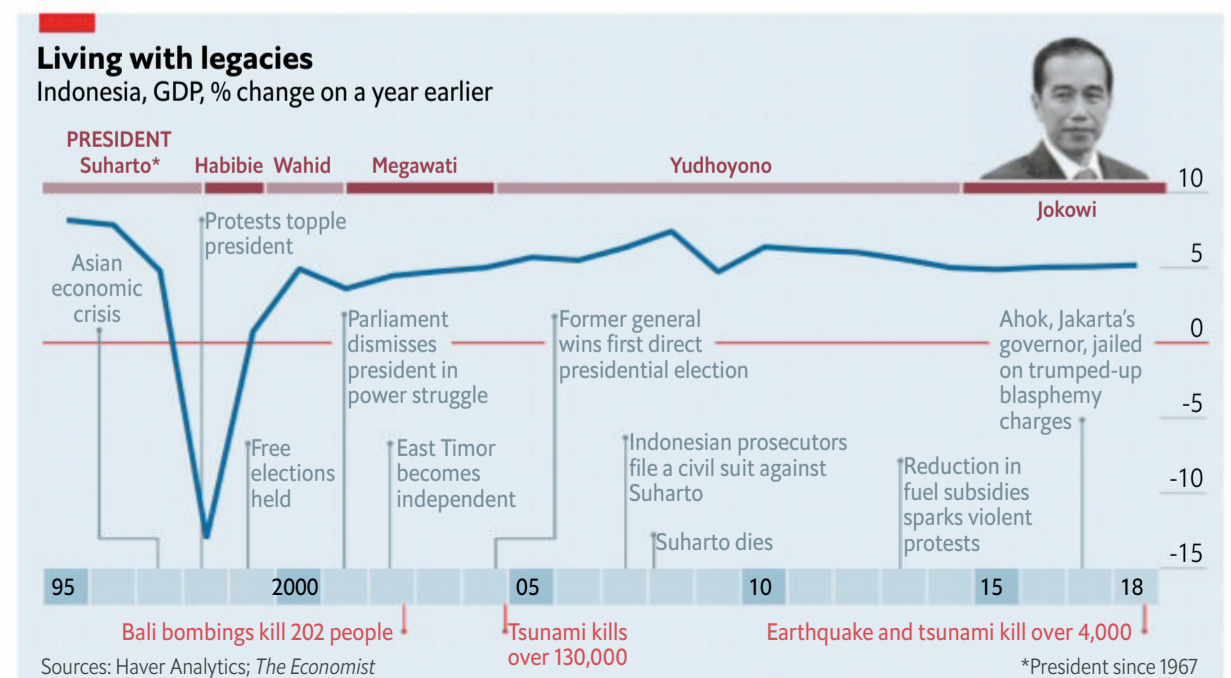
But despite a stable economy and many popular policies, his re-election campaign has demonstrated a trimming and cynical side of Jokowi hitherto unseen.

...new tolls

One of the welcome policies in his first years was to cut energy subsidies; that produced some of the room for the expanded infrastructure budget. Last year some energy subsidies rose back up again; the infrastructure budget was trimmed a bit. Civil servants got a pay rise, too. That might have made sense if it had been coupled with the drastic reform that the corrupt bureaucracy needs. It wasn't.

Jokowi has also become more of an economic interventionist. In December he finalised the nationalisation of Grasberg, the world's largest gold mine and second-largest copper mine, previously owned by Freeport-McMoRan, an American firm, and Rio Tinto, an Anglo-Australian one. "Reclaiming national resources" in this way was popular at home, but it may well make foreigners unwilling to invest in the country in years to come. A few months later he told Garuda, the state-owned airline, to cut prices by a fifth, then ordered Pertamina, a state-owned oil and gas firm, to lower the price of jet fuel.

The president has been using dodgy tactics to make life harder for his critics. Last year the police blocked over 20 marches organised by 2019GantiPresiden, an opposition movement, citing incorrect per-



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OPERATING WORLDWIDE

mits—an objection rarely if ever raised against rallies by pro-government activists. Since January several prominent opposition figures have been arrested on flimsy charges. Thomas Power of the Australian National University notes what seems to be a tactical use of prosecutions by the attorney-general, an ally of Jokowi. In 2017 Hary Tanoesoedibjo, a media mogul who had been supporting Jokowi's opponents, found himself faced with decade-old tax-fraud charges. Mr Tanoesoedibjo's media assets switched their allegiance to Jokowi; the case went no further. District governors and city mayors are being similarly cajoled.

Faced with an adversary who has very close links to the army, Jokowi has beefed up his own position, bringing several Suharto-era generals into his inner circle. In speeches he has encouraged soldiers to champion government policy and crack down on those who spread false information about him online. In February he toyed with reinstating a policy reserving civil-service jobs for veterans—a move the generals favour both because a lot of superannuated senior officers need jobs and because having brother officers thus installed increases their power. As yet, though, he has not gone through with it.

Perhaps the biggest reversal has been Jokowi's seemingly effortless embrace of conservative Islam. Indonesian elections often descend into piety contests. In 2014 the opposition camp harped on about Jokowi's secular approach as a weakness, arguing that he was not devout enough and spreading rumours that he was a closet Christian. This put him on the back foot enough for him to fly off to Mecca in a show of devotion two days before the poll. But it did not seem to change his politics.

This time around Jokowi is taking no

chances. In August last year he chose Ma'ruf Amin as his running mate. Mr Ma'ruf is the head of Nahdlatul Ulama, a Muslim organisation that claims 50m members, and the chairman of the country's main clerical council. He aspires to see sharia (Islamic law) enforced across Indonesia; he is in favour of banning homosexual acts and minority Muslim groups whose beliefs offend him.

Winner takes a lot

It is unclear what powers would be bestowed on Mr Ma'ruf if Jokowi wins; the role of vice-president is only vaguely set out in the constitution. But his appointment has added further credence to the view that Jokowi has little interest in defending minorities. This indifference was clearly displayed in 2016 when he failed to reprimand senior government officials for whipping up homophobia, restricting himself to vague calls for tolerance six months later.

In the same year Basuki Tjahajha Purnama, known as Ahok, a popular governor of Jakarta who had been Jokowi's deputy, was falsely accused of insulting the Koran. After huge protests he lost an election and was jailed for blasphemy. Jokowi said nothing. Again, he acted only later, when the government arrested some religious leaders and banned Hizbut Tahrir Indonesia, a hardline but non-violent Muslim group which had been involved in the protests. After that he sought a level of conciliation. Hence his pact with Mr Ma'ruf—who testified against Ahok at his trial.

Those shocked by these events need to consider that Jokowi was misunderstood from the outset. Many, especially outside Indonesia, assumed that a politician in favour of reform and development would fight for liberal values, too. But Jokowi is a

conservative man in various ways, and very risk averse. During his rise his undoubted political nous and good fortune meant that his power and popularity were rarely challenged, allowing this side of him to remain uninspected. The strains of the presidency have laid it bare. As Kevin O'Rourke, a political analyst, puts it: "He hoards political capital and doesn't spend much of it." He will invest it when he has to, but if he can give a bit of ground to generals or clerics to get the same electoral effect that would seem to suit him just fine.

His popularity has rubbed off on his party, the Indonesian Democratic Party of Struggle. It won 19% of the popular vote in 2014 to become the biggest party in parliament, and now looks set to do even better. This is not all Jokowi's doing, though. The coincidence of the presidential and legislative elections helps, too. Parties with presidential candidates get free media coverage and thus a boost in the polls. Mr Prabowo's Great Indonesia Movement Party, or Gerindra, is enjoying a similar bump.

This worries the country's smaller parties—including those in Jokowi's coalition dispirited by his lack of reforming zeal and authoritarian drift. The threshold for getting seats in parliament was just 2% of the popular vote in 2004; it is now 4%. With the biggest parties increasing their share, some small ones could be edged out.

There is a risk of a cosy cartelisation of power in the big parties, a risk made worse by ever higher barriers to entry for new parties. Because of fears about separatism the electoral rules written in 1998 were designed to disqualify purely regional outfits; national parties had to have officers in half or more of the country's provinces, and in half or more of the districts within those provinces. The threat of separatism has receded, but the barriers to new parties have grown yet higher. They must now have chapters in all provinces, three-quarters of districts and half of sub-districts.

The gap between what was hoped for in 2014 and what Jokowi has achieved is bad news for Indonesia. If, as looks likely, he wins a second (and, owing to term limits, last) term, it will be defined by the compromises he made to do so. Back-scratching is essential to Indonesian politics, and the hardline Islamists and military generals through whom he has broadened his support will no doubt be feeling itchy.

Moreover, welcome though poverty reduction is, it is not the only reform the country needs. During the latter five years of his time in power, Mr Yudhoyono sought out stability and consensus at the cost of genuine change—which was one of the reasons Jokowi won in 2014. He may now be on course to do the same. When he came to power, many saw in Jokowi Indonesia's bright future. Now he is looking overshadowed by its past. ■



The wrong direction



→ Also in this section

- 26 Appleocalypse now
- 27 Heartbeat bills
- 27 America's new liberals
- 30 Chaos in the DHS
- 30 Opioids and transplants
- 31 Why Hell is hot
- 32 Lexington: TrumpMania

Prisons in Nebraska

Don't pass go

LINCOLN, NEBRASKA

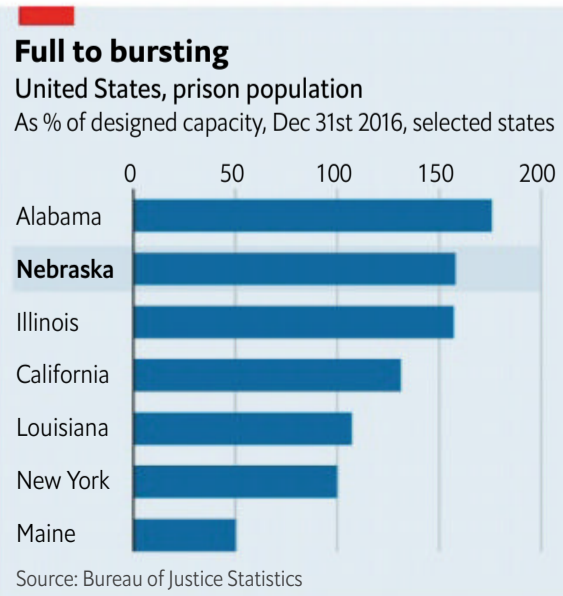
Nebraska shows that ending mass incarceration isn't easy

IN 2015 A prison in Nebraska was taken over by its inmates for several hours. Two were killed before staff regained control. The riot was worsened by the fact that the state's prisons were horrifically overcrowded. "Nobody was surprised it happened," says Jason Witmer, who was serving a 17-year sentence for robbery and home invasion at the time. "Trying to contain things, they got more restrictive, then the restrictions became new norms."

That year, the Nebraska legislature unanimously passed a sentencing-reform bill that was designed, among other things, to ease that overcrowding. It was forecast to get the prison population down to around 4,500 people, or 139% of capacity, by 2019. Four years later, however, things are worse. Nebraska's prison system today holds more people than it ever has. Seven of its ten prisons are stuffed to more than 150% of their designed capacity. Its most crowded holds more than three times as many inmates as it should. If the situation does not improve by July 1st 2020 the governor will have to declare an emergency. That would impel officials to consider immediate parole for all eligible inmates.

Between 2008 and 2016 America's im-

prisonment rate fell by 11%. Some hope that the era of mass incarceration that began in the 1980s may be nearing its end. But Nebraska's troubles show that reducing prison populations is not always as simple as mustering political will. The state's legislature, judiciary and multiple governors have all agreed that they need to trim its prison population—to no avail. Nebraska illustrates the complex incentives at work in America's harsh penal system.



The state's sentencing-reform bill failed to work as intended for several reasons. One aim was to improve parole and post-release supervision to reduce the risk of re-offending. The bill ruled that people who violate the terms of their parole should be returned to prison for brief periods rather than—as often happened—the duration of their sentences. But according to the American Civil Liberties Union (ACLU) of Nebraska, the number of people returning to prison for parole revocations rose by 29% between 2015 and 2017.

The bill also did nothing to change a principal driver of prison population: long sentences for felonies. Most Americans agree that non-violent drug offenders are better served by treatment than prison; in recent years Nebraska has expanded its use of drug courts for just that reason. But violent crimes pose a more difficult political problem. Few hot-headed young men remain so into middle age—keeping people locked up for decades is not an effective way of reducing crime. But arguing that murderers should spend less time in prison carries immense political risks.

In Nebraska the average length of sentence rose by 16% from 2000 to 2015, almost entirely as a result of longer sentences for violent crimes. The state's "habitual criminal" statute imposes a mandatory-minimum sentence of at least ten and up to 60 years for a third conviction on any felony. Prosecutors like such laws because they help to compel suspects to co-operate. But they keep people in prison far longer than public safety dictates.

They also push back a prisoner's parole ▶▶

▶ eligibility—as does persistent understaffing. In Nebraska prisoners become eligible for parole after completing half of their sentences' minimum term. However they also have to complete rehabilitation programmes, such as anger-management or substance-abuse counselling, in order to be released. High turnover and staff shortages mean that the state has too few counsellors to teach those programmes, and often too few guards to transport prisoners.

A booming economy does perverse damage. In rural areas, where prisons usually are, workers are scarce. The state has been busing people to its maximum-security prison in Tecumseh from Omaha, more than 90 minutes away. Staff shortages can become self-sustaining—mandatory overtime lowers morale, which increases turnover. Nebraska pays its prison employees more than neighbouring states do, but county jails often pay more, with better conditions. In state prisons, working double eight-hour shifts many times a week is common. Union officials complain about inadequate pay increases for seniority.

Few believe Nebraska will be able to avoid having to declare an emergency next year. The ACLU has sued Nebraska, arguing that its prison conditions violate the Eighth Amendment's ban on cruel and unusual punishment. In 2011 a similar argument led the Supreme Court to order California to cut its prison population, and on April 2nd the Justice Department found that staff shortages and overcrowding contributed to unconstitutional conditions in Alabama's prisons.

Pete Ricketts, the state's governor, talks of "changing the culture [to] help our inmates get back to society". His proposed budget includes \$6.6m for increasing prison staffing and rehabilitation programmes. He also wants \$49m to build two new high-security units with an additional 384 beds at a prison in Lincoln, the state capital. But even if they were available and filled tomorrow, Nebraska would still run at 143% of designed capacity.

Ultimately reducing prison overcrowding requires more than just building more cells; states have to make a concerted effort to send fewer people to prison for less time. Mike Lawlor, who helped engineer Connecticut's sizeable decline in prison population and now teaches law at the University of New Haven, says it took a reassessment of risk. "We said, 'Let's figure out who the dangerous people are and reserve our incarceration for them.'" Shorter sentences were a large part of the reform.

Since 2008 Connecticut's prison has declined by 32%. Its 18-to-21-year-old population has fallen by more than 60%. "The goal of [our] public policy", explains Mr Lawlor, "was to reduce crime. Maybe your goal is more punishment. If you do that, you'll get more crime." ■

Appleocalypse now

How do you like them apples?

HUDSON VALLEY, NEW YORK

Young apple trees are dying, and no one understands why

CHRIS BAUGHER'S great-grandfather first planted apple trees in Adams County, Pennsylvania in 1905. In 2013 Mr Baugher planted 7,000 Fuji apple trees in the orchard, which supplies apples to market and for making apple sauce. Three years later, just when the trees should have been bearing fruit, he noticed that a few of them had yellow leaves. Within weeks they were dead. The next year, the problem had spread to more than a few trees. By last year, 2,000 of Mr Baugher's 7,000 new trees were dead.

Mr Baugher has the worst case of "rapid apple decline" (RAD) in the county, but he is not alone. The mysterious disease has been plaguing growers across America's northeast, in North Carolina and in Canada for at least six years. *Science*, a magazine, reports that up to 80% of North Carolina's orchards may have been affected. Kari Peter, a fruit-tree pathologist at Penn State University, first observed massive die-offs in her research orchard in 2013. She came up with the term "RAD". But her attempts to explain it have not produced much fruit. The usual reasons for the death of a tree—mould, infestation, a known virus, blight, fungi, an early frost—didn't fit the symptoms. Her investigation only ruled things out.

The dead trees tend to be younger: two- to eight-years-old. They are nearing the prime of production. Dwarf trees, which



Argh, the apple trees

are commonly used by commercial growers, seem to be the most susceptible. Historically, orchards held 600-700 apple trees an acre, but most are now under high-producing dwarf trees, which are more compact. Growers now plant 1,200-1,500 trees per acre. Commercial apple trees typically have two parts, the scion (the apple variety, such as Gala or Honeycrisp) and the rootstock (the trunk base and roots of the tree). The scion is grafted onto the rootstock. Where the two join is the tree's most vulnerable spot, and where the decline appears to originate.

Although the rootstock is healthy, Ms Peter says one sort of rootstock, known as Malling 9, is the most affected. Working with the research arm of the Department of Agriculture, she found a new latent apple virus in the infected trees. But they cannot be sure if this new virus has any connection with the decline.

Researchers at Cornell University, led by Awais Khan, published a paper last month examining the role of soil, weather, fungi and bacteria. They found that severe cold followed by drought could have weakened the trees, leaving them susceptible to pathogens or boring-insect infestation. Mr Khan says more research is needed. Other scientists speculate that herbicides may be to blame. Dan Donahue, a fruit-tree specialist at Cornell University's Hudson Valley lab, says it could be any or all of those theories. He speculates that quality control could be a basic cause. In a recent sampling, he found that 64% of young trees had latent viruses. These do not show symptoms, but they could affect vitality. Older, larger apple trees were better at shrugging off the viruses.

RAD is a big worry for the \$4bn apple industry. Mark Seetin of USApple Association, a trade group, says his growers are concerned. Trade wars have already upset the apple cart. Mexico, America's largest export market, has imposed a 20% tariff on American apples. And customer taste is changing. Traditional varieties like Red Delicious are no longer a customer favourite, so growers are having to invest in new varieties. Most orchard growers operate on very tight margins. Few are able to absorb the losses stemming from more typical causes, such as bad weather, an infestation or a known pathogen, never mind unexplained ones like RAD.

Mr Baugher found some relief in the Tree Assistance Programme, through which the federal government provides financial assistance to orchard-owners and nursery owners whose trees are damaged by natural disasters. The sudden death of apple trees may not seem as dramatic as a hurricane, but in its insidiousness, it is perhaps even more dangerous. Americans have given considerably more before in the defence of apple pie. ■

Abortion controls

In a heartbeat

WASHINGTON, DC

A new push to overturn *Roe v Wade*

THOUGH CONSERVATIVES are by and large taking a kicking in the culture wars, they continue to hold ground on one front: abortion. Americans increasingly accept the right of gays to adopt children and marry. But they have not moved in a similar direction on women's right to terminate unwanted pregnancies. Abortion is as controversial as it was 46 years ago when the Supreme Court ruled it a constitutional right in *Roe v Wade*. Hence the success of "Unplanned", a low-grade, blood-spattered film about an abortion nurse-turned proliferator that has become a box-office hit.

More significant fresh evidence of Americans' antipathy to abortion comes in the form of legislation. In the first three months of 2019, 12 states introduced bills that ban abortion from the moment a fetal heartbeat is detectable. That happens around the sixth week of pregnancy, two weeks after a missed menstrual period, when many women do not yet know they are pregnant. In other words, the bills come close to being total abortion bans.

Around half have made it through at least one legislative chamber. In some states they have been signed into law. In March a "heartbeat" bill was signed by Mississippi's Republican governor. Georgia's governor, also a Republican, is expected to approve a similar bill there—sparking threats of a Hollywood boycott of a state that is a hub for film and TV production.

The rush of state-level heartbeat bills represents a shift in strategy by some anti-abortionists. Since 1973, pro-lifers have for the most part focused on chipping away at *Roe* by introducing burdensome regulations that make it harder to obtain an abortion. These range from imposing waiting periods between a consultation at a clinic and an abortion (which can be difficult for women in states with few clinics) to dictating the width of clinic corridors. This approach has been successful. The Guttmacher Institute, a pro-choice research group, says 401 abortion restrictions were introduced between 2011 and 2017. Eight states have only one abortion clinic.

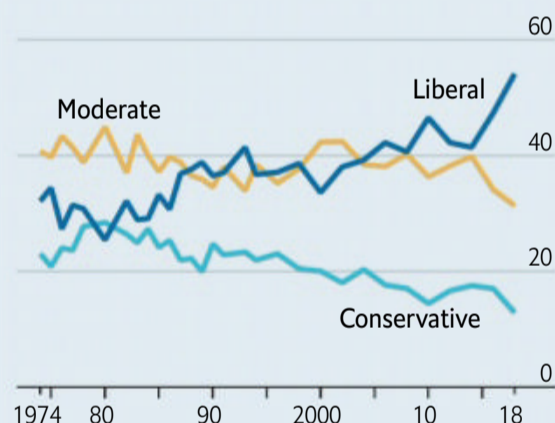
Heartbeat bills, by contrast, are straightforward violations of *Roe*—and so liable to be struck down by the courts almost as soon as they become law. In March a federal judge in Kentucky blocked a heartbeat bill the day the governor signed it. A similar law was blocked in Iowa in January. Mississippi's will almost certainly be

AS THE 2020 Democratic primary heats up, a brace of left-wingers are fighting over who can be more radical. They will take heart from the fact that for the first time, more Americans who affiliate with the Democratic Party call themselves liberals rather than moderates or conservatives. According to the newest figures from the General Social Survey (GSS), a long-running poll from the University of Chicago, 54% of Democrats describe themselves with the L word. In 1974, when the GSS first asked the question, only 32% did.

What exactly the word "liberal" means in America is contested. But it does seem that Democrats are indeed

The emerging majority

United States, share of Democrats by self-described political ideology, %



Source: General Social Surveys

halted before it comes into effect in July.

Pro-lifers are nonetheless persisting with this campaign in the hope of getting the Supreme Court to weigh in on the issue. Excited by the court's new conservative majority, champions of heartbeat bills hope the justices may use one to overturn *Roe*—as Donald Trump promised them during his presidential campaign. As that suggests, Republican politicians are aware that merely dangling that prospect is a big vote-winner.

In reality, heartbeat bills are unlikely to achieve their promised goal. Mr Trump's new justices, Neil Gorsuch and Brett Kavanaugh, are conservative Christians who hate abortion. But neither appears ready to overturn the 46-year precedent that *Roe* represents. And Chief Justice John Roberts, a conservative who has himself expressed scepticism about *Roe*'s legal basis, is anxious for the court to appear non-partisan.

It is more likely that the Supreme Court's conservative majority will under-

moving to the left. The Co-operative Congressional Election Study (CCES), a poll led by researchers at Harvard University, also released new survey data this year. The numbers show that even Democrats who describe themselves as conservative tend to support left-wing policies. Over nine-tenths support Medicare for All (a form of universal health care). About the same proportion want the federal minimum wage to increase to \$12 per hour (it is currently \$7.25), and the Environmental Protection Agency to regulate CO₂ emissions. Four-fifths say that women's access to abortion should be unrestricted.

There are limits to the leftward swing. According to the CCES, less than a quarter of Democrats believe that they are "very liberal," the left-most position on the scale. Some popular positions among high-profile Democrats are not yet mainstream among the rank and file. For example, the idea of paying reparations for the costs of slavery, endorsed by Alexandria Ocasio-Cortez, a firebrand member of the House, is not universally accepted. Only 51% think that black Americans should get special treatment to help them catch up.

In the end, it is not enough to win over registered voters. Though Democrats outnumber Republicans, Republicans tend to turn out. Democrats have to win over more independents too.

mine *Roe* by upholding stringent anti-abortion regulations. Mary Ziegler, a professor at the Florida State University College of Law, says it may inflict the worst damage by agreeing that regulations do not create an "undue burden" on women's access to abortion, the standard used by courts to determine whether restrictions are constitutional.

The court is expected to rule soon on one such law passed in Louisiana. It requires abortion doctors to have "admitting privileges", or the right to admit patients to a nearby hospital which many hospitals do not allow and which, elsewhere, has led to the widespread closure of clinics. In 2016 the Supreme Court struck down an almost identical law in Texas, saying it imposed an undue burden. Chief Justice Roberts dissented from that ruling, though in February he voted to temporarily halt the law in Louisiana while the court decided whether to take it up. The other four conservatives voted to uphold it. ■

The Democrats

Feeling out left

WASHINGTON, DC

For the first time, a majority of Democrats call themselves liberals

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Chaos in the DHS

Another one bites the dust

WASHINGTON, DC

Donald Trump does away with another member of his cabinet

“SECRETARY OF HOMELAND SECURITY Kirstjen Nielsen will be leaving her position, and I would like to thank her for her service,” tweeted Donald Trump on the afternoon of April 7th. Ms Nielsen stepped down on April 10th, but she had been twisting in the wind for months. Though she had publicly defended Mr Trump’s immigration policies, the president thought her weak. Her departure seems to presage a harsher turn on immigration from a president who considers the issue central to his re-election strategy.

Few on the left will sympathise with Ms Nielsen. She was one of the faces of the Trump administration’s “zero tolerance” policy, under which anyone who crossed America’s border illegally was referred to the Justice Department for prosecution. That resulted in the separation of thousands of children from their parents. Identifying all the families thus sundered, said the government in a court document filed last week, could take up to two years. She also defended two policies halted, to Mr Trump’s fury, by federal courts: one that would have prevented anyone who crossed the border illegally from claiming asylum, and another that would force asylum seekers to wait in Mexico rather than America while their claims were evaluated.

She reportedly almost resigned last year, after Mr Trump publicly berated her for failing to stop illegal immigration.

Then she improved her standing with the president last autumn after the Border Patrol fired tear-gas into Mexico at unarmed protesters. But the president had grown increasingly agitated in recent months as the number of border apprehensions rose (though they remain far below their levels of a decade ago).

The administration’s decision last week to withdraw the nomination of Ronald Vitiello to lead the Border Patrol, which Ms Nielsen had backed, suggested the writing was on the wall. Mr Trump said he wanted to “go in a tougher direction”. After returning from a visit to the southern border last weekend, he demanded and received Ms Nielsen’s resignation. Her departing letter sounded a Trumpian tone, blaming “Congress and the courts” for not “fixing the laws which have impeded our ability to fully secure America’s borders and which have contributed to discord in our nation’s discourse.”

Her departure—and that on April 9th of Claire Grady, the acting deputy secretary—leaves Mr Trump’s chosen successor, Kevin McAleenan, as acting homeland-security secretary. He thus becomes the sixth current interim holder of a cabinet-level position. How long he will last is unclear, as is the full scope of his power. On April 10th Mr Trump announced that “there’s only one person running [immigration policy]. You know who that is? It’s me.”

The problem is that Mr Trump seems to want to do things that American law does not allow—and among the things that reportedly soured him on Ms Nielsen were her reminders that legal constraints existed. The *New York Times* reported that he demanded that Ms Nielsen should stop migrants from claiming asylum, which is both illegal and impossible.

Shortly before his most recent visit to the border, the president said America needs to “get rid of the whole asylum system” and “get rid of judges”. He reportedly told border policemen to break the law and deny asylum-seekers entry to America. “Our country is full,” Mr Trump declared on April 5th at the Mexican border. “We can’t take you any more...so turn around, that’s the way it is.”

More departures from Homeland Security may soon follow, including the department’s general counsel and the head of Citizenship and Immigration Services. On April 8th Mr Trump also announced that Randolph Alles would step down as head of the Secret Service, though that may be connected to an embarrassing security breach at Mar-a-Lago, his Florida country club.

Stopping the tide of migrants completely is beyond the power of any homeland-security secretary. But it is not beyond their power to try—or at least to appear on television to be trying, and then blame Democrats and feckless judges for any failures.

The president seems to like that sort of performance more than any realistic policy. Throughout his time in office, Mr Trump has preferred fighting public battles on immigration and much else to the unglamorous work of compromise and governance.

As next year’s election approaches, that attitude may become even more apparent. Immigration policy offers the sharpest possible contrast between Mr Trump and most Democrats. That helped put him in office two years ago. Ms Nielsen’s departure, and the “tougher direction” he claims to want, suggest that he is gearing up to fight the same battle again. ■

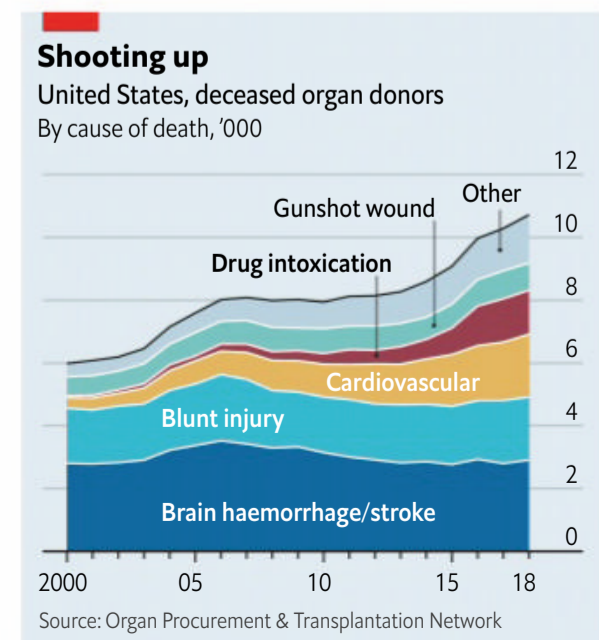
Opioids and transplants

Life after death

A tragedy has a silver lining

THE OPIOID addiction sweeping America is devastating. It kills around 60,000 people annually, far more than the number who die in traffic accidents or from gun violence. It has contributed to three years of falling American life expectancy—the first such sustained fall since the first world war. But there is one small but significant silver lining: organ donations. In 2017 one in eight deceased organ donors in America died from an overdose, compared to one in 100 in 2000.

Fatal drug overdoses usually kill by starving the brain of oxygen. As far as organ donation is concerned, brain death is the more useful kind. That is because it takes some time for the heart to register the loss of brain function and stop beating—at which point organs begin to deteriorate rapidly. Moreover, the opioid epidemic has been concentrated among younger middle-class people, who are in otherwise ▶▶



▶ good overall health. “These are extremely high-quality organs,” says Dorry Segev, a transplant surgeon at the Johns Hopkins School of Medicine in Baltimore.

Yet until recently they were often discarded for fear of blood-borne diseases. Many of the people who die from a heroin overdose have, at some point, shared needles with other users. That spreads viruses. The most common is hepatitis C (which leads to liver disease) but there is also a risk of HIV. At some transplants centres now as many as half of transplanted organs are from such “infectious-risk donors”, as they are called in medical circles.

That, luckily, is becoming less of a problem. Thanks to new technology, it is easier to know whether a donor was infected with a disease. In the past, tests were not sensitive enough to pick up HIV or hepatitis C if the infection had been acquired in the previous six months or so. The testing methods used today may miss only infections picked up in the previous week. And if they were infected, it matters less too. In recent years medicines for hepatitis C have improved to the point where almost everyone is cured completely.

As a result, more patients agree to transplants from donors who they know are infected. Last year, they included Robert Montgomery a transplant surgeon at the New York University Langone medical centre, who got a heart transplant from a donor who he knew had hepatitis C. Dr Montgomery became infected and then cured of the virus. A study of more than 100,000 people on the kidney waiting list in 2010-2014 found that five years afterwards, those who accepted such organs were, on average, more likely to have survived than those who declined. The low chance that a better offer would come along meant that taking the risk was worth it.

A study published on April 3rd in the *New England Journal of Medicine* adds to growing evidence that such transplants are indeed safe. In that study, 44 people got hearts or lungs from donors with hepatitis C and a four-week course of antiviral drugs for it. Six months later, all these patients were clear of the virus. And they were doing as well as the patients in a comparison group who had transplants from donors without hepatitis C. Other studies have shown similar results for kidney and liver transplants, although they have also been small and with short follow-up periods.

All this is good news for the 6,500 Americans who die on the waiting list for transplants each year—as well as for the 114,000 who are currently on the list, most of whom will not get lucky this year (see International section). And for some of the families bereaved by the opioids tragedy, the possibility that their loved ones may give a new lease of life to others may be a flicker of light in the darkness. ■

A damn lovely town

Lessons from Hell

HELL, MICHIGAN

Small-town America can learn from one thriving, oddly named settlement

THE ROAD to Hell is paved with good tarmac. Water runs clear in its creek. The township in Michigan has only 72 residents, Hellians, but offers attractions aplenty. Post-office staff singe cards and stamp them, in blood-red ink, from Hell. Two bars—the Hell Hole and Hell Saloon—bustle with customers. Both of them, and a mini-golf course, are decorated with ghouls and monsters. Chuckling tourists browse a shopful of perdition-themed souvenirs. Most popular are T-shirts with slogans such as “Hell is my happy place”.

John Colone owns Screams, an ice-cream stall, and much of the commercial centre. His red-roofed wedding chapel last year hosted 81 marriage ceremonies (including ten same-sex ones). He also threw three “living wakes” for sick customers who wanted to party in Hell before they died. Some 150 people a year pay \$100 to be declared Hell’s mayor for a day. Tourist-money generates 18 local jobs.

The township, founded in 1838, supposedly got its name from a visiting German who declared the local weather “hell”, or wonderfully bright. It thrived by hosting a sawmill and tavern, but like much of rural America its economic prospects slumped as farm jobs vanished. Hell’s only church burned down in 1963 and was never rebuilt, says Mr Colone. A lifelong resident, he frets that youngsters leave and “the only people moving in are senior citizens”.

Hell, nonetheless, is a success. The Mid-

west’s landscape “is littered with has-been towns”, says Richard Longworth, who wrote a book about the decline of similar places. He notes other settlements dwindling much faster, such as Gravity, a farming town in southern Iowa. It once had more than 1,000 people but has steadily lost its pull, especially after the school and local businesses closed. It now has an estimated 150 residents, many of them elderly.

Rural towns survive by adapting. Hellians are creative in luring tourists, preferring families who shop and eat with gusto, rather than the biker gangs that used to flock in. The township won national attention on June 6th 2006 by hosting a 12,000-strong party to mark 6/6/6. In especially cold weather, when Hell’s creek freezes over, television journalists are invited to report from its banks. Each autumn it hosts “Hearsefest”, a spooky parade. The result, says Mr Colone, is 70,000 visitors yearly.

What could others learn from the boomlet in Hell? James and Deborah Fallows, who visited 42 towns and small cities across America, last year published a popular book celebrating the most successful. They say towns need “local patriots”, often in business, who are energetic, set out grand plans and excite others. They also need a clear civic story, “myth or a lie”, that residents can organise around. Being open—both to migrants and visitors—is important. It pays, too, not to be truly remote: being in the orbit of a city with a thriving university is best of all. Much of this applies to Hell, half an hour from Ann Arbor, home to the University of Michigan.

Some things, however, are unique to a town with an odd name. Mr Colone doubts that earlier generations would have been as keen on shopping in Hell, but says public attitudes have grown more relaxed. “Hell sells,” he says. Pay attention, residents of Satans Kingdom, Massachusetts. ■



To Hell with them

Lexington | TrumpMania

The president is a pro-wrestler masquerading as commander-in-chief. His opponents should take note



THE FIRST time Lexington thought of Donald Trump at WrestleMania this week was when, to the fading strains of “America the Beautiful”, a helicopter flyover churned the night sky over the MetLife Stadium in New Jersey. Was the president about to make a surprise reappearance at the annual WWE sports-entertainment extravaganza to which he owes so much of his political method? The second time, well into the seven-hour grapplefest, was as the veteran star-wrestler “Triple H” was ripping out his grudge-rival’s nose-rings with a pair of pliers.

That was not only a reflection on how Mr Trump treats his cabinet. Paul Levesque, as Triple H was originally known, these days spends most of his time as a senior executive in the billion-dollar WWE business, having married into the McMahon clan that owns it. In reality-bending WWE style, he first married and divorced Stephanie McMahon, daughter of WWE founder Vince, fictitiously. This was part of a story-line in which she and her brother Shane, both WWE executives who appear in WWE productions as villainous executives and wrestlers, tried to steal their parents’ business. Triple H then actually married and had three children with her.

Those developments are now part of his wrestling character. As Triple H was mock-torturing his rival Batista this week, a WWE commentator—broadcasting live to 180 countries and one of America’s biggest television audiences—said mock-fearfully: “That’s my boss...” This disorienting mix of business, dynasty and entertainment—scrambling performance and reality, ham interests and financial ones—is the defining characteristic of professional wrestling and of its chief emulator, the president.

Mr Trump is another sometime WWE performer with close ties to the McMahons. A longtime fixture at WrestleMania, he launched a semi-scripted assault on Vince McMahon at the 2007 version. Having been inducted into the WWE Hall of Fame, he returned the favour by appointing Vince’s wife Linda to his cabinet, as head of the Small Business Administration. She will soon leave it to run a pro-Trump Super PAC. Yet such personal links do not begin to do justice to Mr Trump’s stylistic debt to spoof wrestling.

To appreciate that, consider why it has proved so alluring. It is not because fans think the fights are real, exactly. Testifying before the New Jersey Senate in 1989—when the McMahons were trying to

evade regulations on competitive sport—Mrs McMahon admitted they were fake. After this unprecedented flouting of “kayfabe”, as wrestlers call their scripted reality, some said the industry was finished. That it has instead grown hugely is chiefly owing to the power of escapism. The 80,000 WWE fans at the MetLife, typically young men with defiant slogans such as “I’m not dead yet muthafucker!” on their T-shirts, are the heroes of their own imaginations. Many carried chunky replicas of WWE (fake) championship belts. “It’s like Santa Claus, not real, but that’s not the point,” said Jason, a banker from Manhattan with a \$300 belt over his shoulder.

WWE has also found new ways, in its scripting and use of digital media, to buttress the fantasy. Most important, it constantly shifts between different registers of make-believe, from real to credible to absurd. Thus, for example, its use of executives as characters. Similarly, its stars appear in and out of character on social media. In a pre-WrestleMania rant Ronda Rousey, a former mixed martial arts champion, slammed WWE as “not real” and vowed henceforth to do “whatever the hell I want”. Such tricks create sufficient doubt about what is real for WWE fans to keep living their dream.

A blurring of the age-old distinction between “faces and heels” also supports this shift towards realism: Triple H, once a heel, is now considered a good guy. So does the frenetic way WWE scriptwriters distract their audience with new talking-points: while it was legal for Triple H to take a sledge hammer to Batista, did it make sense, given his (actual) torn pectoral muscle, tactically?

Mr Trump’s success lies in applying WWE principles where the line between performance and reality is even finer. In “The Apprentice” he played a successful businessman. In politics he saw that the contest of ideas its participants claimed to be engaged in was really a partisan slugfest almost as contrived and absurd as the WWE. He therefore offered a more ghoulishly watchable version of what voters were already getting. Why choose Jeb Bush trying to be a pantomime bad-ass when you could have the real thing?

The president also employs the WWE’s new stagecraft. Mixing family, business and politics infuriates sticklers for the law, but makes his fans think he is somehow more real—or “authentic”—than his rivals. He is also a master of shifting between degrees of make-believe. “I’m not supposed to say this,” he interjects into his speeches, “but what the hell?” And then there are his constantly distracting micro-dramas, breathlessly echoed by a commentariat every bit as emotionally invested in the drama as the press gallery at WrestleMania, which often erupted into spontaneous gasps or applause. How much of Mr Trump’s behaviour is concocted is debatable; private Trump is also pretty pantomime. But that uncertainty merely adds, WWE style, to the reality-tumbling effect.

Electoral royale

Mr Trump’s ham performance has been endangered by its own success—represented by two years of unified Republican government. A WWE performer without an adversary would be a pitiful spectacle. It is therefore testament to the president’s genius that he was able to fill the void, not with policies, obviously, but rather a parade of new enemies: immigrant children, black football players, the late John McCain. Yet with the Democrats soon to choose a new champion, his performance may be about to get easier.

His opponents should be advised by this. The WWE’s popularity suggests their main hope, that voters will tire of Mr Trump’s grim clowning, may be wishful. More specifically, they should recognise that no professional politician can beat him in a grudge match. They would do better, where possible, to ignore him. ■



Brazil

Coming up at the car wash

SÃO PAULO

The country's biggest corruption investigation is at a turning point

FOR FIVE years Lava Jato (Car Wash), a sprawling anti-corruption investigation, has dominated headlines in Brazil. It ended political careers, led to the locking-up of company bosses and helped make possible last year the election of Jair Bolsonaro, a low-ranking right-wing congressman, to Brazil's presidency. He fulminated against corruption during the campaign, but the investigation itself disappeared from the headlines. The arrest last month of Michel Temer, a former president, brought it back. Prosecutors say he ran a scheme that embezzled up to 1.8bn reais (\$427m) over four decades, including during his presidency in 2016-18. Mr Temer denies the charges. A judge released him while the investigation continues.

Lava Jato began as a routine money-laundering case in the southern city of Curitiba. It led to revelations that construction companies had paid billions of dollars in bribes to politicians in exchange for lucrative contracts with Petrobras, the state-controlled oil company. Prosecutors in Curitiba have won convictions of 155 people, and prison sentences totalling more than 2,000 years. Luiz Inácio Lula da Silva, a for-

mer president from the left-wing Workers' Party, is serving jail sentences totalling 25 years in the city. Investigations in Curitiba and in other cities have led to scores of convictions and billions of dollars in fines (see table overleaf). Brazilian prosecutors have helped foreign ones pursue related cases, especially in Peru. Mr Bolsonaro appointed Sérgio Moro, the judge who jailed Lula, to be his justice minister.

Through Lava Jato Brazilians have come to view systemic corruption as outrageous rather than inevitable. Citizens held massive demonstrations against it and voted corrupt politicians out of office. Businesses have created compliance departments. The supreme court banned corporate contributions to election campaigns and ruled that convicted criminals could be jailed after losing their first appeal (rather than remaining free until all their appeals were exhausted). Lava Jato has both encouraged and benefited from public anger. "Without society's insistence, we wouldn't have Lava Jato," says Deltan Dallagnol, a prosecutor.

It grinds on. Hundreds of suspects besides Mr Temer await rulings from courts in Curitiba and other cities, where other

→ Also in this section

34 A "Cuban Missile" crisis

35 Bello: Lenin's new economic policy

corruption schemes are being investigated. But this sort of investigation "looks to the past", says Silvana Batini, a prosecutor for Lava Jato's task force in Rio.

Its future is uncertain. Mr Moro's move from the courtroom to Mr Bolsonaro's cabinet is a chance to strengthen anti-corruption laws and beef up enforcement. Yet Lava Jato faces new challenges, which could reverse the progress Brazil has made against political graft. One comes from congress, which could thwart Mr Moro's attempts at reform. Another is that the supreme court, initially supportive of the investigation, has turned sceptical. That is partly in response to excesses by prosecutors and judges such as Mr Moro, and partly because of pressure from politicians.

A third threat is the demagogic response of Mr Bolsonaro's supporters to such setbacks. They accuse the highest court of being in league with the *velha política* (old politics). One of Mr Bolsonaro's sons, Eduardo, a federal deputy from São Paulo, said before the election that a "soldier and a corporal" could shut the court down. Taking a different tack, Mr Bolsonaro proposed doubling the number of justices, so he could pack it with his appointees. Such zealotry in defence of the rule of law could end up weakening it.

Lava Jato was born from two trends: the strengthening of Brazil's judiciary and the weakening of its political system. A harbinger was the *mensalão*, a scandal during Lula's presidency in 2005 that involved the government buying votes in congress. A new generation of prosecutors and judges ►►

Lava Jato by numbers

April 2019 or latest available*

	Curitiba	Rio de Janeiro	São Paulo	Federal supreme court
Year investigation began	2014	2016	2017	2015
Number of people accused	429	312	57	110
number convicted	155	40	4	3
of which, politicians	11	4	0	1
Years of prison time	2,242	665	355	19
Plea bargains	183	35	10	110
Fines, bn reais	13	0.7	0	0.8

Sources: Public Prosecutor's Offices; Attorney-general of the Republic

*A small amount of double counting is possible because individuals have been accused in multiple jurisdictions

won its spurs through trials of the miscreants. When Lava Jato began in 2014 judicial officials had new tools: agreements to share information on money-laundering with other countries; a law passed in 2010 that bans politicians with corruption convictions (such as Lula) from running for office; and, most important, a law from 2013 that expanded the use of plea bargaining. Without it, “we’d still be stuck going after money-launderers for 10,000 reais,” says Paulo Galvão, a Lava Jato prosecutor.

Politicians’ reputations sank. Brazilians’ anger about corruption and economic recession led to the impeachment of President Dilma Rousseff in 2016 (for budget-accounting violations, not corruption). Mr Temer, her successor, spent political capital fending off corruption allegations. The prestige of the judiciary rose. It began to act as if it could “solve all of Brazil’s problems”, says Oscar Vilhena, the dean of the law school at Fundação Getulio Vargas (FGV).

Investigators, led by judges like Mr Moro, became more aggressive and less careful. They made liberal use of pre-trial detention and arrested suspects to force them to testify. Both practices are banned by the constitution in most circumstances. Whereas American prosecutors spent decades refining the practice of plea bargaining before using it to clobber mafia dons, its swift deployment in Lava Jato was akin to “changing the tyre as you drive”, says Matthew Taylor of American University in Washington, DC.

The “ends-justify-the-means” attitude led to mistakes, says Heloísa Estellita, a former clerk of the supreme court. In 2016, in an apparent attempt to stop Ms Rousseff appointing Lula as minister, which would have shielded him from prosecution, Mr Moro leaked to the media taped conversations between them. That aroused suspicions among their supporters that the judge was targeting the left. Suspicion increased when he agreed to join the cabinet. In 2017 Lava Jato prosecutors gave immunity to two businessmen who claimed to have bribed Mr Temer. The information they provided was incomplete. It later emerged that one prosecutor was also working for the law firm defending them.

That error became Lava Jato’s “Trojan horse”, says Felipe Recondo, a founder of Jota, a news site that focuses on Brazil’s judiciary. It helped bring about a new confrontation within the judiciary, between Lava Jato operatives and the supreme court. Mr Bolsonaro and most Brazilians back the investigators. Politicians tend to root for the higher court. Much will depend on the outcome of that duel.

Many Brazilians regard the supreme court as an ally of corrupt politicians. In part that is because sitting politicians enjoy a right called *foro privilegiado*. This means that only the supreme court can try them for acts of corruption they commit while in office. The overburdened court almost never convicts. It heard 404 cases against politicians between 2011 and 2016 but issued guilty verdicts in just three. After the death in 2017 of one gung-ho justice and missteps by investigators, the court became more sceptical of Lava Jato.

The new bench has issued politician-friendly rulings. Some, like limits on plea bargaining and a ban on coercive questioning, corrected excesses. Others seemed arbitrary, like the release of a former minister who had been convicted of corruption and lost his first appeal. One justice, Gilmar Mendes, freed 19 defendants in 30 days in 2018. “The supreme court does not exist,” says Conrado Hübner Mendes, a law professor at the University of São Paulo. “There are 11 mouths and 11 pens.”

It will soon be at the centre of another controversy. It plans to reconsider its earlier ruling that people convicted of crimes can be jailed after they lose their first appeal. A reversal of that decision could result in the release of thousands of convicts not deemed a danger to society, including ordinary criminals. It could also undermine Lava Jato, investigators fear, by weakening suspects’ incentive to co-operate.

Such a decision could provoke popular as well as prosecutorial fury. It flared last month, when the supreme court ruled that electoral courts rather than criminal ones should deal with campaign-related corruption. Mr Bolsonaro’s supporters erupted. The hashtag ASoldierACorporal trended again. The episode shows that Brazilians

are apt to back pseudo-cures for impunity rather than the surer but slower remedy of building institutions. “We are living in a populist Brazil, which is challenging for the rule of law,” says Ms Estellita.

Institution-builders are looking to Mr Moro. He says he accepted the job in Mr Bolsonaro’s cabinet to ensure that Lava Jato does not end up like Italy’s “clean hands” investigations of the 1990s, which implicated a lot of politicians without changing the system. Mr Moro brought to his first meeting with Mr Bolsonaro a 624-page document called “New Measures Against Corruption”, drawn up by FGV and Transparency International, a watchdog.

But politics may limit Mr Moro’s ambitions. His first anti-crime bill has some valuable ideas, including protection for whistleblowers and a longer statute of limitations for corruption. But it leaves out many useful anti-graft measures, such as ending *foro privilegiado*. Congressional resistance forced him to delay a proposal to criminalise illegal campaign donations.

Now the Bolsonaro family itself is facing scrutiny from investigators, which may cool its enthusiasm for graft-busting. In January another of the president’s sons, Flávio, a senator from Rio de Janeiro, tried to claim *foro privilegiado* to avoid an inquiry into suspicious transactions recorded in the bank account of his driver. If such scandals multiply, Lava Jato’s most vociferous allies could become its worst enemies. ■

US-Cuba relations**The new “Cuban Missile” crisis****This time it’s about baseball**

AROLDIS CHAPMAN, now a pitcher for the New York Yankees, has hurled the fastest fastball ever thrown in a major-league baseball game. It was a 105.1mph (169kph) scorcher in a game against the San Diego Padres in 2010. Fans call him the “Cuban Missile”. He is one of a score of Cuban-born players in the United States’ top league. Most, including Mr Chapman, defected from the communist island, often in harrowing circumstances. Yasiel Puig, a right-fielder for the Cincinnati Reds, was held hostage by gangsters at a motel in Mexico for months on one of his many attempts to escape Cuba.

Under an agreement between Major League Baseball (MLB) and the Cuban Baseball Federation reached in December, the exodus of Cuban talent to the United States was to have become less perilous for the players and more profitable for Cuba. MLB ►►

► teams would have paid the Cuban federation a fee worth 15-20% of the contract. Newly enriched players would board commercial jets to join their new clubs and pay income tax to the Cuban government.

On April 8th the Trump administration cancelled the deal. Far from keeping aspiring major-leaguers out of the clutches of people-smugglers, the agreement would encourage “human trafficking”, an American official claimed. More plausibly, the administration pointed out that money sent to Cuba would end up in the coffers of its repressive government.

The tag-out is the latest expression of Mr Trump’s determination to undo the rapprochement with Cuba that his predecessor, Barack Obama, had brought about. The baseball deal would not have been negotiated without it.

Mr Trump has maintained diplomatic relations. There is currently no US ambassador to Cuba, but that is true of many places under this president. However, he has made it harder for Americans to travel to the island. Last month the administration said it would allow Americans to sue Cubans holding property that had been

confiscated by Cuba’s government after the country’s revolution in 1959. This reversed a longstanding policy of suspending that right. Two American senators have introduced a bill to prevent courts from recognising trademarks owned by Cuban confiscators. It is nicknamed the “rum bill”, because it would affect a Cuban-French venture that sells Havana Club rum.

Like most other measures the United States has adopted to force out Cuba’s communist regime, the baseball ban is likely to prove futile. More than 350 ballplayers have defected from Cuba since 2014. ■

Bello Lenín’s new economic policy

Ecuador shows the difficulties of post-populist politics

TWO YEARS ago Lenín Moreno was narrowly elected as Ecuador’s president because he was the chosen successor of Rafael Correa, a left-wing populist who had governed the country for the previous decade during an oil boom. A social democrat, Mr Moreno has little by little reversed his predecessor’s policies. Whereas Mr Correa was an ally of Venezuela’s leftist dictator, Nicolás Maduro, Mr Moreno has backed Juan Guaidó, the opposition leader. He has opened trade talks with the United States. On April 11th British police arrested Julian Assange, the co-founder of WikiLeaks, at the Ecuadorean embassy in London after Mr Moreno withdrew asylum granted by Mr Correa in 2012.

Mr Correa once crowed that “because we are bad pupils of the IMF, things are going well in Ecuador.” Last month Mr Moreno seemed to complete the policy rupture when his government signed a \$4.2bn loan agreement with the IMF.

This path from populism to moderation is one that Mr Maduro should have followed in Venezuela, but didn’t. Yet in a democracy it is politically hard, as Mauricio Macri has found out in Argentina and Mr Moreno is finding, too. It has fallen to him to clean up the economic mess left by Mr Correa, and that means taking unpopular measures.

Mr Correa did at least invest some of his oil windfall in roads and hospitals. But he squandered much of it. Public spending rose from 20% of GDP to 40% in his years in power. Public-sector wages almost doubled, too. White elephants multiplied. In January auditors revealed that five big projects under Mr Correa involving Petroecuador, the state oil and gas firm, featured a staggering \$2.5bn of overbilling by contractors. As populists do when the going gets tough,

Mr Correa borrowed. Public debt tripled in five years and the government took to spending the central bank’s reserves.

Even as he talked about overcoming his country’s dependence on oil, Mr Correa intensified it. He abandoned a rainy-day fund into which he should have put some of the windfall. After its currency collapsed in 1999, Ecuador adopted the dollar. This means that when conditions change, it cannot respond by devaluing. Mr Correa’s expansionary policies pushed up wages and inflation, making Ecuador’s non-oil exporters uncompetitive. When the oil price fell sharply in 2014, Ecuador was hit hard. The economy entered recession and the fiscal deficit climbed to 8% of GDP in 2016.

The aim of the programme agreed with the IMF is to put the public finances on a sustainable basis and improve the economy’s competitiveness. It involves an ambitious fiscal adjustment, of five points of GDP over the next three years. This may be easier than it looks because so much of Mr Correa’s spending was wasteful. The government has already cut the deficit

significantly. The programme’s assumptions regarding growth and the oil price are conservative, according to Augusto de la Torre, a former head of Ecuador’s central bank.

The trickiest part will be raising taxes, such as VAT. This will require the assent of congress, where Mr Moreno must depend on conservative opposition parties for support. He may get it. Opposition leaders like Jaime Nebot, the mayor of Guayaquil, who wants to run for president in 2021, might prefer the economic pain to be out of the way before then.

Austerity is never easy. Further public-sector lay-offs, rises in regulated fuel prices and a planned reform to make labour contracts a bit more flexible may bring street protests. The government’s hopes of attracting foreign mining firms may be stymied by local protesters. Mr Moreno’s approval rating has fallen to 30%, from 69% in 2018. It makes it harder still that he is accused of having used undeclared consultancy fees when working for the UN in Geneva in 2013-16 to buy a flat in Spain. He denies wrongdoing. He accused Mr Correa of seeking to “destabilise” his government because of its investigations of past corruption.

The economic programme contains the germ of a different Ecuador. Instead of being an OPEC member in Venezuela’s shadow, it could combine the virtues of Peru and Panama. Like Peru it could be a diversified exporter of minerals and farm products (it already sells cut flowers and high-quality cocoa). And like Panama it could use the stability offered by the dollar to become a service hub. Getting there requires political leadership. Mr Moreno has moved his country halfway away from populism. Completing the journey may be harder.





Reforming Pakistan

Charm offensive

BALAKOT

The army and the civilian authorities claim to be turning over a new leaf

DOZENS OF BOYS sit in rows on the carpet, hunched over open books, reciting a passage over and over. As skullcaps bob rhythmically, childish voices evoke the cacophony of an aviary. Reading and reciting the Koran are all this school teaches, and may be all the education these boys get.

During last year's election campaign, Imran Khan, a former cricket star who is now prime minister, promised a *naya* or "new" Pakistan. The scene at this madrasa, perched on a pine-forested ridge 100km north of Islamabad, the capital, provides a hint of how tenacious the old Pakistan remains. There are more than 30,000 madrasas like this one, with perhaps 2.5m pupils enrolled. Many of the students are boarders whose poor, illiterate parents give them up for long periods to the religious charities that run such schools. They graduate with strong opinions, but few skills.

That will all change, says Mr Khan's team. Soon, insists his minister of education, the religious schools will have to

teach a broader range of subjects to gain government accreditation. Eventually, a single national curriculum will be imposed. The army, which is widely seen as the power behind the throne and has often appeared indulgent to religious extremism, supports education reform. Its own growing network of fee-paying schools is heavy on sciences and English.

As for madrasa graduates who turn to jihadist militancy, a senior commander is adamant. The time when Pakistan's "deep state" winked at favoured jihadist groups is over. "We will not allow these goons to run around and dictate our foreign policy," he

→ Also in this section

37 After Thailand's election

40 Social media in India's election

40 The Philippines and China

41 Banyan: Kazakhstan's new president

insists. Mr Khan is equally emphatic. What use does Pakistani intelligence have for such groups anymore, he asks. They were created to fight the Soviets in Afghanistan, and then lingered in the 1990s when they were encouraged to make life difficult for India in its part of Kashmir, which Pakistan claims. But from now on there will be no Kashmir exception, says Mr Khan, hinting that it may become harder for Pakistan-based militants to infiltrate Indian territory. "What we found is that Kashmiris are the ones who suffer," he says, alluding to harsh measures India has often taken to maintain security on its side of the border.

Pakistani politicians and soldiers have made such pledges before. India tends to dismiss them as insincere attempts to escape international condemnation after terrorist groups based in Pakistan mount attacks in India—as in February, when an outfit called Jaish-e-Muhammad killed 40 policemen in India's bit of Kashmir. India responded by sending jets to drop bombs deep inside Pakistani territory. Their target was the madrasa, which Indian officials said was a training centre for terrorists.

Pakistan retaliated largely symbolically, bombing only open spaces, and also defused tensions by quickly releasing a captured Indian pilot. Whether this emollient approach will last is unclear. But Pakistan's army seems desperate to put its best foot forward, claiming that a new era of civil- ▶

▶ military relations has dawned. Mr Khan declares that he enjoys total support, even as top generals straight-facedly refer to the prime minister as “boss” and profess their love of democracy and the rule of law.

Mr Khan, although undoubtedly not in charge of the generals, has won plaudits for trying to honour his loudest election promise, which was to crack down on corruption. Since he came into office last August the National Accountability Bureau, aptly known as NAB, has mounted a fierce offensive against allegedly crooked officials. No fewer than five former prime ministers are under investigation. The current heads of the two main political parties that challenge Mr Khan’s Pakistan Tehreek-e-Insaf (PTI), as well as close relatives, are also being questioned.

Yet the offensive has been so vigorous that some fear it has put a chill on investment, at a time Pakistan desperately needs it. It is also clear that, fairly or not, the biggest targets of the campaign happen to be Mr Khan’s political opponents. Similarly, the government has justified sudden, drastic cuts in spending on advertising as a needed economy. But given that such spending represented a big slice of revenue for many media firms, the move, which has cost as many as 3,000 jobs, appears to have disproportionately hurt outlets that have been unkind to Mr Khan. The army, despite its professed commitment to democracy, quells criticism in even more radical ways, ordering irksome channels off the air and abducting nettlesome bloggers.

Whether the media can air it or not, there will be more resentment when the government takes painful steps needed to mend the economy. The IMF, which looks set to impose tough conditions for a bailout—Pakistan’s 13th in 31 years—recently predicted that, without reforms, the economy will grow by just 2.5% a year over the next five years, barely outpacing the growth of the population. The rupee has lost more than 30% of its value since Mr Khan took office, inflation has soared and both the current-account and budget deficits are unsustainable. The prime minister puts on a brave face, noting that things were worse a few months ago, when foreign-exchange reserves were only enough to pay for two weeks of imports.

The improvement, alas, is solely owing to charity from China and the Gulf. The unkind may conclude that the kinder, gentler image Pakistan is trying to project is prompted by a sobering look at its finances. Pakistani officials clearly relished inviting diplomats and journalists to the hilltop madrasa that India claimed to have blitzed, to show that it remains intact. But India routinely humiliates Pakistan in a much more profound way: its economy is growing so fast that it expands by the size of Pakistan’s every two years. ■

After Thailand’s election

Still at it

If at first you don’t succeed, rig, rig some more

HE TURNED TO the crowd outside the police station, lifted his eyes to the heavens and raised three fingers. This salute, a sign of resistance to tyranny in “The Hunger Games”, a dystopian series of novels and films, is the kind of gesture that has made Thanathorn Juangroongruangkit, the leader of Future Forward, a political party he founded last year, wildly popular with young Thai voters. Inside the station, Mr Thanathorn was charged with sedition, assisting criminals and taking part in an illegal assembly.

The rap sheet relates to a protest in 2015 against the military junta which, in theory, is now on the verge of returning Thailand to civilian rule. The authorities say Mr Thanathorn helped to arrange the protest, which was illegal only under the extremely restrictive rules the junta placed on all political activity. If convicted he could face seven years in prison and a ban from politics. It is his second criminal case. Last year he was charged with computer crimes for critical comments about the junta he made in videos streamed on Facebook. He denies wrongdoing. Future Forward came third in last month’s election; the junta says the charges are “entirely unrelated to current political events”.

Thus continues the generals’ blundering campaign to keep control of the country. Since seizing power in a coup almost



May the odds be ever in your favour


five years ago, they have schemed to keep allies of Thaksin Shinawatra, a former prime minister ousted in a prior coup, out of power. They pushed through a new constitution which skewed the electoral system and gave them the power to appoint a third of the members of parliament. Intimidating and imprisoning critics like Mr Thanathorn was supposed to help smooth their allies’ path to power.

Since the vote on March 24th, however, things have not been going smoothly for the junta. Although the party set up to back it got more votes than any other, a coalition of seven parties opposed to the generals, including Future Forward, claimed to have won a majority in the lower house of parliament. That is not enough to prevent Prayuth Chan-ocha, the junta leader and prime minister, from keeping his job, since he can rely on the votes of the appointed upper house. But it is an embarrassment, and will make it hard for him to govern.

Hence a series of measures intended to undermine the democratic coalition. Even before polling day the Election Commission had helped the junta by excluding a party linked to Mr Thaksin. On the day itself inconsistent vote tallies and unexpected delays did little to inspire confidence. The commission’s latest act of meddling concerns the 150 seats in the lower house that are awarded under an obscure system of proportional representation. It seems, in effect, to be setting a lower threshold for tiny parties to win seats than bigger ones, fracturing parliament and imperilling the democratic front’s majority.

Little is clear, since the commission has not yet announced how it is distributing the seats. It has until May 9th to issue the final results. Those will change further if it disqualifies any winners of the 350 seats awarded to the candidate with the most votes in each constituency. Its rules on campaigning appeared designed to trip up politicians by, among other things, forbidding candidates from mentioning the royal family, severely limiting the use of social media and specifying how big certain placards could be. The commission has announced that it will investigate 66 victorious candidates, without specifying which ones. The junta, meanwhile, is trying to quell criticism of the commission, charging activists who have documented its bias with libel.

The continuing manipulation of the election could drag Thailand into turmoil. Political deadlock might even give the army an excuse to call off the restoration of democracy. Apirat Kongsompong, the army chief (Mr Prayuth surrendered the post a few months after the coup) is non-committal. Earlier this month he told journalists, “Staging a coup isn’t easy. It depends on the situation. Right now, it looks like things are going well.” ■

An aerial night view of a city, likely New York City, showing a dense grid of buildings and streets. The lights from the buildings and streets are reflected on the water in the foreground, creating a shimmering effect. The overall scene is dark, with the city lights providing the primary illumination.

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Social media in India's election

Phoney war

DELHI

The campaign in voters' pockets

"ARE YOU there? It's me, your sweetheart," a push notification coos at 7am. It comes from one of India's most popular smartphone apps, Helo, which allows users to chat and share content. But the flirtatious burble soon gives way to political anecdotes and jokes aimed at national leaders. Many question whether Rahul Gandhi, the leader of the opposition Congress party, is really Hindu, or make him look weak. The torrent of political content is only natural, given that voting began in the country's seven-phase election on April 11th. But who is behind it all, and what effect will it have on voters?

The campaign still features billboards and little lorries with loudspeakers plying through towns and villages. But this year's election is being waged most vigorously on voters' phones. At the previous general election, in 2014, India's 1.3bn citizens had barely 100m smartphones between them. Now they have more than 400m. Mobile data are cheap, with a gigabyte costing just \$0.26. India has become the biggest market for Facebook (more than 300m accounts), WhatsApp (more than 200m active users) and a host of other social-media apps. Many, such as Helo and SHAREit, a similar service, are owned by Chinese firms. Together, they were downloaded 950m times last year.

Many social circles and extended families form WhatsApp groups, to share gos-

sip, humour and everything else. The messaging app's encryption makes the source and content of the material circulated all but invisible to everyone but its intended targets. That can have grim consequences. After a rash of rumours about child-snatching led to several lynchings last year, WhatsApp made it harder to forward messages to big groups, to slow the spread of misinformation.

The app remains political parties' favoured means of disseminating propaganda, factual and otherwise. The Bharatiya Janata Party (BJP) recruited a "troll army" of volunteers in time for the last election, which it won in a landslide. In the five years since, its social-media soldiers have made life online miserable for its ideological enemies, mainly liberals, leftists, Muslims and feminists. Other parties have established their own IT cells, but with the BJP raking in 93% of all declared campaign donations, its technological superiority is only to be expected.

The BJP aims to have 150,000 cyber-soldiers in the state of Uttar Pradesh alone. And then there are the bots. Twitter is not especially influential in India, but is relatively easy to study since its content is visible to all. The Atlantic Council, an American think-tank, examined Twitter's traffic during a two-day spell in February, when Narendra Modi, the prime minister, toured the state of Tamil Nadu. Bots pushed both pro- and anti-Modi hashtags by the thousands per second, with the pro-Modi bots working three times harder.

At 8.40am, Helo bleeps again, unbidden. It wants to share the good news that "America has dealt a tight slap to India's pimp-journalists!" The pimps in question are news outlets that had reported that India had not downed a Pakistani F-16 last month, as the government had claimed. The accompanying post states—wrongly—that the American government has denied the reports. It comes from an outfit called Special Coverage News, which seems to specialise in machine-generated copy with a pro-Modi tilt.

There is no obvious way to prevent such claims from circulating. Indeed, the chief executive of a rival app to Helo acknowledges there is no law to prevent his company going further, and taking fees for surreptitious advertising or selling data about users' locations. (He would never do that, he hastens to add.) The Election Commission has been meeting social-media firms to try to find ways to ensure that they delete content that violates its code of conduct. But many of the apps concerned, such as WhatsApp, are impossible to police. And even those that can be invigilated can be overwhelmed by the volume of propaganda. When it comes to filtering out falsehoods, it seems, India's voters will be left to their own devices. ■

The South China Sea

When love breaks down

MANILA

The Philippines changes tack on its territorial claims—again

THE EXPRESSIVE president of the Philippines, Rodrigo Duterte, once gushed about his Chinese counterpart, "I just simply love Xi Jinping". But the infatuation has faded. Upset that Chinese vessels have been mobbing the main Philippine-occupied island in the South China Sea, Mr Duterte rapped at China to "lay off", and threatened an aggressive response. The same day, April 4th, American and Philippine forces practised storming a beach facing the South China Sea, in their biggest joint exercises since 2016, the year Mr Duterte announced a "separation" from America, his country's only formal military ally. The Philippine pivot from America to China, dreamt up by his government to ease confrontation with China over overlapping claims in the South China Sea, has become a pirouette.

For more than three months a flotilla of fishing vessels from China's maritime militia has been swarming around Philippine-occupied Thitu, an island in the Spratly archipelago which is home both to a small military base and 200-odd civilians (see map). The manoeuvres appear to be a response to Philippine construction work on the island, to repair the airstrip and build a beaching ramp for small craft.

Mr Duterte has responded with characteristic bluster. "I have soldiers there," he warned the Chinese. "If you make a move there, that's another story. I will tell my soldiers: 'Prepare for suicide missions.'" The Chinese foreign ministry responded, slightly more stodgily, by noting that the Philippines and China had only recently "reiterated our commitments to further co-▶▶



operation and talked about measures to enhance mutual trust”.

Since the 1990s China has been occupying reefs and rocks in the South China Sea claimed by the Philippines and other littoral countries, and building on them. In 2012, after the Philippine navy tried to arrest some Chinese fishermen near Scarborough Shoal, which both China and the Philippines claim, Chinese vessels have patrolled the surrounding waters and at times turned away Philippine fishermen. The Philippines asked an international tribunal to adjudicate. In 2016, just after Mr

Duterte became president, the tribunal ruled in the Philippines' favour, saying China's claim to the shoal was baseless.

Jingoism sells well in the Philippines (as it does in China), and in the run-up to his election Mr Duterte threatened to jump on a jet ski and defend the Philippines' claim to Scarborough Shoal single-handedly. But once in office, he opted instead to cosy up to China. He has kept quiet about the tribunal's ruling, which Chinese leaders had rejected. China, in turn, has pledged big investments in roads, ports and railways around the Philippines. And

although it still turns away some Philippine vessels, it has not built any military installations on Scarborough Shoal.

But mid-term elections are nearing. The opposition has been cudgelling Mr Duterte for selling out to China. Not much of the promised investment has materialised. And now the Chinese are testing boundaries around Thitu. Small wonder, then, that Mr Duterte, who is as mercurial as he is expressive, appears to have had a change of heart. But as even he acknowledges, the Philippines would lose a war with China, so it would be foolish to start one. ■

Banyan Silent spring

The authorities forget to tell the people of Kazakhstan who the next president will be

IN A COUNTRY which had all but abolished politics, how much excitement can the people of Kazakhstan take? A month ago the only ruler most of them had ever known, Nursultan Nazarbayev, who had run Kazakhstan since it was still part of something called the Soviet Union, suddenly announced he was stepping down. Declaring it was time to hand power to a younger generation, the 78-year-old abruptly resigned, putting in charge the 65-year-old head of the Senate, Kassym-Zhomart Tokayev, for the remainder of his term, which was due to last until next year. For a while, that seemed to be that. Yet on April 9th Mr Tokayev declared he was calling a snap presidential election, because “it is necessary to remove uncertainty.”

What uncertainty? Not only is Mr Nazarbayev clearly in charge of his own succession, he is also not going away. The loyal Mr Tokayev's message, starting with his inaugural speech, has been all about buffing Mr Nazarbayev's image as Kazakhstan's founding father. There is little question of launching new political and economic initiatives. Stability, as under Mr Nazarbayev, is all.

Meanwhile, control has not entirely or even largely shifted to Mr Tokayev. The “First President” and “Leader of the Nation” has in effect created a parallel power structure. Above all he remains, as head of the Security Council, in charge the army and the secret services. As Banyan discovered in the capital this week, ministers must still upend their schedules when the summons comes. With this retained power, Mr Nazarbayev controls the future. As for the past, the former steelworker has safeguarded himself and his immensely wealthy family through a constitution that shields them—and only them—from

asset seizures.

And whether in office or not, Mr Nazarbayev is not the sort to give voters a choice. All organised opposition has long been crushed, and repression of dissent has recently been redoubled. Mr Nazarbayev used to win presidential polls with over 95% of all votes (even a notional opponent once meekly voted for him). Everything seems set for a predictable result at the vote in June—bar one important detail.

In calling the election, Mr Tokayev neglected to say whether he was running. That has set off a parlour game of speculation. Some predict that the strongman's daughter, Dariga Nazarbayeva, who followed Mr Tokayev as chairman of the Senate, is the real political heir.

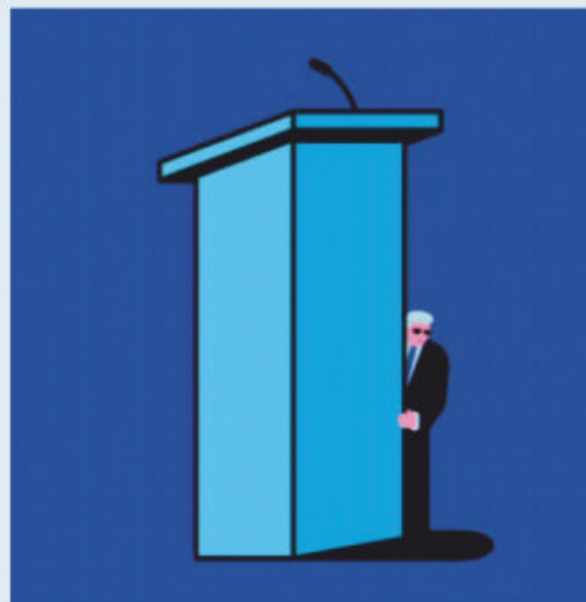
With power in Kazakhstan so personalised, it is only natural to wonder whether a relative would succeed Mr Nazarbayev. Yet the speculation is probably overwrought. If Ms Nazarbayeva was being groomed for power, why has her careful father given her so little executive experience to date? Moreover, her marriage to Rakhat Aliyev, a murderous, grasp-

ing former tax chief who died in an Austrian prison cell, surely counts against her in her father's eyes. It certainly does among ordinary citizens.

So Mr Tokayev it probably is. Pasty-faced and with tinted glasses, he is the apparatchik's apparatchik. It is a plus to those around Mr Nazarbayev that the soft-edged Mr Tokayev is tied to none of the oligarchs, among whom Mr Nazarbayev has carefully spread fortunes in return for support. And, as a skillful diplomat, Mr Tokayev will seek to nurture good relations with Russia and China, the crucial neighbours.

Yet his affirmation would resolve everything—and nothing. Among the elites, his authority flows entirely from Mr Nazarbayev's backing. All bets are off once the Leader of the Nation is gone. Knowing that, what is to stop Mr Tokayev charting his own course, so imperilling the delicate, perhaps unstable, balance among the powerful?

Bear in mind, too, a changing, less deferential, mood from below. Early every evening in Almaty, the commercial capital, the internet suddenly crawls at a snail's pace as an exiled (and deeply flawed) opponent of the regime, Mukhtar Ablyazov, takes to Facebook. In Almaty, too, police complain to dissidents that they are ordered to do the dirty work, such as arresting protesters, while their bosses are busy pocketing bribes. And in a society that knows how to hold its tongue, Mr Tokayev's order to rename Astana has been widely lambasted. The capital, a queasy brew of bombast and bling built by Mr Nazarbayev as a monument to himself, is now to be called Nur-Sultan. Not even North Korea's Kim dynasty, the carpers point out, ever went that far. Once deference has gone, fear will not last long.





→ Also in this section

43 Top of the hotpots

44 Chaguan: What sport means in China

Regional discrimination

Province and prejudice

BEIJING

Life is often hard for internal migrants in China, especially those from Henan and the north-east

THE SCHOOLCHILDREN started to vomit. Some fell unconscious and were whisked into hospital. Angry parents demanded an explanation. The food-poisoning scandal quickly lit up Chinese social media. A kindergarten teacher in the central province of Henan was detained—accused of adding sodium nitrite, which can be toxic in large doses, to the meal boxes of at least 23 pupils late last month.

Most comments online have focused on the evil of the act and have expressed sympathy for the parents. But a surprising number have noted the alleged perpetrator's home province. "I'm not surprised. Henan people would stoop to anything," says one commentator on Baidu Tieba, a social-networking site. "Apart from wicked, I can't think of another word to describe Henan people," chimes in someone with more than 50,000 followers on Weibo, China's version of Twitter, who identifies himself as a financial journalist.

Han Chinese are more than 90% of the population and their prejudice against ethnic minorities is well documented. In Tibet and Xinjiang it has reinforced the Commu-

nist Party's repressive tendencies. Discrimination by Han people against members of their own ethnic group is less well-known, but also common. Its consequences are not as appalling, but it makes life tough for tens of millions of people. Over the past three decades it has been fuelled by the migration of more than 200m rural dwellers into cities, which has turned urban areas into mosaics of people from hugely varied backgrounds.

Not all men are brothers

Urban Chinese are often contemptuous of these internal migrants, wherever they are from. But people from certain regions suffer higher than usual levels of negative stereotyping. Regional discrimination "is hard to see and touch" yet its impact is as painful as getting "a bloodied face", said an academic quoted by a north-eastern newspaper. Yang Yong, a migrant worker from Henan who lives in Beijing, has felt this. He says he was once refused a construction job in the capital because of his home province. "When I answered I'm from Henan the boss said goodbye," he recalls. Online

job advertisements for domestic maids in Beijing often specify that "applicants from Henan and the north-east need not apply." A recent trawl through a popular website for household work, 2x9d.com, found that a fifth of such jobs explicitly excluded applicants from these two regions.

People from Henan and the north-eastern provinces of Heilongjiang, Jilin and Liaoning are among those most commonly targeted, partly because those areas are such big sources of migrants. Henan is a farming province of about 100m people. The latest census, in 2010, showed that 7.5% of Henanese were living outside their home province, the second-highest proportion of any province. The highest was Anhui, on Henan's eastern border.

Even among better-educated urban residents, north-easterners are often stereotyped as quarrelsome and pugnacious, and Henanese are commonly regarded as thieves and cheats. In Chinese television comedy, actors playing criminals often speak with a Henan accent. The "Spring Festival Gala" of 2017, the most-watched show of the year, included such a sketch. Some regional stereotypes are harboured only by people from a particular area. In a book published in 2015, Agnieszka Joniak-Luthi of the University of Zurich says that Shanghai residents sometimes describe people from northern Jiangsu, a province that borders on the city, as "boorish" and "unkind". However, people from that region are not so despised in Beijing. Those from Anhui are also often scorned in ▶▶

▶ Shanghai, but not so much elsewhere.

Egregious examples of regional stereotyping occasionally cause outcry. Such was the case with the “Spring Festival Gala”. On-line complaints from Henanese prompted the director of the show to issue a half-hearted apology. Last year a hiring manager at iQiyi, an online-video firm, instructed a subordinate (in a leaked email) to “filter out” applicants from Henan. In 2017 Meituan, an internet conglomerate best known for its food-delivery app, admitted to excluding applicants from Henan and the north-east for an open position. Both companies later apologised. After each incident, many Henanese and some sympathisers elsewhere vowed to show their displeasure by deleting the mobile app of the firm in question.

In China’s state-controlled media, *diyuhai*, or “regional blackening”, is occasionally condemned. In an article about the iQiyi episode a newspaper controlled by the prosecutor-general’s office quoted a lawyer as saying that such discrimination had probably occurred in tens of thousands of companies but had never come to public attention. *Beijing News* last year quoted Bai Yansong, a Chinese television anchor, as saying that regional discrimination was getting worse. If allowed to continue, he said, the problem could turn into “a huge cause of social instability and division”.

Some lawyers say a legal loophole is partly to blame. China’s employment law prohibits discrimination on grounds of ethnicity, sex, religion, disability, social background and health. Regional origin, however, is not mentioned. Some legal scholars and legislators have called for a wider law that would prohibit all kinds of unfair discrimination, including the region-based sort. The government, however, does not appear enthusiastic. Some conservative officials may fear such a law would also have to specify gay rights (homosexuality was only removed from an official list of mental illnesses in 2001). They may also worry about a clash with the country’s *hukou* system, which allows officials to discriminate openly against migrants from other parts of China in government employment and the provision of public services.

It may be that the problem of job discrimination will be alleviated by a growing shortage of migrant workers. Employers will find it harder to act on their prejudices. “In order to discriminate by region, you must first be presented with an abundance of choice,” says Huang Leping, the head of a legal-aid centre in Beijing. But region-based prejudices will long remain. In an open-air dating market in Beijing, where parents gather to try to arrange matches for their adult children, some participants admit they would not welcome a Henanese in the family. ■

Regional cuisine

The gripes of broth

BEIJING

Two cities tussle over who makes the tastiest Sichuan hotpot

CHENGDU, THE capital of Sichuan province, has an ancient rivalry with Chongqing, a city to its south-east. Residents of Chongqing accuse their Chengdu cousins of being pompous. The people of Chongqing are hotheads, Chengdu dwellers shoot back. Both cities share a love of spice-laden Sichuan cuisine, which in recent decades has conquered Chinese palates. But they are at war over which has the best Sichuan hotpot—a type of DIY-cooking that involves boiling vegetables and slices of meat in a communal broth with chillies and numbing peppercorns.

A private museum in Chongqing, opened several years ago, makes the case for Chongqing-style hotpot. It describes how it developed from a method used to make cheap offcuts of meat taste delicious. But Chengdu is playing catch-up. In January the city sold a plot of land on condition that the developer build a hotpot museum on part of it. Such presumptuous behaviour will test the famous fiery tempers of Chongqing-ites. Chengdu may be the capital of Sichuan cuisine’s eponymous province, but Chongqing was part of Sichuan for long periods of history until 1997. It is now the capital of its own province-sized region, which is also called Chongqing.

The two cities are among many in China with their own styles of hotpot. The stories behind these dishes reveal how different regions like to see themselves. Chong-

qing’s is said to highlight the ingenuity of the proletariat. Other places describe their hotpots as the sophisticated food of emperors. Some say theirs have military origins: warriors on the march boiling scraps in their helmets. Hotpot contents are equally diverse. To keep warm in winter, Beijingers boil fatty lamb in a berry broth. Mint-suffused Yunnanese hotpot reflects the province’s links with South-East Asia.

But Sichuan-style broths are the most commonly savoured in China. In recent years their popularity has been booming. China has around 350,000 hotpot restaurants. About 40,000 of them are said to be in the Chongqing region alone. Hotpot restaurants in China are more profitable than other kinds, according to iiMedia, a consultancy. Haidilao, a well-known Sichuan-based hotpot chain, raised nearly \$1bn when it was listed on the Hong Kong exchange in September. The company is taking its hotpot global. It expanded into Canada in December. Branches are set to open in London later this year.

The more adventurous tastes of younger Chinese are fuelling demand. One-third of customers at hotpot restaurants in China are aged between 25 and 30, iiMedia says. They often have little time to cook at home and are unburdened by child-care duties. They like the social aspects of sharing hotpots. Round-the-clock restaurants are sprouting up to allow leisurely feasting.

While younger Chinese are increasingly health-conscious, they seem to brush off regular hotpot-hygiene scandals. A viral video of a pregnant woman fishing a rat from her broth caused a cooling in the shares of Xiabuxiabu, a chain restaurant named after a Japanese style of hotpot, but they heated up again a few days later. Haidilao even won plaudits when it admitted that rats had been found in some kitchens and vowed to clean up its act. News of other businesses reusing weeks-old oil in the broth is greeted with a shrug. The grubbiest hotpot joints are usually the best, young people often say with a grin.

Not all Chinese warm to hotpot. Some older Sichuanese disown it altogether. They complain that it is causing an escalation of chilli-use in other dishes that drowns out subtle flavours. Chua Lam, a celebrity food critic based in Hong Kong, caused a stir in December when he wished hotpot would disappear from the face of the Earth. He dismissed it as “the most uncultured form of cooking”, requiring no real culinary knowledge.

But Chengdu’s plans for a museum suggest that Sichuan hotpot is not only growing in popularity, but is also becoming iconic. If it can set the West on fire, officials may hope it will become a delicious new source of Chinese soft power. There will be plenty of glory for both Chengdu and Chongqing to bask in if that happens. ■



Spice up your life

Chaguan | Curling power

China is new to the ice sport. Its plans to excel at it say much about the country's rise



IN THE PAST athletes in China had a particular image problem, reports Lei Yi, a sports official. Almost universally, she regrets to say, people thought that sports were for strong, fit people who “don’t have a brain”. Happily, views have changed. Specifically, says Ms Lei, sports are seen as a way to teach young Chinese useful lessons about working hard, believing in themselves and in their team, and not giving up easily.

If Ms Lei’s case for sports sounds a little light on fun and heavy on improving virtues, she has an excuse. She is a team leader from China’s General Administration of Sport, and has less than four years to prepare a dozen perfectly trained athletes for the Beijing Winter Olympics in 2022. Her domain is curling, a team game played on ice that was almost unknown in China 20 years ago. Almost five centuries after matches were first recorded on the frozen ponds of Scotland and the Low Countries, curling has been declared a sport that plays to China’s strengths.

Curling is a bit like lawn bowls, except played on ice with a lump of polished granite that can, as it glides, have its trajectory altered by team-mates madly scrubbing the ice in its path. The stone’s squat shape gives the sport its Chinese name of *binghu*, or “ice kettle”. The central authorities and local governments are building curling rinks from Tianjin on the coast to Xining on the Tibetan plateau. They eventually hope to build them in every province, says Ms Lei. During the Winter Olympics in 2022 a swimming arena from the Beijing games of 2008, the Water Cube, will host curling matches as the Ice Cube.

Kate Caithness, president of the World Curling Federation, the governing body based in Scotland, has become a frequent visitor to China. She found officials drawn to curling’s reputation as “chess on ice”—a brainy sport best mastered by years of dogged practice. Ms Caithness watched as Beijing Sports University opened a college of curling last year, and as it promptly began scouring the student population for youngsters with the right mix of stamina and mental toughness to play the sport.

The aim is to meet two distinct goals set by Xi Jinping, the country’s leader. At the elite level, China has a reasonable chance of winning Olympic medals in curling, says Ms Caithness. That would fulfil Mr Xi’s quest for grand sporting achievements, of a sort that

would bring closer his “Chinese dream” of prosperity and national pride. At the amateur level, the game is accessible enough to help meet another of Mr Xi’s stated targets, namely to turn at least 300m Chinese into winter-sports enthusiasts.

Just in case the squad that Ms Lei oversees was not feeling enough pressure, in February Mr Xi dropped in on their camp at the National Winter Sports Training Centre. “Strong sports make the country strong and a strong country makes sports strong,” he declared. The squad could be a metaphor for a rising China. It is part of a national programme for high performance in sports. The team comprises 60 curlers, ranging in age from 18 to 35. They live in a boarding house and practise, work out and take lessons in patriotism for six days a week. Their base is a sleek new complex of glass, concrete and painted metal beams in the heart of the former Shougang steelworks, an old state-owned factory that closed in 2011. Ice-skating and ice-hockey teams have their own camps nearby. To either side loom the rusting hulks of disused blast furnaces, wrapped in bulbous, elephantine pipework.

Asked about curling’s appeal in China, Ms Lei notes that it is one of very few team sports in the Winter Olympics. That matters, because in Chinese culture “we always advocate that you need to put your country’s interest over your personal interest, and your team’s interest over your personal interest,” she says. She describes how, in curling, a skilful player may have to bow to the team’s interest and take a boringly safe shot, rather than “have a showtime” and try for personal glory. She describes an almost military chain of command, with the “skip” or captain at the top.

If some sports reward individual creativity, even a touch of wildness, others favour discipline. Ms Lei says there is creativity in curling, but concedes that “discipline is more important”. Patience, too, is needed to endure three-hour games, and tournaments that could involve 33 hours on the ice, or “torture”, as Ms Lei cheerfully calls it.

The junior game is a bit more joyful, as a visit to the Xuhui District Youth Sports School in Shanghai shows. In China winter sports are associated with the country’s bluff, hard-living north-east. But affluent Shanghai, as if eager to shed its business-obsessed, slightly effete image, has invested in three curling rinks since 2012. In all 1,500 students have signed up. It helps that curling is less dangerous than ice hockey and speed skating, says Zhou Wenjia, general secretary of the Shanghai Curling Association. “Shanghai parents are quite protective of their kids,” she explains. Her association assures anxious parents that sports will develop their children’s willpower, as well as their physical fitness. “I don’t know if it’s authoritative, but I have heard that Chinese and Jewish people have the highest IQs,” adds Ms Zhou, venturing that this gives Chinese players “quite the advantage”.

Taking part is good, winning even better

On this spring evening dozens of teenagers wait to go on the ice. With national youth games coming up, they are practising six nights a week with their professional coach, Kim Ji-sun, who was skip of the South Korean women’s team at the Sochi Olympics in 2014. Tang Qinsheng, waiting for his grandson in the rink’s viewing gallery, credits team sports with making the 13-year-old more outgoing, as well as more organised about doing his homework between practices. He approves of curling, calling it “a refined sport”.

To date Canada is the world’s curling superpower, with over a million regular players. China has a long way to go but—as in other areas—its ambitions already reveal a lot. ■

The
Economist

A class apart

SPECIAL REPORT:

Private education

- April 13th 2019
- 3 A class apart
- 5 Filling the gaps
- 6 Online language lessons
- 7 Variety
- 8 Religious education
- 9 Public-private partnerships
- 11 Costs and benefits



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A class apart

Private education is booming in new markets and new forms, says Emma Duncan

HOUSED in a jumble of ancient buildings in the shadow of Westminster Abbey, Westminster School has been educating boys since it was founded in 1560 by Queen Elizabeth I to provide lessons for 40 poor scholars. It has evolved since then—its 750 pupils now include some girls, and with fees of £39,252 a year for boarders and £27,174 for day pupils, poor scholars are thin on the ground—but for nearly half a millennium, these historical premises defined its geographical limits.

That is about to change. A ground-breaking ceremony on April 9th marked the start of the construction of Westminster Chengdu, the first stage in a venture with a local partner, Hong Kong Melodious Education Technology Group. The school is due to open in September 2020 and will have 2,500 pupils from the ages of 3 to 18. It will be followed by a further five establishments of a similar size in other Chinese cities over the next ten years, by the end of which Westminster will be educating 20 times as many children in China as in the heart of London.

A slice of the Chinese operation's income will flow back to the mother ship, enabling Westminster to increase the share of pupils on bursaries in Britain from around 5% to 20%. "It will give us a revenue stream that will allow us to go back to our roots," says Rodney Harris, deputy headmaster in London, who is moving to Chengdu in September to take the top job there. By extending its model to China, the school thus hopes to mitigate the inequality to which it contributes in Britain.

Education used to be provided by entrepreneurs and religious organisations, but starting in Prussia in the 18th century, governments began to take over. In more recent years the state has dominated education in the rich world, with the private sector restricted to the elite and the pious. In the developing world, too, new states created from crumbling empires were keen to provide (and control) education, both to respond to their people's ambitions and to shape the minds of the next generation.

But now the private sector is enjoying a resurgence. Enrolment in private schools has risen globally over the past 15 years, from 10-17% at primary level and from 19-27% at secondary level; the increases are happening not so much in the rich world as in low- and middle-income countries. People are pouring money into schooling, tuition and higher education (see chart on next page).

Four factors are driving the increase. First, incomes are rising, especially among the better-off. Since birth rates are falling, the amount of money available for each child is rising even faster than incomes. In China the one-child policy has meant that in many families six people (four grandparents and two parents) are prepared to invest in the education of a single child.

Second, thanks to the relative decline and increasing capital intensity of manufacturing, job opportunities for the less well-educated are shrinking. Even good factory jobs require qualifications. The returns to education have risen despite the rise in the supply of well-educated people. In developing countries, which have few- ▶

er of them, the returns are higher than in the rich world, making it even more important for young people there to go to school.

Third, the output of education also provides some of the input: the more children that are educated, the more teachers will be available to bring on the next lot. This is especially true in countries in which job opportunities for women are limited: lots of educated women translate into a ready supply of cheap teachers.

Fourth, technology is creating a demand for new skills which the private sector seems better at providing. It is also opening up new markets as the internet enables people to get educated in different ways and at different times in their lives.

The dividing line between private and public is often unclear—many countries have government schools that are partly privately financed, for instance, and private schools that are publicly financed—and the size and growth of the private sector varies from country to country. Broadly, the more developed the country, the smaller the private sector's role tends to be. In Haiti about 80% of primary-school pupils are being educated privately; in Germany, just 5%. In mainland Europe, the quality of state education is generally high, so the private sector tends to play a smallish role—though there are wrinkles. For example, a history of religious divisions in the Netherlands has meant that three-quarters of pupils go to private schools, the great majority of them publicly financed; in Sweden, 10% do. In America and Britain the quality of government schools is variable, which explains sizeable elite private sectors and a growing number of privately managed, publicly funded schools—"charters" in America, "academies" in Britain. In the tertiary sector, private institutions have a big role in America, both at the top and the bottom of the market; in Britain, the tertiary sector is now largely privately financed.

In Latin America the Catholic church's big role in schooling, the low quality of state provision and the rapid growth in demand for tertiary education have all contributed to a big role for the private sector. In much of South Asia and Africa, poverty, migration and population growth make it hard for governments to provide schooling in many cities, so the private sector is big, and growing fast. The elites have already left the public systems, and many middle-class and poorer people are following.

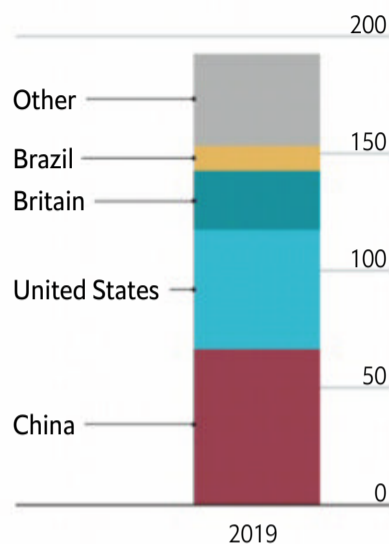
Like Europe, East Asia has generous and mostly good state provision, but unlike Europe it also has a fast-growing private sector. Vietnam has both the best state-school system in a low-income country and probably the world's fastest-growing private-school sector. The market capitalisation of Chinese education companies, bigger than those of any other country, suggests that investors see it as a golden opportunity.

The Chinese state is clamping down on the private sector's role between the ages of 6 and 16, but there is still room for growth.

The business of learning

Listed education companies

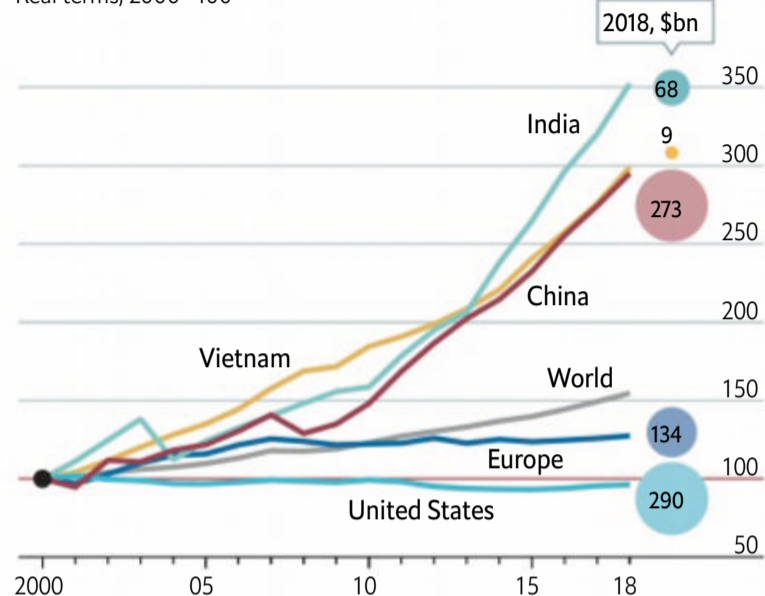
Market capitalisation
March 1st 2019, \$bn



Sources: HolonIQ; Oxford Economics

Consumer spending on education

Real terms, 2000=100



If the child goes to a private nursery and a private university, and receives two hours of private tuition on each school day and eight at the weekends, with a summer maths camp thrown in—a fairly standard routine for a child of Chinese professionals—he or she will spend as much time in the private as in the state sector.

All of this makes education attractive to investors, says Ashwin Assomull of L.E.K. Consulting. Demand is growing faster than incomes and holds up well in economic downturns. Technology is creating new markets. Schooling is fragmented, but there are large and growing chains, such as GEMS Education, a Dubai-based company with 47 schools mostly in the Middle East; Cognita, a British company with 73 schools in eight countries; and Beaconhouse School Systems, a Pakistani company with 200 schools in seven countries.

The main downside is the sector's political sensitivity. Private investment in education makes governments uncomfortable because it pits a private good against a social one. Governments, like parents, want children to learn, but they also want to maximise social mobility and minimise inequality, whereas parents simply want to ensure that their children do better than anyone else's.

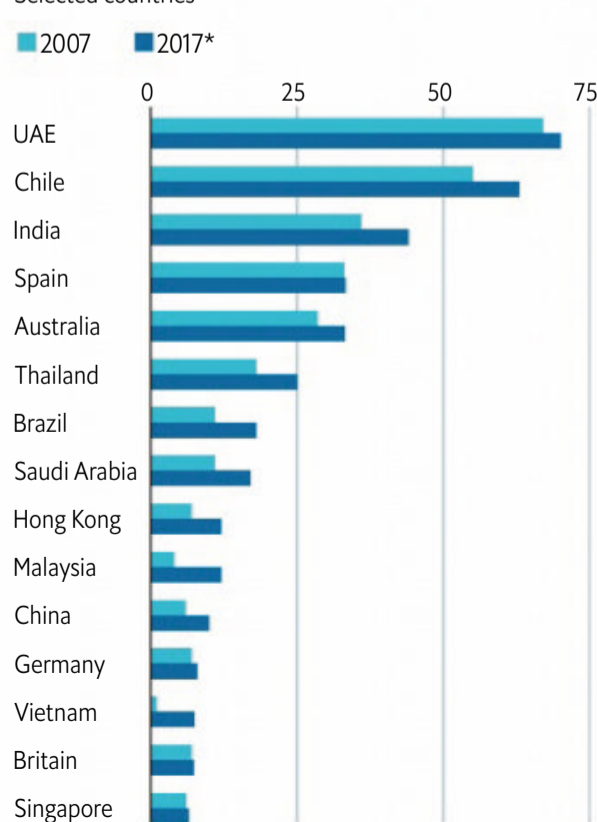
These objectives inevitably conflict, so governments regulate and restrict the private sector, controlling what is taught, banning profits, outlawing selection, cutting fees and generally making the business unattractive to investors. Yet they need it, too, so they work with it, channelling its skills, inventiveness and capital and pouring taxpayers' money into it.

This special report will consider what the private sector is providing that the state is not, and look at the costs and benefits of its growth. It will examine how well it is performing, and conclude by asking how the private sector and the state can work together to best effect. ■

Private preferences

Enrolment in private schools, % of total

Selected countries



Sources: Government data; L.E.K. Consulting

*Estimate, based on latest available data

Filling the gaps

You demand, we supply

The private sector steps in where the state leaves off

DOGS AND emaciated cows pick their way through the rubbish dump that marks the visitor's arrival in Sangam Vihar, an "unauthorised colony" amidst the sprawl of south Delhi. It sprang up without planning permission and now houses 1.5m people. The government offers very little in the way of services. Water arrives in trucks run by gangs whose members have a habit of murdering each other. Education is provided by four government schools and around 100 private ones, according to Sushil Dhankar, who runs Hari Vidya Bhawan School.

At Mr Dhankar's smart, modern establishment in an alley off the grubby main street, pupils in spotless cream uniforms welcome the visitor with floral garlands. The school was set up by Mr Dhankar's father, who begged his son to return from a job in accountancy in Australia to help run it. Mr Dhankar's sister runs the primary school and his wife the secondary one. It is a flourishing enterprise with 2,000 students from 4 to 18 and an average result in the Central Board of Secondary Education exam of 86%, slightly above the national average. Fees range from 850 rupees (\$12) a month for the little ones to 1,800 rupees for the oldest. By Indian standards, this is not cheap. But local parents, mostly labourers or drivers earning around 500 rupees a day, are prepared to make sacrifices, says Mr Dhankar: "They don't want their children to do what they are doing."

In most of the world the state provides most of the population with primary and secondary education. But in some countries it

struggles to keep up with population growth and movement, and the countries whose populations are growing and moving fastest tend to be poorer ones with less capable governments.

Most low-cost private schools are mom-and-pop outfits. A few chains are emerging, some of which are for profit, such as Bridge International Academies, whose investors include Bill Gates of Microsoft and Mark Zuckerberg of Facebook. It has produced good results but has become controversial, partly because the idea of foreigners making profits out of providing education for poor people is politically sensitive. The non-profit model is an easier sell. Bangladesh and Pakistan, both weak states with a huge need for education, have produced two impressive non-profit operators, Brac (which educates 1m children) and The Citizen's Foundation (TCF, with 220,000) respectively. A few Western-run non-profit chains, such as Peas, have produced excellent results in Africa.

Getting in early

The private sector is also filling gaps in provision for children's early years. Enrolment in pre-school education varies widely, even in rich countries. Most countries mandate formal education only from age five or six onwards, but attitudes are changing as the early years are increasingly seen as the most crucial period in the development of the human brain. Across the OECD, preschool attendance among under-threes rose from 18% to 33% between 2005 and 2016, and among three- to five-year-olds from 76% to 86%. Last year France announced it would make enrolment from age three compulsory. But governments are not keen to take on extra financial burdens, so in most places the extra demand is being met largely by the private sector.

Wealthy people will spend heavily to buy their children an early advantage, as demonstrated by Cognita's new "early-learning village" in Singapore, which will eventually cater for 2,100 children aged 18 months to six years. Facilities include 114 outside spaces, one for each classroom, and nine playdecks equipped with pirate ships, tricycle tracks and suchlike. The classrooms are arranged in ▶▶



Cognita's privileged few

▶ groups of four, each with a central space to create a sense of community. “The building develops with the children,” says Adam Paterson, one of the centre’s two headteachers. “They move through it as they grow.” Fees range from S\$14,832 (\$8,393) to S\$35,610 a year.

But despite strong demand, the early-years business is not all plain sailing for companies. Some, such as Australia’s G8, have struggled in an oversupplied market. Barriers to entry are low, and firms need to be careful when looking after people’s most valued assets; the stock price of RYB, a big Chinese operator, crashed after staff at its nurseries were found to be punishing children by pricking them with needles and feeding them pills to make them sleep.

Demand for education outstrips public-sector supply not just in the early years but at core school age as well. The state may provide it five days a week, but many parents cannot get enough of it, so the private sector supplements it in the evenings, at the weekends and in the holidays. A survey by Ipsos MORI for the Sutton

It is not just the elite that buys tuition

Trust showed that the share of British children who had had private tuition rose from 18% in 2005 to 30% in 2017. And British children get off relatively lightly, with an average of ten hours’ extra tuition a week, compared with 12 in China, 15 in South Korea and 16 in Bulgaria.

It is not just the elite that buys tuition. The Ipsos MORI survey showed that although richer parents were somewhat more likely to resort to it than poorer ones, parents from ethnic minorities, both black and Asian, were much more likely to use it than white ones. Shehda Asif, a maid with three children at the Royal Public School, a small establishment on the outskirts of Lahore, spends 1,700 rupees (\$12) a month on the fees and a further 1,000 rupees on after-school tuition. Almost all of her income goes on education; for the rest of its outgoings the family relies on her husband, a labourer.

In much of the world, private tuition is a small-scale business, often using casual labour which itself has become available because many more people are being educated. At Heaven Kids School in Township, a lower-middle-class area

of Lahore, most of the young men in a group of tutors are themselves students. Tutoring one child in one subject for Pakistan’s matriculation exam for one hour six days a week can cost up to 10,000 rupees a month; for the International Baccalaureate, twice as much. Tutors tend to check out the parents’ house before setting a price. The system suits the tutors, but some disapprove. “There’s too much competition among parents,” says Mohammed Ashfaq, who is studying for a master’s degree.

But some large companies are involved, too. Two of the world’s biggest listed education companies, New Oriental and TAL Education, are Chinese providers of tuition and test-preparation. Technology is driving the expansion of the business, for instance by allowing the children of the well-off in emerging markets to be tutored by hard-up young people in the rich world (see box). India’s biggest ed-tech company, Byju’s, sells test-prep apps, charging a subscription of up to 37,000 rupees a month; it has 2.2m paid subscribers, who spend an average of 64 minutes each day on the app. It is cheaper than hiring an American over the internet, but still only for the well-off.

The private sector has long played an important part in the tertiary-education market, perhaps because the benefits of a degree go more clearly to the individual than to society as a whole. In rich countries, policy has also pushed in that direction. The top ranks of America’s higher-education system—financed by user fees and student loans—are dominated by non-profit private institutions, the middle by public institutions and the bottom by the for-profit private sector. (The last part is currently the only large chunk of the world’s private-education market that is shrinking; poor results at for-profit colleges prompted the Obama administration to restrict access to government loans for students.) Britain and Australia, too, have moved towards a ▶▶

Distance no object

The employees of VIPKid are doing their bit for America’s trade deficit with China

AMANDA SPIKES, aged 27, sits in her tiny bedroom in Brooklyn, New York, talking through her headset to eight-year-old Joey in Hebei province, northern China. On the wall behind her are felt hangings that read “Team Amanda” and “VIPKid”, the company for which she works. On the screen are images of her, Joey and some teaching materials.

“Happy New Year, Joey!” says Ms Spikes, enunciating very clearly. Then she sings him a little song: “I like food, I like fruit, fruit tastes good in the morning,” and claps when Joey repeats it. This lesson is going better than the last one, when Joey messed up the technology by licking the iPad screen.

VIPKid is the biggest of a number of companies using technology to provide teachers in the West for Asian children who want to learn English. Stephenie Lee, a senior product lead, describes the company as “the Uber of education...We provide the limos and the trained chauffeurs.” Its 60,000 teachers are mostly people with classroom experience who prefer the freelance life. Amanda has 10-12 regular customers and teaches five or six 25-minute lessons a day, for which she gets paid \$10.50 a time.

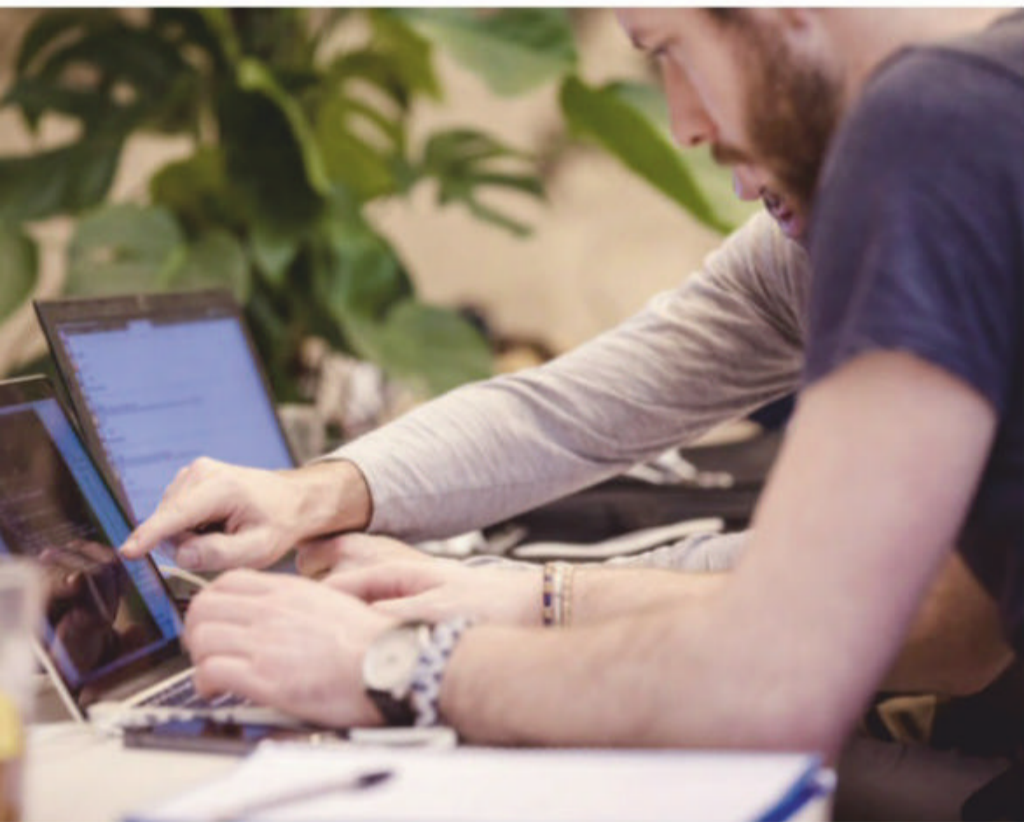
Since it was founded in 2013, VIPKid has won half a million customers. It provides 180,000 lessons a day. At 140 yuan (\$21) each (less for bulk purchases), these add up to revenues of over \$1bn, which cover, aside from the teachers’ salaries, the costs of the platform and customer acquisition, although Ms Lee

says they get most of their clients through word of mouth. VIPKid provides a curriculum and materials to help teachers “make the best of that little rectangle”, she explains. That includes digital costumes in which teachers dress up to amuse their pupils.

Online tutoring works better than older people might expect. Nine-year-old Zhang Yutong in Tianjin wasn’t making much progress in her 30-strong class at school; now, says her mother, “I feel she is truly happy when she talks to VIPKid’s tutors. She is quite willing to express herself.” Yutong’s teacher, Jessica, asks her to propose an alternative ending to the gentle tale of Miss Snowball’s cat. “The cat could die,” says Yutong cheerfully, making them both laugh.

Ms Spikes says she has a better connection with her online pupils than she did when teaching an actual classroom-full of them in South Korea: “I feel really invested in these little kids.” Her youngest pupil, astonishingly, is three. “Getting her to make the right sounds is a really big thing,” she says. But she admits that the parents face a bigger challenge, just getting the child to sit still.

For her, the flexibility the job offers is crucial. “I love to travel. I’ve done it from Korea, Mexico, Spain, Canada. I couldn’t do the travel without the job.” She says the company also attracts disabled or retired people who would not be able or willing to go into a classroom—but who, thanks to technology, have joined a new class of American exporters to China.



Booting up people

► system of user fees. In developing countries the trend towards privatisation in higher education is even more pronounced. In Latin America, especially, governments have left the tertiary sector largely to private companies: three-quarters of Brazilian students, for instance, attend private universities.

Technological change is driving the adult-education business because it is generating demand for new skills. It has created the bootcamp business, in which recent graduates or adults already in the workplace take short and brutally intense courses that boost their market value by training them in various aspects of tech. “I’ve never seen people work so hard,” says Natasha Jahchan, a former structural engineer who took a ten-week course at General Assembly, the star of the sector, in UX (user experience), costing \$15,000. She left a job that bored her and got a better-paid one she enjoyed: “I spent my savings but I made it back in three months.” Since GA was founded in 2011 it has trained more than 50,000 people, and revenues are growing at 30% a year. Last year it was bought by Adecco, a recruitment company, for \$412m.

Tech has also increased the supply of adult education, since students no longer have to sit in a classroom. Online education started in the for-profit private sector, but has moved into the non-profit and public sectors. Ann Cleland, who had been working as an accountant on the post-hurricane disaster-recovery programme in Puerto Rico, signed up for the Harvard Business School’s business analytics programme, an online nine-month course which teaches strategy in the age of big data, blockchain, machine learning and AI. At \$50,000 it’s not cheap, but to Ms Cleland it was worth every cent. “I cried at graduation and hugged my professors and told them it had changed my life.”

About a third of graduate education is now online, according to Richard Garrett of Eduventures, a consultancy. In this bit of the market, private and public sectors are melding: public universities such as Arizona State University and private non-profits such as the University of Southern New Hampshire offer online courses designed, supplied and marketed by firms such as Pearson and 2U which commonly take around two-thirds of the revenue.

But the private sector does not just supply education at times and in places where the public sector is not active. It also offers different kinds of education altogether. ■

Variety

Just for you

Even in China, one-size education does not fit all

FOUNDED BY A 76th-generation descendant of the sage, the Confucius International School at Anren, on the outskirts of Chengdu, mixes Chinese with Western tradition. “We offer a relatively liberal education here,” says Jill Cowie, the Scottish principal. In the art block, one class discusses a Dürer etching while another designs jewellery for superheroes. Boys dressed in tailcoats and girls in kilts share the grounds with peacocks, pheasants and white rabbits. The Harry Potteresque atmosphere sits oddly with the fact that the school is now owned by a firm backed by a state-owned-enterprise.

Around the world, government schools tend to be standardised, for a range of reasons. Uniformity is cheaper than variety; governments want to inculcate a shared understanding of history and citizenship; and equality of opportunity mandates equal treatment for all. But many parents want something different for their children. In some countries that means a more religious education (see box, next page). In China, though, three different varieties of private education are flourishing for other reasons.

Most of the private schools that now educate 10% of Chinese 6- to 18-year-olds are *gaokao* mills, which drill their students for the all-important end-of-school exam. But 10% of those private establishments are bilingual schools which prepare students for a university education abroad. According to data from EY-Parthenon, a consultancy, this is the fastest-growing part of the market.

A foreign university education is increasingly standard for the Chinese elite. More than 600,000 Chinese youngsters are currently studying abroad. It is a large investment—parents would not get much change from \$250,000 for a degree from a decent American university—but it offers both good economic prospects and social prestige. “It’s all about anxious new money,” says Jiang Xueqin, an educational consultant. “Everybody here knows that you can only get rich by stealing money. You’re legitimising your wealth by proving how clever your family is. The degrees from Oxford or Yale—they’re reputation-laundering.”

For the love of learning

But bilingual schools also offer an escape route from the rigour and boredom of the Chinese public system. Emily Yu, a parent at YK Pao, Shanghai’s most prestigious bilingual school, describes both herself and her husband as “survivors of the Chinese system. It was quite a painful process.” Li Tong, principal of a government school in Chengdu, moved her son from the public to the private sector. “It was difficult for him in the Chinese system because he has a strong personality, with strong likes and dislikes.”

A Western style of education may offer broader benefits, too. Shelley Chen, the principal of Vanke Bilingual School in Shanghai, where pictures of Abraham Lincoln, Amelia Earhart and Martin Luther King decorate the walls, explains that many of her parents—often executives in multinational firms—think “they weren’t well prepared by their schools. They feel there’s a glass ceiling. When they compare themselves with colleagues from other parts of the world, even India, they think they’re not so good at critical thinking.” Vanke, she says, focuses on the 5cs: “Caring, communicative, confident, cordial...let me check [which she does on her computer]...creative.” ►

▶ Like many of China's private-school providers, Vanke is mainly in the property business. Elite schools help attract the rich to up-market developments, which explains why some of the local partners of the British brands that are piling into China are property companies. There may now be too many of them. Wang Shu, founder and president of Cogdel, a consultancy in Chengdu, reckons that investors must look to third-tier cities because first- and second-tier cities are oversupplied: Chengdu alone has 37 bilingual schools. And Westminster is about to arrive.

Meet the makers

On a table at Baiyun Technician College in Guangdong sit 3D-printed models of Mao Zedong, Sun Yat-sen and Vladimir Putin, rubbing shoulders with cartoon characters. Elsewhere on the campus, students train to build and operate drones, to become baristas, to make clothes, and much more. The work being done here illustrates a second variety of education that is flourishing in China's private sector.

Chinese state-provided higher education is, in the Confucian tradition, academic rather than practical. It does not do much for young people with more vocational interests. That is where China Education, Baiyun Technician College's owner, has found a niche.

China Education focuses its investments on markets where demand is strong. Guangdong province, home of Baiyun Technician College and its sister institution, Baiyun University (with 27,000 students), fits the bill. Although Guangdong is rich, only 42% of school-leavers there go on to higher education, compared with 48% nationwide. China's fast-developing high-speed and metro rail networks are another focus for the company: it owns Xian Railway College and Zhengzhou City Rail Transit School.

Liu Jianfeng, the party general secretary at Baiyun University, who has an ideological as well as a management role, takes a robustly un-ideological view of the institution's job. "Public universities are more focused on following the government plan and ideology," he says. "We are training up human resources to meet the demand from the marketplace." To make the point, Baiyun Technician College's exterior walls are painted with the logos of many of the 3,000 corporate partnerships the college has cultivated for the benefit of its 13,000 students, including with Bosch, Nestlé, Nissan, Grand Hyatt and Hilton. In order to get a job at Nissan, students train for three years; for the last four or five months of the course they are taught by Nissan employees.

Students at Baiyun University, who take degrees in vocationally oriented subjects such as engineering and accountancy, pay ▶▶

Out of this world

Religious education is mostly provided privately

AFTER HIS victory in the battle of Badr in 624, the Prophet released the prisoners he had taken, on condition that they teach others to read. That, says Muhammed Asghar Saqib, principal of the Jamia Ghousia Rizvia madrassa attached to the mosque in Lahore's main market, is a measure of Islam's respect for education. But, he goes on, "there is a misconception in our society about the purpose of education. Education is not for getting rich. Education is for becoming a better person."

In some countries, such as America, religion is banned from schools. A growing appetite for religious education is one of the drivers of the growth of the private sector: in America, enrolment in religious schools among 4- to 14-year-olds increased from 4m in 2011-12 to 4.4m in 2015-16. And even where government schools teach religion, as in Pakistan, parents sometimes want more of it than is on offer in the state sector.

More than 2m Pakistani children attend madrassas, which troubles some of their compatriots for a couple of reasons. There are concerns that these schools serve as breeding-grounds for terrorism. Some are said to be financed by fundamentalists in the Gulf, but Mr Saqib says that his school, which is free to pupils, is paid for by the rents of 40 neighbouring shops which the mosque

owns. There are also reasons to doubt the educational value of spending hours memorising the Koran. Mr Saqib is careful to emphasise that he believes in the value of both religious education—which the 300 boys at the school receive in the morning—and "contemporary" education, which they get in the afternoon.

Aside from some dusty computers in one room, there is little evidence of the contemporary. The classrooms have no desks or chairs, just tilted stands, a few inches high, on which squatting boys place their books. The dormitories have

no beds, only bedding rolls laid out close together. In the kitchen a stack of firewood sits ready for cooking dinner. "Gas problem," says Mr Saqib.

But there are spiritual if not physical comforts. Fifteen-year-old Ghulam Hassan from Layyah, a desert region of western Punjab where jobs are hard to come by, is learning to be a Koranic reciter. Offering to perform for the visitor, he intones verses from the Sura Yusuf, which tells the story of Joseph and his brothers. It is more a song than a recitation, and exquisitely beautiful.



Learning devotion

► 19,000-28,000 yuan a year, compared with 4,500-8,000 yuan at a public university. But an impressive 91% of students leave Baiyun University with a job to go to, compared with 85% for all places of higher learning.

Of poems and peonies

A third variety of private education is audible in the corridors of the 300-year-old Qinhan Hutong, an educational centre in the old town of Shanghai built around a courtyard with a stream tumbling over rocks. In one room a group of preschoolers chants a traditional poem about a civil servant going on a long journey; in another a student plays a 21-string guitar. A mynah bird squawks next to an art teacher, who is putting the finishing touches to a painting of peonies done in the classical style.

“People think that the Chinese lack manners and civility. That’s because we lost our culture for 60 years. But for the previous 1,000 years, this culture dominated East Asia,” says Wang Shuangqiang, Qinhan Hutong’s chairman and founder, who is dressed, somewhat incongruously, in a camouflage jacket. “We don’t believe in God. We believe in our words, our calligraphy, our poetry, our ancient relics.” Three years ago Mr Wang had 35 such centres; now he has 70, with 70,000 students, who pay an average of 17,000 yuan a year. The rebirth of interest, he says, “comes from people’s hearts, and it comes from Chairman Xi. He’s always quoting ancient Chinese sayings.”

The government’s different attitudes to those three varieties of education reveal its concerns and priorities. It allowed the establishment of bilingual education in China in order to discourage parents from sending children to boarding schools in America and Britain, which they have increasingly been doing in recent years. But it is jealously guarding its hold on basic education, so it keeps those schools on a tight leash. They must use the textbooks mandated for all schools, which inculcate “core socialist values”, and follow strict rules on the amount of time to be devoted to each subject. They must host party cells and branches of the Young Pioneers, the junior wing of the Communist Party.

It is also nervous about the growing educational divide between the rich, who buy tuition, bilingual schooling and foreign degrees for their children, and everybody else, so it has clamped down on investment in the sector. Making profits from “basic” schooling for 6- to 16-year-olds has been banned.

Firms are understandably nervous about the close watch the state keeps on the sector. “Vanke wants to make children happy, parents happy and the government happy,” says Cynthia Xu, the party secretary and deputy general manager of Vanke Shanghai. “It’s very difficult to navigate the shifting sands of the Chinese regulatory environment: it’s going to be interesting to see what happens to British schools that are happily handing over their name and reputation to entities in this country if they don’t have educational expertise and a management team on the ground to navigate the regulatory environment,” says Fraser White, chief executive of Dulwich College International.

Vocational education, by contrast, faces few restrictions. The government recognises that there is unmet demand, so it helps such colleges by giving good ones a stamp of approval, which enables them to charge higher fees. “Because vocational training helps solve social problems, it has always received support from government, and we think it will go on receiving support,” says Xie Shaohua, executive director of China Education.

Mr Wang is furthering Mr Xi’s push for a cultural revival, so he encounters no interference. Indeed, he receives a subsidy of 1m yuan a year from the Shanghai municipal government. In a very small way, this example shows that the Chinese state is prepared to use the private sector to meet its educational aims. Many other governments go much further. ■



Public-private partnerships

The best of both worlds

How Chile combines competition and public funding

ONE OF THE most effective soft-power programmes ever was launched in 1955 by the American government. Over the next 18 years, it sent over 100 Chilean students to Chicago University to study economics under Milton Friedman. The ideas those students absorbed were regarded as outlandish in their increasingly socialist country until Augusto Pinochet, brought to power by a coup in 1973, put them into practice. Among other things, he turned the entire education system into a voucher scheme.

The Chilean experiment is unique in its scale but not its nature. In education, public-private partnerships of various kinds abound. At tertiary level, governments provide or guarantee loans for students to spend at private colleges. At primary and secondary level, they include charters, academies and vouchers.

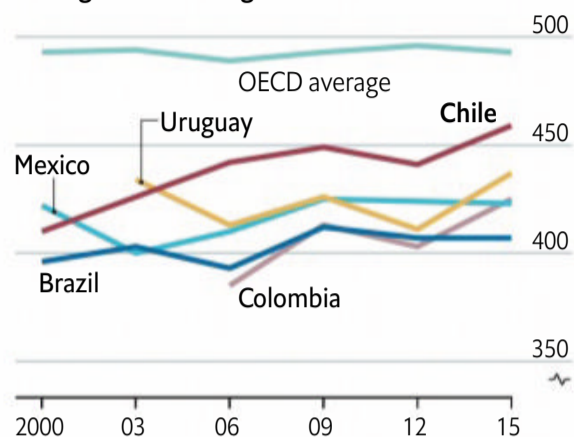
The Netherlands, perhaps surprisingly, runs much of its education system as a public-private partnership, because religious divisions meant that in the past parents did not trust the state to run schools. Its schools are publicly financed, not for profit, non-selective and close to free, but they enjoy a lot of autonomy. It works: education in the Netherlands is among the best in the world.

The desire to liberate schools from the state—and the teachers’ unions—also lies behind the growth of the charter movement in America, and academies and “free schools” in Britain. America’s charters started in Minnesota in 1992 and spread state by state; Britain’s academies were conceived by a centrist Labour government in 2000. Both are publicly funded and privately run. Enrolment in charters rose from 400,000 in 2000 to 2.8m in 2015. Nearly three-quarters of British secondary-school pupils and one-third of primary-school pupils attend academies or free schools.

In developing countries public-private partnerships are driven largely by the desire to maximise enrolment and minimise inequality. India’s government decreed in 2009 that 25% of places in ►

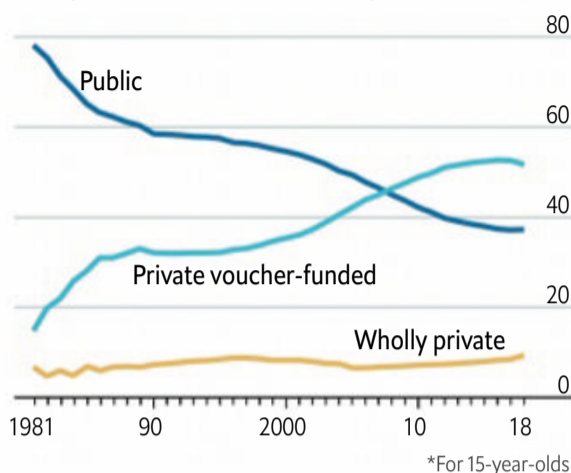
Read my results

Average PISA reading test scores*



Sources: OECD; Chile Ministry of Education

Chile, student school enrolment, % of total



*For 15-year-olds

private schools should be reserved for “economically weaker sections” who would be paid for by each state government. Colombia, Venezuela, Peru, Sierra Leone, Uganda, India, Pakistan and the Philippines now have voucher, charter or other sorts of subsidy schemes, but Chile’s is the only national-scale experiment.

Chile has three sorts of schools: entirely private (which charge whatever fees they like and get no money from the government); private voucher-financed; and public schools. The children of the elite attend the first lot; both middle- and working-class families are gravitating towards the second (see chart).

Those who run Chile’s private-voucher schools attribute their success to their autonomy. “We’ve introduced a Singaporean system for teaching maths in a more practical way that required us to buy special materials,” says Marianela Cisternas of Belén Educa, a Catholic foundation that runs 12 schools. “A municipal school could not have done that.” Principals also have more freedom to hire and fire staff. Jessica Vergara, principal of Colegio Rosa Elvira Matte de Prieto, a school in Lo Espejo, a rough area of southern Santiago, has fired 18 teachers in five years. In a municipal school, she says, she would not have been able to.

Pupils at voucher schools do only a little better than those at municipal schools after allowing for their socioeconomic background. But that, says Harald Beyer, a former minister of education in Chile, is beside the point: competition has improved the municipal schools’ performance too. Academic studies cast doubt on whether competition has really improved outcomes, yet even sceptics see virtues in the system. Emiliana Vegas of the Inter-American Development Bank reckons that the main driver of improvement has been the rich data produced by the system, which allow the state to keep tabs on how it is doing.

Chile’s educational performance, though far from stellar, is good by local standards. The country does better in reading (see chart), maths and science than the other Latin American countries for which the OECD, a club of mostly rich countries, collects data. It also spends less as a share of GDP.

But the left is uncomfortable with competition, which it feels can increase inequality in an already unequal country. Schoolchildren protested against inequality in education in 2006, university students in 2011. Michelle Bachelet, a former Chilean president, shifted the system leftwards, first making vouchers income-related and subsequently banning profits, fees and selection in voucher schools. These changes are being implemented gradually.

Supporters of the changes argue that credit for the improvement in standards should go mainly to the investments in the cur-

riculum, teacher training and assessment in the 1990s, and that more state intervention will improve it further. “We now have a system that has a better chance of producing the combination of quality and equity that society needs,” says Cristian Cox Donoso of the Diego Portales University. Chile’s system, as Gregory Elacqua of the Inter-American Development Bank points out, is starting to look rather like the Netherlands’. But critics worry that the changes are undermining its virtues. Mr Beyer thinks banning fees and profits will discourage investment and innovation. Victor Gerardo, principal of the Liceo San Pedro Poveda, one of the best private voucher schools, says that without top-up fees his school will be “kaputt”. Mariana Aylwin, a former education minister whose founda-

tion runs two schools, is concerned about the bureaucracy that inevitably comes with increasing government oversight. “With so many obligations and controls, schools are losing their autonomy and wasting time.” Ms Vergara reckons that she spends as much as half her working hours dealing with government paperwork.

But the most contentious issue is selection. Its abolition, intended to increase social integration, has been exceedingly unpopular. “Families are in favour of segregation,” says Dante Contreras, an economist at the University of Chile. “They want to be segregated from poorer people.” Liliana Ramírez, who is head of the parents’ association at the Lo Espejo school, says that because selection has stopped, “there are lots of people in the school who shouldn’t be here. People who don’t do honest work, who take drugs or deal in drugs.” But this is not a problem for the elite, which, on both left and right, sends its children to the 9% of schools that are entirely private.

The selection issue seems to have tipped the polls against Ms Bachelet. Her coalition lost power at the end of 2017 and she was replaced (for the second time) by Sebastián Piñera, who is trying to reintroduce a limited form of selection. But through all the arguments over its education system, not even the left suggested binning the voucher system. By and large, Chileans accept that it has worked.

Charged as they are by the memory of military dictatorship, Chile’s arguments over the politics of education are especially intense, but there are similar tensions between individual freedom and collective values all over the world. In many countries, as in China, government is reacting to the growth of the private sector by tightening regulations. Last June Dubai imposed a freeze on school fees, and last December Pakistan’s Supreme Court decreed that schools charging more than 5,000 rupees a month must cut their fees by 20%. “A lot of schools will shut down if this isn’t rescinded,” says Kasim Kasuri, chief executive of Beaconhouse School System. Several Indian states have also introduced controls on fees, and closed down some private schools on the ground that they did not meet standards set by the Right to Education Act—even though only 8% of government schools comply with them. Bureaucrats use those standards to extract bribes. “To get your school recognised,” says Mr Dhankar at Hari Vidya Bhawan School in Delhi, “you have to pay for the proper infrastructure, you have to pay five lakh (\$7,250) bribes on top of that, and then they’re expecting some other gifts at festivals.”

Behind the tightening regulations lies a suspicion widespread among governments: that the growth of the private sector is bad for society. That view is not generally shared by parents. ■

Abolition of selection has been unpopular

Costs and benefits

Howdy, partner

Private education can complement the public sort

“WE WANTED TO pop champagne when they said they were opening Spark Soweto,” said Ntebogeleng Malevu. Before the new branch of a fast-growing chain of low-cost South African schools opened in the township on the outskirts of Johannesburg in January, Ms Malevu, a nurse, would wake her six-year-old daughter Qhawe at 4am to travel to another Spark school in the city’s northern suburbs. The transport cost nearly as much as the tuition (2,310 rand, or \$158, a month for primary-school pupils).

Parents prefer private schools. A global survey in 2017 found that they were a lot more likely to give the teaching at their children’s school a positive rating if it was private than if it was public; parents in Chile have voted with their children’s feet in favour of the private sector.

Governments are often less keen on private education. Some of the reasons for their hostility are bad ones: a reluctance to cede power, the opportunity for patronage, the influence of teachers’ unions. But some are entirely in order: governments need to promote quality, access to schooling and equity. The private sector is good at some, but not all, of those.

Pay-cheque pay-off?

The evidence on quality is ambiguous. Private institutions dominate the upper ranks of the global higher-education leagues. Seven of the top ten places in the *Times Higher Education* ranking are taken by American private non-profit universities and three by British institutions, which although regarded as public in Britain, are privately run and funded largely by user fees. The most highly rated clearly public institution, ETH Zurich, which is, ultimately, run by the state, is in 11th place.

But these rankings depend almost entirely on the universities’ research performance. The standard of education they deliver is hard to measure. The only useful proxy is earnings, but a study of alumni of America’s most selective colleges by Stacy Dale and Alan Krueger found that their higher earnings were explained by background and intellect. Top universities provided a boost only to blacks and Hispanics—presumably because they gained a useful network to which many white students already had access.

At the bottom of the market, America’s for-profit colleges—largely vocational outfits that take students who cannot get into the state system—do poorly. A study of their alumni’s employment history showed not just that they performed worse in the labour market than similar people who went to (much cheaper) public colleges, but also that they barely earned more than those who did not go to college at all. On average, in other words, the time and money that they spent on their education had been largely wasted.

In some countries private schools do exceptionally well. According to *Varsity*, Cambridge University’s student newspaper, Westminster got an average of 79 pupils a year into Oxford and Cambridge in 2006-16, more than any other school in the world. But Westminster is one of Britain’s most selective schools, attracts bright pupils from all over the world and spends four and a half times as much per child as the public sector does. Educating the world’s cleverest children with vast resources is not the biggest challenge in teaching.

A better test of schools is whether they add value—in other

words, produce outcomes better than would be expected given where children started. In the OECD’s latest PISA test private-school pupils did a lot better than public-school ones in reading and science, but after controlling for economic background they did little better in reading and worse in science. An American study concluded that private schools added no value, a British one the opposite: the university and labour-market outcomes of two cohorts of people, born in 1958 and 1970, who attended private schools were considerably better than those of government-school alumni, even when ability and background were taken into account. The gap was bigger in the younger cohort, presumably because private schools have come to focus more on academic achievement.

In poor countries, the evidence tends to favour the private sector. Out of 21 studies in Africa and South Asia surveyed for Britain’s Department for International Development (DFID), 14 found that children learned more at private schools and seven found no difference. In none of the studies did government schools come out on top, but the private-schools’ margin was not overwhelming. In the most rigorous study, carried out in the Indian state of Andhra Pradesh, pupils’ scores in most subjects were the same in both types of schools, though they did better in Hindi at private schools. The maths scores of the private schools that taught in the local language, Telugu, were higher than those taught in English, suggesting that while private schools confer an advantage, being taught in English is a disadvantage.

Opponents of private schools often argue that they undermine public schools, but the evidence does not support that claim. A review of studies from America, Canada and Sweden concludes that virtually all of them showed that public schools do better when they are up against voucher schools; the few studies of the issue in the DFID review, from India, Pakistan and Kenya, found the same.

The qualitative differences between private and public schools are marginal, though. More strikingly, private schools cost less. Of seven studies in the DFID review, none found government schools to be cheaper. A study comparing the cost-effectiveness of public and private schools in eight Indian states found that the private ▶▶



Better than nothing

▶ sector did better in all of them; the differential ranged from 1.5 times in Bihar to 29 times in Uttar Pradesh.

The private sector's efficiency is one reason why it does well at providing access to education. Another is its speed: in fast-growing cities, governments struggle to provide schools, but wherever there are people, schools spring up. A worldwide review of voucher schemes has shown that governments that cannot provide enough capacity can increase access by enabling children to attend private schools. "Kids are being born every day," says Murad Raas, education minister in Pakistan's Punjab province, where 2.6m children are in private schools on voucher schemes and 1m in government schools. "We don't have the funds to accommodate them all. I'm very open to anything that can benefit them."

The main reason for the private sector's superior efficiency seems to be teachers, who are paid less and are more likely to turn up for work than at government schools. Politics has a lot to do with that. Teachers' unions have huge bargaining power—in India, for instance, they man polling stations and have reserved seats in state assemblies—and can therefore protect their members from being held to account for poor performance. An Indian study found that in 3,000 government schools, only one principal had ever dismissed a teacher; among 600 private schools, 35 had.

The other explanation for better performance in the private sector could be competition, but it does not seem to be working all that well. One problem with the market is that parents often lack information. Researchers in Pakistan tried providing parents with cards showing their child's test scores and the average scores of the schools in the village. Where this was done, children learned substantially more, fees were lower, enrolment went up and bad private schools were more likely to close down.

A second problem is parental priorities. Parents want their children to go to schools with the best outcomes, but those establishments may achieve good results not because they add more value but because their intake is richer and cleverer. A Chilean study showed that parents presented with data on both outcomes and value added were interested in the former, not the latter.

They are being perfectly rational. Parents want to ensure not just that their children get a good education, but also that their classmates come from "good" families, because the company they keep will shape their behaviour and provide their network. Employers, too, are likely to favour the products of schools with good exam results. But the incentive for parents to choose outcomes over value added limits the efficacy of parental choice as a mechanism for improving schools.

It also helps explain why the market tends to increase inequality. Whereas governments promote social integration, parents actively seek stratification. Furong Ren, a parent at Dehong, Dulwich College International's bilingual sister school in Shanghai, ex-

plains that "when parents get together, all they talk about is how China is developing a class system, and they want their children to be on top." Fees and selective admissions, which favour rich kids, encourage schools and families to sort themselves by income. For governments concerned about social mobility, that is a problem.

Making the best of it

As private education grows, its strengths and weaknesses are becoming increasingly apparent. It is good at providing access where the state does not have capacity; in poor countries, the education it offers is slightly better than the government variety. But it also encourages inequality and discourages social mobility.

Many teachers' unions and left-wing politicians favour getting rid of private schools. That would solve the equity problem, but there would be a cost in terms of both access and quality. Without the private sector, many children in fast-growing cities in the developing world would be in worse schools or on the streets.

Another approach is to regulate private education, by, for instance, setting stringent standards for facilities and teaching. That is a reasonable thing to do in countries where the state works well, but a state that cannot provide decent education is unlikely to be a good regulator. DFID looked at 19 studies to see whether developing-country governments were any good at regulating schools; 14 concluded that they were not, three that they were, and two were not sure. Bribery is a common problem.

A third approach is for governments to partner with the private sector, through vouchers or subsidies. The idea is to allow society to benefit from the private sector's virtues while mitigating the inequality it fosters.

Such partnerships are spreading, but their performance so far has been mixed. They suffer from the same problem as regulation does: governments that cannot provide education are unlikely to be good at commissioning it. India's reservation of 25% of private-school places for poorer children has not been a great success. The government has been slow to pay its bills, the initiative has got bogged down in legal action, ten years after launch only 16% of private schools are taking part, and a study in Karnataka found that most of the families taking up the vouchers had been sending their children to private school anyway. And where schools charge fees or set admissions tests, such partnerships can become vehicles for subsidies to the better-off and encourage stratification, as Chile's original voucher system did.

Yet well-designed public-private partnerships can work. Two of the world's best education systems—those of the Netherlands and Hong Kong—are based on them. In both places, schools get public funding, a lot of autonomy and hefty state regulation to raise standards and limit inequity. Chile's voucher-based education system, despite its flaws, outperforms those of its neighbours. They are especially good for countries whose governments struggle to provide access to education: in Pakistan's Punjab province 2.6m children go to school thanks to vouchers; a PPP in Uganda enrolled 400,000. Design and monitoring are crucial, says Harry Patrinos of the World Bank: "performance has to be measured, rigorously and often, and schemes adjusted accordingly."

Above all, governments should stop regarding private education as an enemy. Its growth is the result of people's deepest urge—to look after their children. Whether through buying expensive houses near the best government schools or by forking out for private-school fees, they will find a way to do that. The private-education boom may be fostering inequality but it is also causing unprecedented amounts of money and energy to be spent on improving humanity's brains. Governments should encourage that—but spread the benefits as widely as possible. ■

Governments should stop regarding private education as an enemy

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Sudan

A tyrant is toppled

ADDIS ABABA

Mass protests oust Omar al-Bashir, a despot who presided over genocide

THE CRY rippled through the crowd in the early hours of April 11th, accompanied by the beating of drums and blasts on whistles: “It has fallen. We have won.”

And, so it appears, they have. Almost exactly 30 years after Omar al-Bashir seized power in a bloodless coup, shunting aside his democratically elected predecessor, the man who did so much to wreck Sudan has himself been toppled. His fall marks the culmination of four months of almost ceaseless protests against one of Africa’s longest-ruling tyrants. “In spite of all hurdles and hardships, it is over,” said Ahmed Elyas, an engineer in Khartoum who was in the crowd. “We won.”

As *The Economist* went to press tens of thousands of demonstrators—encamped outside the main army compound in central Khartoum since April 6th—waited on an announcement from the generals as the army moved troops onto the streets and state radio and television played patriotic music. Yet even amid the jubilation it was unclear whether this was a coup that would lead to another military strongman step-

ping in, or a revolution that would put civilians in charge.

Initial reports were contradictory. Some suggested that the army was trying to form an interim administration led by Ahmed Awad Ibn Auf, the defence minister, who has had sanctions placed on him by America for his role in war crimes. But protest leaders including the Sudanese Professionals Association, a coalition of trade unions, said they would only accept a hand-over of power to a civilian transitional government. Unconfirmed reports said that Mr Bashir and two other people wanted by the International Criminal Court (ICC) for war crimes had been arrested.

What is clear is that the fall of Mr Bashir

→ **Also in this section**

46 Sharia in Nigeria

46 Fearing even worse in Libya

47 America and Iran

48 Israel’s election

is the latest in a wave of change that has swept away many of Africa’s longest-serving rulers, from Algeria to Zimbabwe. “It is the extinction of the dinosaurs,” says Alex Vines of Chatham House, a think-tank. Driving this are urbanisation and the spread of mobile phones, which make it easier to organise protests, says Judd Devermont of the Centre for Strategic and International Studies. Jon Temin of Freedom House, another American outfit, says three of the five countries posting the biggest moves towards democracy last year were African; Angola, Ethiopia and Gambia. “There is a growing people-power dynamic,” he says.

The protests in Sudan erupted in December in response to rising food prices. But people soon turned their ire on Mr Bashir, who has governed woefully since 1989. His men have massacred and raped civilians in wars against rebels in Darfur and the south, acts that have led the ICC to indict him and some of those closest to him.

His Islamist allies have flogged women for “immoral” behaviour, such as wearing trousers. Corruption is rife. The economy shrank by 2.3% in 2018. Inflation reached 70% at the start of the year (though the government claims it has since fallen).

When protests broke out in December the government responded by arresting, beating and killing people. In February Mr Bashir declared a nationwide state of emergency, dissolved the government and replaced all 18 state governors with soldiers ▶▶

or seurocrats. Yet still the crowds calling for him to go continued to swell.

On April 6th, the anniversary of the revolutionary overthrow in 1985 of Gaafar Nimeiry, a previous military dictator of Sudan, tens of thousands took to the streets in the capital. Many hoped to repeat the earlier feat in which months of mass protests had prompted the army to step in and depose a hated tyrant. Democratic rule followed in 1986 before it was cut short by Mr

Bashir's coup a few years later.

Within days of the new protests erupting in the capital, thousands of people set up camp outside the headquarters of the armed forces and Mr Bashir's current residence. Although this is not the first time that Sudanese people have tried to rise up against Mr Bashir, the marked difference now was that they had won the support of sections of the armed forces.

When the government tried to clear the

protest in Khartoum using tear gas and bullets, soldiers and sailors joined the crowd and fired their guns to defend it. Naval officers exchanged fire with members of the spy agency and paramilitary forces. On April 9th some junior officers told the crowd they had joined the revolt.

The big question now is who will succeed Mr Bashir. The formal opposition is less divided than it was in the past, but it still has no obvious leader of its own. Several are tainted in the eyes of protesters for having worked with the ruling National Congress Party (NCP) in the past. Yet a new government may have to include current and former members of the NCP for their bureaucratic expertise.

Events in Sudan will be watched nervously by Mr Bashir's fellow Arab and African leaders, who fear a second phase of the Arab spring that swept away several of them in 2011. After the recent resignation of Abdelaziz Bouteflika in Algeria, many are wondering: who's next? ■

Sharia

Nigeria's vice cops feel squeezed

KANO

Voters rather enjoy sinning, and politicians have taken note

ALTHOUGH IT IS guarded by high walls and a thick metal door, a nightclub in Kano hardly bothers to conceal its existence. Disco lights flash out on the surrounding streets. Pop music is pumped carelessly into the night air. Young men and women sip beer and sway to the rhythm, seemingly unconcerned that, under Islamic law, such depravity is punishable by whipping.

Between 1999 and 2002 a dozen states in Nigeria's mostly Muslim north, including Kano state (the capital of which is also called Kano), adopted penal codes based on sharia. At first these states strove zealously to enforce the new rules. Many recruited religious police forces, called the *Hisbah*, to confiscate alcohol and arrest adulterers (who are occasionally sentenced to death by stoning, but are never actually stoned) to ensure that citizens did not sin. Many northern politicians, while eager to appear pious, are not really committed to stamping out booze and fornication, perhaps because so many voters want to be left to their own vices. When budgets are tight, they find they don't need so many morality police. "The government is not serious about sharia," grumbles a cleric.

Kano is still socially conservative, but residents say it feels less stifling than it was. In Sabon Gari, a neighbourhood full of Christian migrants from Nigeria's south, bars and betting shops abound. To avoid upsetting southerners, northern states said sharia would not apply to Christians. However, in the past the *Hisbah* would scour the neighbourhood's bars and brothels for Muslims, recalls a hotel-owner. "We don't see them now," she adds, except when they come for a drink. A dimly-lit bar in her hotel is filled with men wearing the robes and cap typical of northerners.

At the headquarters of Kano's *Hisbah* the morality police put on a brave face. Signs outside the building remind pass-

ers-by that God is great. Muhammad Rabi'u Jakata, its director of statistics, boasts that the force is destroying more beer bottles and prosecuting more sinners than ever before. But in private a colleague confesses that all is not well. Kano's last two governors have squeezed the *Hisbah* because they thought it was loyal to their respective predecessors, he says. Its ranks have fallen from 9,000 in 2010 to 7,000 today, and its budget has been cut by a third. "We still try to do everything," says the officer, "but it is not like before." Many residents of Kano now see the *Hisbah* as little more than a counselling service, useful for settling family disputes but not much else. "If I have a problem with my wife, I go to the *Hisbah*. If I have a problem with customers I will go to the federal police," says Saminu, a textile merchant.

Between gulps of beer, Danladi, a former civil servant, speculates that politicians have lost interest in sharia because they have exhausted its vote-winning potential. But being a Muslim, he admits, he wishes he could resist the temptation to drink. "We are all human beings," he adds. "You rarely find a person who is perfect."



Fearing even worse in Libya

Haftar's bad bet

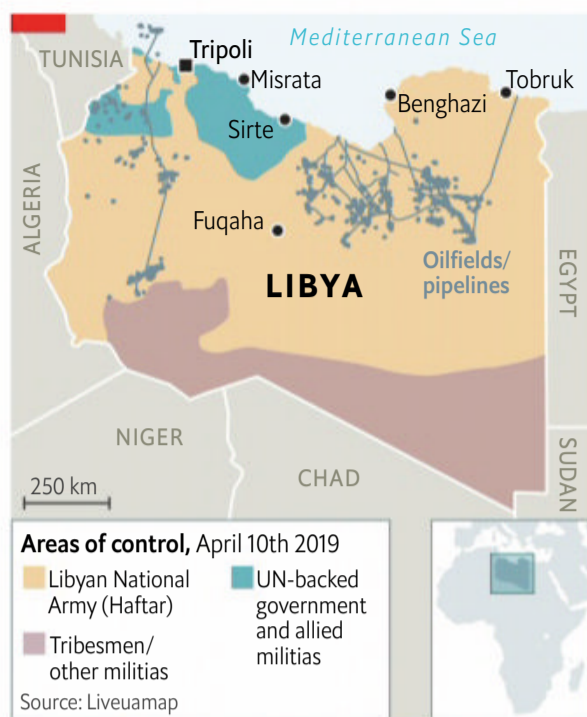
CAIRO

Libya's strongest warlord faces stiff opposition as he moves on Tripoli

THIS WAS supposed to be a rare moment of cautious optimism in Libya. On April 4th António Guterres, the UN's secretary-general, arrived in Tripoli, the capital, to prepare for a peace conference which, he hoped, would lead to long-delayed elections later this year. But hours after he arrived Khalifa Haftar, the warlord who controls much of the country, launched an offensive to seize the city. At times his self-styled Libyan National Army (LNA) has reached within 10km or so of Tripoli's centre. Dozens have been killed. Flights were suspended after General Haftar's jets bombed the city's only functioning airport. The conference has been cancelled. "The UN is deeply engaged in negotiations for peace," Mr Guterres said later. "We're not always successful, I must confess."

The general had long threatened to take Tripoli. Until now he was posturing. No one is quite sure why he chose this moment to move on the capital. Whatever his reasons, his offensive is starting to look like a big miscalculation. He would have entered the conference in an enviable position, holding most of Libya's land and oil wells. Instead the LNA is now bogged down on several fronts. The general risks losing not only the battle for Tripoli but many of his other gains as well.

He may have been encouraged by his re- ▶▶



cent romp through southern Libya, seized in a lightning campaign earlier this year. Many southerners welcomed the LNA. Their region is rife with ethnic and tribal fighting, and with smuggling gangs. Militants from neighbouring Chad and Sudan have joined the fray. Locals hoped the general would bring stability. He seized towns and a big oilfield with little bloodshed.

Grabbing all the west will not be so easy. Militias from the port city of Misrata have vowed to block the LNA's advance. One contingent has deployed to reinforce Tripoli. Another is preparing a counter-offensive to the south and east. The Misratans are the strongest force in western Libya and won a decisive victory over Islamic State (IS) in 2016. They resent General Haftar's ambitions and are linked to the government in Tripoli through the interior minister, Fathi Bashagha, a Misratan. General Haftar had worked for months to co-opt forces in the west, some of whom are frustrated with the UN-backed Government of National Accord (GNA) in Tripoli. Now they seem united against him.

His offensive is embarrassing his numerous foreign allies. Egypt and the United Arab Emirates have provided air support. France has special forces deployed in the east. Russia has sold him weapons. (The GNA counts Qatar, Turkey and Italy as partners.) The general's friends nominally back the UN-led peace process but have tolerated and encouraged his machinations. France has not asked him to pull back. Instead it wants him to meet Fayeze al-Serraj, the GNA's leader, for peace talks in Geneva. Egypt did not even bother to sign an American-led statement calling for calm.

After eight years of chaos, it is understandable why General Haftar looks appealing. He brought a measure of control to the east, while the GNA has struggled to keep Tripoli calm. Egypt and the UAE share his anti-Islamist politics. But the capture of Benghazi caused the destruction of large

America and Iran Terrorcracy

America's decision to brand the Revolutionary Guards terrorists could help them

A FEW YEARS before he became president, Donald Trump's family probably did business with associates of Iran's ideological armed force, the Revolutionary Guard Corps (IRGC). An article published in the *New Yorker* in 2017 says a tower bearing the Trump name in the Azerbaijani capital, Baku, was built by a company with links to the Guards. But on April 8th his administration blacklisted the force. Officials hailed the move as the first time America had branded a national army a terrorist outfit. "If you are doing business with the IRGC, you will be bankrolling terrorism," Mr Trump said.

The IRGC is Iran's most powerful institution. It can field 180,000 troops, has the country's best weapons and has bullied its way into vast swathes of the economy. It answers directly to the supreme leader, Ayatollah Ali Khamenei, not the president, Hassan Rouhani. Within hours of America's designation the Guards duly declared that America's central command, which has 200,000 personnel in the Middle East and Central Asia, was a terrorist organisation.

America first branded Iran a sponsor of terror in 1984. It then designated the Quds Force (the IRGC's unconventional-warfare arm that operates across the Middle East) a terrorist organisation in 2007. But a few years later America's armed forces and the Quds Force became unofficial allies fighting against the jihadists of Islamic State.

Despite the bluster, the latest label-

ling changes little. Mr Trump had already listed the Guards as a terrorist group in 2017. At the time he also imposed more stringent measures—including secondary sanctions on anyone doing business with it—than those required under this week's listing. The State Department says the new action would prevent any of its members from entering America. But Iranians already faced a visa ban. "As a purely technical matter, it doesn't mean a lot," says Danny Glaser, a former official at the Treasury Department who oversaw sanctions enforcement.

The bigger impact will be political, since the measures will deepen Iran's sense of isolation. That hurts Mr Rouhani more than the Guards. Iran's oil revenues and currency had already plummeted after Mr Trump last year reimposed sanctions and pulled out of the nuclear deal that Mr Rouhani had negotiated with world powers. Further pressure is expected when waivers America granted to Iran's largest buyers of oil expire in May, and as America squeezes Iranian banks out of the international payments system.

By contrast, sanctions make the IRGC's smuggling networks lucrative. And politically it is making hay; its media outlets are stoking popular anger against the government's weakness and allowing the hardliners to promote themselves as an alternative. In trying to hurt the Guards Mr Trump could be helping them, again.

parts of the city. The general himself is 75 and in patchy health. His LNA is a hotchpotch of militias bound by mutual interests and money. It does not represent the entire country, and some of its members are not even Libyan. General Haftar's empire may not outlast him.

Even his attitude toward Islamists is driven by interests rather than ideology. Though he opposes the Muslim Brothers and their ilk, he has made common cause with the Madkhalis, an ultra-conservative sect backed by Saudi Arabia. They have sought to impose their puritanical views in the east. He may have hoped Tripoli's Madkhali faction, now aligned with the GNA, would help him take the capital. The general met King Salman of Saudi Arabia in March, and may have won his support.

By rushing the bulk of his forces west, the general has left a vacuum in the territory he already holds. Jihadists are trying to

exploit it: IS attacked the central town of Fuqaha on April 9th. Unrest in the south and east would jeopardise the oil exports that provide 90% of government revenue. Output has recently increased, with Libya pumping some 1m barrels a day since the summer. The fighting may reduce global supplies already squeezed by sanctions on Iran and turmoil in Venezuela. On April 5th the price of Brent crude topped \$70 a barrel, its highest level since November.

Both sides claim to be winning. But the LNA may have overreached. It is stretched thin and will struggle to maintain supply lines across unfriendly territory. It captured, then lost, the defunct international airport on the edge of Tripoli. The GNA bombed an airfield its rival has used to launch air raids. An LNA retreat seems unlikely. It would be out of character, and humiliating, for General Haftar. But a long battle could spell final ruin for Libya. ■

Israel's election

King Bibi keeps his crown

JERUSALEM

Binyamin Netanyahu fought off his toughest challenge yet. What will he do next?

AFTER MONTHS of heated campaigning, Israeli voters decided to change very little. With most of the votes counted the prime minister, Binyamin Netanyahu, appears to have won a fifth term in office in an election on April 9th. His Likud party tied with Blue and White, a centre-left party led by Benny Gantz, a former army chief. Both had about 27% of the vote. But the right-wing and religious bloc, of which Likud is a part, won a combined 53%.

That will give it a majority, probably with 64 seats in the 120-member Knesset (parliament), the same number it holds now. With several parties perched close to the 3.25% threshold to enter the Knesset, the results are still fluid. (Two have demanded a recount.) But Mr Gantz does not appear to have a viable coalition, nor a way to stop Mr Netanyahu from forming one.

As with the previous election, in 2015, early exit polls suggested that Mr Netanyahu had been weakened. His rival rushed on stage to declare victory soon after voting stopped. "A historic day", Mr Gantz declared, telling supporters he would form the next government. While he made promises, Mr Netanyahu made phone calls. He received pledges of support from the ultra-Orthodox parties and a far-right grouping, enough to bring him within striking distance of a majority.

There were no signs of consternation as hundreds of Likud supporters streamed into the basketball arena the party had hired for election night. They had been in similar situations before. When Mr Netanyahu finally took the stage after 2am, most Israeli networks had revised their surveys to show him in the lead. On the screen behind him was the campaign slogan: "Netanyahu is in a different league." The crowd was ecstatic. "This is a night of great victory," he said. "The right-wing bloc will continue to lead Israel for four more years."

That may be a challenge—though not because of politics. Mr Netanyahu has been indicted, pending a hearing, in three corruption cases. Prosecutors accuse him of taking gifts from wealthy businessmen in exchange for favours and offering legal and regulatory help to media giants in order to secure better press coverage. He denies wrongdoing. Strikingly, the allegations did not make him any less popular. On the contrary: Likud's share of the vote increased by three percentage points from 2015. Its projected 35 seats are the most it has won since

**He's back!**

2003, when Ariel Sharon led the party.

In an election that became a referendum on Mr Netanyahu, many Israelis appear to have voted strategically, favouring one of the two main parties in the hope it would be asked to form a government. It was an impressive showing for Mr Gantz, a political newcomer who faced a vicious campaign from his rival. But it came largely at the expense of other centre-left parties. Labour, which built the country and ruled for almost three decades, collapsed. It won less than 5% of vote.

Other Israelis did not vote at all. Turnout was 68%, about four points lower than in 2015. Parties that cater to Arab citizens received just 328,000 votes, a 26% drop.

The outcome, and the campaign before it, have deepened Israel's divisions—not only between right and left but also between Jews and Arab Israelis, who are 21% of the population. Mr Netanyahu repeatedly accused his rivals of plotting to form a coalition with "Arab parties that oppose the Jewish state". He encouraged an ally to join forces with a far-right Jewish supremacist party. On election day, in what looked like an attempt at voter intimidation, Likud distributed 1,200 cameras to its poll observers in Arab towns.

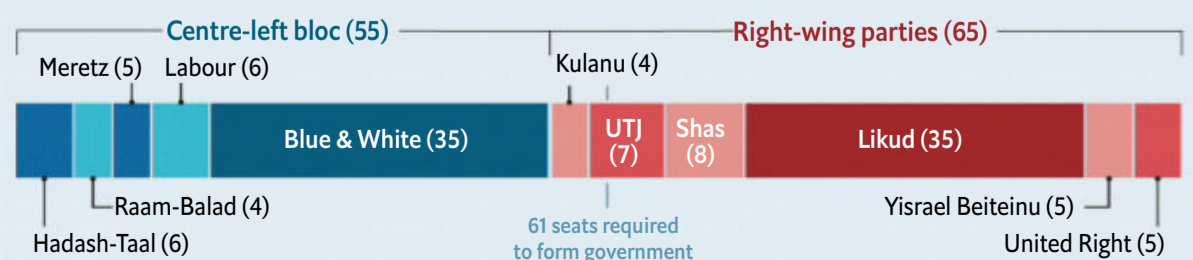
In another sign of Likud's rough nationalist tilt, one of the new Knesset members celebrating her election was May Golan, an activist who led the campaign to deport African refugees from Israel. In the past Ms Golan failed to enter the Knesset as a candidate of the racist Jewish Power party. Now she will sit with the ruling party.

If he forms a right-wing coalition, Mr Netanyahu must pay heed to the demands of at least four other parties. Those representing the Ultra-Orthodox will want to preserve their exemption from the army draft and secure other giveaways on issues of religion and state. His hawkish partners will want him to fulfil a promise, made in the campaign's final days, to start annexing parts of the occupied West Bank. That step would raise profound diplomatic and existential questions for Israel. The American president, Donald Trump, is expected to present his own peace plan soon. The Palestinian leadership, enraged at many of Mr Trump's policies, will almost certainly reject it. Senior Likud members say that will clear the path for annexation.

Mr Netanyahu, for his part, will be worried about his future. Wing 10 of Israel's Maasiyahu jail is designed to hold former prime ministers. His predecessor, Ehud Olmert, was imprisoned there for taking bribes. With the election over, Mr Netanyahu's lawyers will receive dossiers of evidence to prepare for pre-trial hearings, expected in the coming months. His allies have proposed a bill that would shield a sitting prime minister from prosecution. Some of his prospective coalition partners oppose it. Mr Netanyahu may seek to win their support by making other concessions. If he fails, his fifth term may be a short one. ■

Coalition-building blocs

Seats in Israel's Knesset by party and political stance, 2019, 120 seats available



Source: Haaretz.com



Italy

A posse of patriots

MILAN

Matteo Salvini has an improbable dream of a pan-European nationalist alliance

AN ITALIAN nationalist joining forces with a German one to promise “a new European dream”, as Matteo Salvini termed it, is bound to stir the odd qualm. But oblivious, or indifferent, to historical echoes, Mr Salvini, the leader of Italy’s Northern League, on April 8th sat cheerfully alongside Jörg Meuthen of the Alternative for Germany (AfD) on a platform in Milan as he announced the formation of a new, nativist bloc in the next European Parliament. Mr Meuthen said it would be called the European Alliance for People and Nations. And, said Mr Salvini, the aim was “to take in groups with which we have never collaborated before”.

Gail McElroy, a political scientist at Trinity College, Dublin, who has made a study of the European Parliament, said it was likely that the radical right will make some gains at the European elections on May 23rd-26th. “But there is a long history of populist parties forming groups that then fall apart.” Ominously for Mr Salvini, none of the party leaders he had hoped to attract to his new band bothered to

show up in Milan.

Movements created to protect national interests and exalt national identities tend to make awkward bedfellows, after all. Jaroslaw Kaczynski’s government in Poland and Viktor Orban’s in Hungary have long turned a deaf ear to Italy’s pleas for a redistribution within the EU of asylum-seekers arriving from Africa. That problem has now been skirted: the new mantra of the populist right is that the answer is to seal Europe’s frontiers. But agreeing on economic policy will be more difficult. The AfD and other hard-right northern European groups support precisely the kind of fiscal

austerity Mr Salvini claims is holding back the Italian economy.

Encouraging industrial figures for February, published on April 10th, raised hopes that, after two quarters of negative growth in the second half of 2018, Italy could now emerge from technical recession. But the outlook remains cloudy. The day before, the cabinet slashed its growth forecast for 2019 from 1% to 0.2%. It also acknowledged that, as a result, Italy would fail to meet the targets it agreed upon with the European Commission for its budget deficit and public debt. The government now expects a fiscal shortfall this year of 2.4% of GDP rather than 2.0%, and a rise in Italy’s already hefty debt stock to 132.6% of GDP from 132.2%.

The slowdown could explain the first, faint signs that the surge in support for Mr Salvini, driven largely by his hardline stance on immigration, may have peaked. Since the general election in March 2018, when the League won less than 18% of the vote, polls have shown its popularity climbing steadily. But a survey published on April 1st found it had dipped slightly for the first time, by half a percentage point.

Until now, Mr Salvini, the interior minister and a deputy prime minister in the coalition government of Giuseppe Conte, has escaped most of the blame for the downturn. Economic policy is primarily the responsibility of the finance minister, Giovanni Tria, an independent, and Mr Salvini’s fellow-deputy prime minister, Luigi Di Maio, leader of the anti-establish-

→ Also in this section

50 Housing in Germany

51 France’s “great national debate”

51 Montenegro’s monarch

52 Brexit’s economic effects

53 Charlemagne: Protective Europe

ment Five Star Movement (M5S). But in recent days the Captain, as his followers call him, has taken an increasingly assertive role, insisting that Mr Tria honour a pledge in the coalition pact to introduce a flat tax for poorer households: he has suggested a rate of 15% for those with incomes of less than €50,000. The aim, as with Italy's expansionary 2019 budget, is to stimulate growth by boosting domestic demand.

Mr Salvini is taking a huge gamble, both politically and economically. He has now raised the hopes of millions of Italians, who will be horribly disappointed if he fails to deliver. There is little scope for tax cuts, not least because of a deal struck with the European Commission in 2011 at the height of the euro crisis which means the government has to find at least €23bn in extra revenue or spending cuts to avoid having to increase the rate of VAT, already uncomfortably high at 22%. Nicola Nobile of Oxford Economics, a consultancy, calculates that, after slower-than-expected growth has been taken into account, the overall squeeze will be around €35bn. If the government wants to stay below the euro zone's deficit target, he says, "and unless it can find money elsewhere, it will not have the scope for this flat tax."

Mr Salvini is hoping that he will not need to respect the euro zone's fiscal stability rules for much longer. He has repeatedly predicted a populist victory in next month's ballot that will transform the outlook of the commission and prompt a relaxation of the fiscal strictures that weigh on Italy. But there are a couple of snags.

The basis for his new bloc is an existing alliance that includes the League and Marine Le Pen's National Rally in France. The EU's poll of polls sees it winning 61 of the 705 seats in the next parliament (excluding Britain's). That is fewer than the prospective haul of three other alliances. The AfD could perhaps contribute another 13 seats. If Mr Salvini can woo Mr Orban's Fidesz in Hungary, which has been suspended from the main conservative bloc in the European Parliament, and Jaroslaw Kaczynski's Law and Justice party (Pis) in Poland, he could boost the tally to more than 100 seats.

But even in the unlikely event of both Pis and Fidesz joining Mr Salvini, the alliance would lag far behind the mainstream conservative and socialist groups. "And when push comes to shove, they will ally to keep these people at the margins," says Ms McElroy. "It's what they've been doing for 40 years." The other snag? National governments, not the parliament, put up candidates for the commission, though the parliament has to approve them.

Since entering government, Mr Salvini has shown himself to be a spectacularly adroit operator. But he will need to take care in the weeks ahead that he does not set himself up for failure. ■

Housing in Germany

Hand over the keys

BERLIN

A radical proposal to tackle rising rents

SARAH-LENA KNUST, a mild-mannered young PR consultant, is an unlikely radical. But finding a place to live in Germany's booming capital tests the hardest soul. Since moving to Berlin last year Ms Knust has twice struggled to find affordable housing. The last flat-viewing she attended attracted 30 rivals. The place she eventually found will suck up nearly half her income. "I knew it would be hard," she sighs. "But I didn't think it would be like this."

Such tales are familiar in a city where the days of paying next to nothing for cavernous apartments are long gone. That is why tens of thousands of Berliners, including Ms Knust, have lent their names to a radical proposal: to expropriate private housing. The campaign, launched at a "rent insanity" protest in Berlin on April 6th, is gathering signatures to force a city-wide vote on whether to oblige companies that own over 3,000 properties to sell them to the city. It relies on a novel interpretation of a constitutional provision that allows private assets to be "transferred to public ownership". Views vary on whether that will pass muster in the courts, but over half of Berliners back the plan, in a city where 85% rent. Firms owning almost 250,000 properties, around 15% of Berlin's housing stock, would be affected. Deutsche Wohnen (DW), the biggest, has become the

symbolic target of the measure.

Germany's big cities remain cheap by European standards, but several have experienced dramatic rent increases in the past decade (see map). Tight regulation, including a "rent brake" law in 2015, has failed to satisfy tenants. Almost half of big-city voters say they struggle to find affordable housing. Harald Simons at Leipzig University says the problem is rooted in city planners' failure in the 2000s to predict population growth. Fifteen years ago Berlin had 150,000 empty flats and the city was demolishing public housing. Municipalities planned for demographic decline. But then came waves of immigrants and young Germans attracted by thriving job markets. Cities exploded—280,000 moved to Berlin in the past six years—and construction fell behind. Last year the Hans Böckler Foundation found that 77 German cities lack 1.9m affordable apartments. "We must build, build and build," says Mr Simons.

Construction has speeded up, but it can still take between eight and ten years from zoning decisions to completion. Nimbyism is one problem; in 2014 Berliners voted against a proposed housing scheme on the Tempelhof Feld, a former airport now used for sunbathing and skating. In some cities land sits idle as investors wait for its value to appreciate. Labour shortages in the construction sector add to the problem, and rent brakes also discourage new building.

Helge Peters, a spokesman for the expropriation campaign, says that supply and demand mismatches do not capture the story. In 2004, after a banking crash, Berlin sold off much of its public housing at fire-sale prices. These properties were acquired by listed companies like DW, which channelled funds from institutional investors fleeing lacklustre bond markets. Such firms squeeze poor tenants so they can pay higher dividends, claims Mr Peters, resulting in "targeted social displacement". Tenants say large landlords delay maintenance while circumventing rent caps by charging for unwanted "modernisation".

For all that, sceptics wonder if the cost of expropriation—which the city's Senate (government) puts at between €26bn and €36bn (\$29bn-41bn), and campaigners say could be as low as €7bn—is justified in debt-laden Berlin. The plan would not lower rents or increase housing supply, says Philip Grosse, CFO of Deutsche Wohnen. He wants politicians to show some backbone. But Berlin's Senate, a coalition of Social Democrats (SPD), Greens and the hard left, is split. Many hope to forestall the proposal by buying up private housing and tightening regulation. Some in the SPD urge a five-year rent freeze. Many national politicians share Mr Grosse's assessment that expropriation would turn Berlin into a "no-man's-land" for private capital. For many Berliners, that is precisely the point. ■

The squeeze

Germany, average rent increase, 2008-18, %

0-10 10-20 20-30 30-40 40-50



Sources: German Economic Institute; F+B Marktmonitor

France

The great debate

PARIS

The people have spoken, but what did they mean?

AT ONE town-hall meeting in southern France, discussion touched on the re-introduction of bears in the Pyrenees. At another, in Burgundy, Emmanuel Macron was questioned about poor provision for those with autism. The “great national debate”, which began in January and ended this week, has drawn attention to the marathon total of 92 hours that the French president has spent listening to such grievances and answering queries in public debates. Yet the consultation has reached far wider than these presidential shows. It constitutes an intriguing study in how to defuse social protest—and the limits of using such a tool to do so.

Mr Macron launched his great debate in response to the *gilets jaunes* (yellow jackets) movement. This began last November as a protest against an increase in the tax on motor fuel, but grew into a widespread and sometimes violent rebellion against his haughty style and top-down method of governing. Despite much initial scepticism and mockery, the results, presented this week, involved fully 1.9m contributions to an official online forum, 10,134 town-hall meetings, 16,337 “books of grievances” submitted by mayors, 27,374 emails and letters, and 21 citizens’ assemblies.

All these comments have now been transcribed, digitised and analysed, partly



by tech firms using AI, and the raw data have been made public. The results reveal some areas of national consensus, notably that curbing climate change is “urgent”, or that the French pay too much tax. There is a broad desire for more local decision-making and public services. And even the French agree that dealing with their bureaucracy is “complicated, incomprehensible, rigid and compartmentalised”.

Yet, inevitably, opinion is split on many other matters. The same share of respondents argue, for instance, that France should be more welcoming to migrants as plead for tougher treatment of them. Participants propose plenty of green ideas, including better recycling procedures, or less meat-eating. Yet 58% say that they would not be prepared to pay, for example, a carbon tax in order to encourage greener behaviour. Such are the paradoxes of direct democracy.

Perhaps the most contentious point concerns taxes and public spending. Edouard Philippe, the prime minister, acknowledged that the debate had revealed a *ras-le-bol* (fed-upness) over taxes. France has the highest overall tax take as a share of GDP in the EU. But Mr Philippe also insisted that the results showed the “maturity” of respondents, who know that “we can’t reduce taxes if we don’t reduce public spending.” This may be wishful thinking. The results suggest that 75% favour cuts to public spending, but this was a response to a question asking how, not whether, the budget deficit should be reduced.

The great debate, in other words, was not a statistical national poll. Indeed part of the point, says Stanislas Guerini, head of Mr Macron’s party, La République en Marche, was “to put the voice of the *gilets jaunes* in perspective”. Online, for instance, only 10% of respondents called for the return of a wealth tax. Yet polls suggest that three-quarters of the French are in favour. Which is partly why opposition parties, and many *gilets jaunes*, have denounced the whole exercise. Christian Jacob, parliamentary leader of the centre-right Republicans, called it a “great masquerade”.

Given the conflicting demands, Mr Macron now faces the perilous task of coming up with decisions that neither disappoint nor divide. He is expected to unveil his choices in the coming weeks. In some ways, though, the debate has already served part of its purpose. It has enabled the Jupiterian Mr Macron to show that he is willing to step out of his palace and listen to people. It has provided an alternative way to release national frustration. On the streets, the numbers taking part in weekend *gilets jaunes* marches have dropped from 280,000 in November to 22,000. The president’s ratings remain low, but have recovered to where they were last October, before the protests broke out. ■



Montenegro

The monarch

PODGORICA

Milo Djukanovic is Europe’s most durable ruler

IN 1989 HE was one of Europe’s youngest leaders. Thirty years later Milo Djukanovic, president of Montenegro and still only 57, has been in power, as either president, prime minister or just as ruling-party boss, for longer than anyone else in Europe. Montenegrins have to be in their 40s to remember politics before him. Other European leaders want to know the secret of his success. Unfortunately, he says, there is no simple explanation. On his wall hangs a portrait of King Nikola, who was deposed after 58 years in 1918. No, he has no intention of competing with him, he says.

He might not have the choice. For the past nine weeks thousands of people have been taking to the streets of Podgorica, Montenegro’s capital, to demand that Mr Djukanovic step down. Yet he seems unfazed. In 2016, he says, a Russian-financed plot aimed to assassinate him and now the Russians are causing trouble again, even if many of the demonstrators do not realise who is stirring the political pot. Nonsense, scoffs Dejan Mijovic, an opposition politician. Democracy in Montenegro is a sham, he says; Mr Djukanovic holds all the levers of power, and now he needs to go.

Montenegro’s fractious opposition has been given a burst of energy thanks to allegations by a former tycoon who now lives in London. Since January Dusko Knezevic, who was once close to Mr Djukanovic, has

▶ been releasing information that he hopes will bring down the president. He depicts a pattern of corruption around the state, and has even released a video of himself giving an official of Mr Djukanovic's party an illegal campaign contribution. That transgression has been dealt with, says the president; but everything else that Mr Knezevic says is a lie coming from a fugitive from justice (he is accused of money-laundering). Mr Knezevic admits that he broke the law on campaign contributions, but says that is the only way to do business in a country where everything is a racket controlled by Mr Djukanovic.

However the Knezevic affair and the opposition demonstrations play out, Mr Djukanovic's political survival is remarkable. In 1989 he was a protégé of Slobodan Milosevic, the then Serbian leader. But as Mr Milosevic faced defeat in the war over Kosovo, Mr Djukanovic pivoted towards championing the restoration of Montenegro's independence, lost in 1918 when Yugoslavia was created. He achieved this in 2006, and yet managed to maintain Montenegro as a Balkan rarity—a multi-ethnic state. He says he keeps trying to step back from power, but that there is always another task to accomplish. In 2017 Montenegro joined NATO.

No government has ever changed hands at the ballot box in Montenegro. Fearing Russian interference, Western leaders seem in no mood to try to persuade the canny Mr Djukanovic to go. Between 1696 and 1918 Montenegro had seven leaders who ruled for an average of 32 years. One secret of their success was balancing the interests of competing clans. Asked whether running Montenegro today is similar, Mr Djukanovic says it is, swiftly adding that, unlike pre-modern rulers, he was elected. A recent poll found that 71% of Montenegrins want their leader “strong and resolute”.

A secret of his own success is clientelism. One official claimed back in 2012 in a leaked tape that every public-sector job given out secures four votes for the ruling party. Still, the recent demonstrations show that a lot of people are fed up with Mr Djukanovic. In recent years, says Daliborka Uljarevic, an analyst, there has been a change of atmosphere. Anyone who dares to criticise the government risks being labelled “an enemy of the state” by the pro-government media, as she has been.

The political atmosphere is toxic and the ruling party and its allies control only 42 of parliament's 81 seats. Tycoons from Azerbaijan, Russia, Malaysia and the UAE have bought up property and developed luxury seaside resorts; but many folk feel that, as they struggle on low salaries and poor public services, a tiny group around Mr Djukanovic has got rich. Somerset Maugham once called the French Riviera “a sunny place for shady people”. One might say much the same about Montenegro. ■

Brexit's economic effects

Trading jitters

ROTTERDAM

Small, open countries brace for Brexit

NEARLY 3,400 lorries are ferried between Rotterdam's port and Britain every day. They roll on and off the boats, carrying much of the 54m tonnes of goods that are traded between the Netherlands and Britain each year. The precise form of Brexit is still being wrangled over in Westminster. But unless Britain decides to stay in the EU's single market and customs union (which seems unlikely), trade will become less seamless.

Truckers might need to ensure that their cargo has the right paperwork, or risk being turned away at the port. Some British products—such as livestock—might need to be inspected by vets upon entering the EU. Delays at the border could ruin produce going the other way: around €825m (\$930m)-worth of flowers and plants are shipped to Britain from the Netherlands every year, says Matthijs Mesken of VGB, which represents Dutch wholesalers and exporters. Delivery takes place a matter of hours after an order is placed.

Brexit contributes to the “pervasive uncertainty” which, in the words of Mario Draghi, the head of the European Central Bank (ECB), clouds the euro zone's economic horizon. A study in 2018 by the IMF found that Britain's economy, already deeply integrated with the rest of the EU, became even more so after the 2007-08 financial crisis. The worst effects of loosening those ties will be felt in Britain. But others in Europe will not go unscathed. Small open economies are the most vulnerable.

The countries with the closest trading ties with Britain include Belgium, Ireland and the Netherlands. According to the IMF, Ireland's exports of goods and services to Britain amounted to 15% of GDP in 2014-16,

and those of Belgium and the Netherlands nearly 10%. All three also rely relatively heavily on imports from Britain.

Ireland and the Netherlands are intertwined with Britain in other ways too. Thanks to history and geography, migrant flows between Ireland and Britain are large, equivalent to nearly a fifth of the population of Ireland. (Malta and Cyprus, which also have historical ties to Britain, see large migrant flows, too, relative to their size.) The Netherlands is a big investor in British business: its stock of foreign direct investment in the country was equivalent to an average of almost 80% of Dutch GDP in 2014-16, the highest share in the EU.

Irish and Dutch financial firms have relatively high exposures to British borrowers. Luxembourg also has close trade and investment links, according to analysis by S&P Global, a credit-ratings agency. But that may partly reflect the fact that some British firms register there for tax purposes.

Larger countries are better insulated, but certain sectors are still exposed. A study by Hans-Ulrich Brautzsch and Oliver Holtemöller for the Halle Institute of Economic Research finds that 15,000 jobs in Germany—around 1% of employment in its car industry—depend either directly or indirectly on exports to Britain. S&P analysts note that Spain is most exposed through its ownership of banks, telecoms and insurance firms in Britain.

The IMF reckons that the long-term impact of Brexit on the EU27 as a whole would be modest, provided a deal is struck. But some countries might still suffer. If Britain left the single market and instead signed a free-trade deal with the EU, the fund reckons output in Ireland would eventually fall by 2.5%, and that in Belgium and the Netherlands by 0.5-0.7%. In the event of no deal, the losses would nearly double.

As small members of a monetary union, these countries cannot expect the ECB to come to their rescue with euro-zone-wide monetary loosening. Instead, their governments would probably need to stimulate their economies. Whereas Ireland and the Netherlands have the fiscal space to cushion the blow, Belgium, with a public-debt ratio of around 100% of GDP, has less room to act.

For now, though, the focus is on minimising near-term disruption. Ireland has promised its farmers help in the event of a no-deal Brexit. In Rotterdam the port authority plans to extend its digital-clearance system for non-EU imports to include British exports. Hundreds of extra customs officers have been hired. Lorries that arrive without the right documents will be directed to contingency parking spaces while they seek clearance, says Leon Willems of the port authority. Clarity on Britain's plans would help the preparations. But, he sighs, they are still a “black box”. ■

The burden of Brexit

Trade flows with Britain, % of country's GDP
2014-16 average



Source: IMF

Charlemagne | A Machiavellian moment

The era of a “Europe that protects” is dawning



EUROPE'S POST-COLD-WAR history can be conveniently divided into three decade-long phases. The first, from the fall of the Berlin Wall in 1989 to the introduction of the euro in 1999, was marked by institutional expansion. The period from 1999 to 2009 was one of geographical expansion as the union took in 12 new members. But since 2009 crisis has dominated: in the euro zone, in the EU's near-abroad from Ukraine to Syria, in trans-Mediterranean migration flows, in Britain's decision to leave and in the transatlantic alliance under President Donald Trump. Once benign-seeming actors like China and Silicon Valley technology firms have turned threatening. Europe has seemed like a dry leaf tossed around on the winds.

Yet something is changing. With the five-yearly European elections looming next month, the EU is for the first time in ages closing in on something like a common purpose: *une Europe qui protège*, or “a Europe that protects”. What this means in practice, whether the EU can enact it and whether that is even desirable is all up for debate. But Europe has a new sense of direction.

That is the argument of Luuk van Middelaar in his new book “Alarums and Excursions”. The Dutch historian argues that improving its way through a decade of emergencies has changed the EU. He describes these crises, and Brexit in particular, as a “Machiavellian moment”. The term belongs to John Pocock, a historian who coined it in 1975 to describe the point at which republics come to terms with their own mortality amid the “stream of irrational events”. Such states, argued Mr Pocock—using the examples of Renaissance Italian states, civil-war England and early republican America—suddenly recognise the need to fight for their own legitimacy and sovereignty.

Mr van Middelaar reckons that Europe's “new awareness of the need to protect itself and its citizens” is one such moment. He traces the shift's roots to the phone calls that flew between European capitals early on the morning after the Brexit vote in June 2016. “Jean, this isn't looking good,” Martin Schulz, then the president of the European Parliament, told Jean-Claude Juncker, the president of the European Commission, at 7am. Then Europe's long-restrained instinct for self-preservation kicked in. “What doesn't kill you makes you stronger,” Donald Tusk, the president of

the European Council, told journalists a couple of hours later. Over the following weeks Angela Merkel forged a common EU response to the vote, while Mr Tusk and Mr Juncker defended the union with gusto in speeches.

Europe, its leaders suddenly seemed to realise, needed to defend itself. And in turbulent times that meant better protecting its citizens from the seeming loss of control that had driven Britain's voters to reject the union. Mr van Middelaar draws a line from the shock of the Brexit vote to much that followed: Mr Macron's adoption of *une Europe qui protège* as a response to populism, Mrs Merkel's comments in May 2017 that Europe could no longer rely on others (meaning America) for its security, and “recent decisions on border protection, foreign investment screening and defence co-operation”. Noting that support for the EU has risen since Britain voted to leave, he writes: “An awareness is growing that European security and ‘sovereignty’ are not a given.”

Mr van Middelaar overstates Brexit's role. Major elements of the protective European agenda, like stronger border security and the regulatory crackdown on American digital giants, predate June 2016. Other elements, like the new suspicion of China and tentative shifts towards EU-wide defence, are a response to geopolitical shifts far beyond Europe. But his underlying observation is right: the union has rediscovered a sense of mission. Witness the new Franco-German manifesto for interventionist industrial policies; the EU's incoming “upload filter” strengthening online copyright laws; new money and powers for Frontex, the EU's external borders agency; and the EU-China summit on April 9th, where the EU pushed Beijing, to reduce distorting state subsidies and to stop obliging companies to transfer technology.

In the coming European election campaign politicians will compete less on whether the EU is a good thing (Brexit has curbed others' appetite to flounce out) and more on how it can be used to shield the little guy from change. The far left will emphasise economic protection; the far right will stress repatriating immigrants; centrists like Mr Macron and Mrs Merkel will offer an array of milder economic and social protections. That election campaign will colour the next European Parliament and European Commission. From the institutional expansion of the 1990s and the geographic expansion of the 2000s, Europe is emerging from the crisis years of the 2010s with a new mission to retrench, consolidate and most of all protect—both itself and its citizens.

Easier said than done

By protecting voters from things they don't like, the EU may make itself more popular and therefore more stable. But there are two snags. The first is that some protections harm the openness that underpins Europe's prosperity. For example, ramming together existing firms to create new “European champions”, as the Paris-Berlin industrial strategy proposes, is anti-competitive: a protectionist Europe will be poorer in the long run. The second problem is that the EU lacks the powers of co-ordination required to play the sort of muscular role that its leaders are promising. The Franco-German alliance at the union's core is stagnant. European politics is becoming more fractious and fragmented. And a more diverse and larger union is proving harder to run. Proposals for common action, on China for example, are increasingly at odds with unanimity requirements in areas like foreign policy. Without confronting those structural barriers, Europe's leaders will not be able to give voters anything like the protection they promise. And that risks another decade of polycrisis. ■



The Brexit summit

Trick or treat?

BRUSSELS

The European Union has allowed Theresa May to delay Brexit until October 31st. She may not even be prime minister by then

IT HAS LONG been obvious that Theresa May is not in charge of much. The prime minister has limited control of Parliament, her Conservative Party or even her own cabinet. And she has even less sway over the European Union, as became clear in another EU Brexit summit on April 10th.

Mrs May had asked European leaders to put back the Article 50 Brexit deadline—originally March 29th, later extended to April 12th—until the end of June. As when she made a similar request three weeks ago, her wishes were largely ignored. Over a long dinner without her, the leaders of the EU's 27 other countries decided instead to extend the deadline to October 31st, with a review of progress in June.

Another delay to Brexit was a foregone conclusion. Nobody beyond the Tory party fringes seriously backed the alternative of Britain crashing out now with no-deal. Especially important to the EU 27 were the views of Leo Varadkar, the Irish taoiseach, whose country would suffer most from a no-deal Brexit and who wanted a long Article 50 extension. Even if EU leaders were fed up with Mrs May, nobody wanted to

override Mr Varadkar.

Yet getting agreement was not easy. Several leaders favoured a longer extension of up to a year, if only to avoid being asked repeatedly to agree to a series of short ones. But Emmanuel Macron, the French president, argued for a short deadline to increase the pressure on Britain to make up its mind. A longer delay might only give MPs in Westminster more time to quarrel, rather than agree on a form of Brexit they could support. The eventual compromise was to offer another six months, meaning Britain is due to leave on Halloween.

What might be achieved during this

→ **Also in this section**

55 Internet policy

56 Chinese students and the LSE

— **Bagehot is away**

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period? MPs have already rejected the draft Brexit deal three times. EU leaders are categorical that the withdrawal agreement, which includes the unpopular Irish backstop to avert a hard border in Ireland, cannot be changed. Indeed, they have made clear that, even after a no-deal Brexit, this would be a precondition for a future trade deal. But they would happily change the political declaration about future relations in order to soften Brexit, perhaps adding a permanent customs union or even membership of the single market.

Like many in Westminster, European leaders are sceptical that the recently begun talks between Mrs May and the Labour opposition leader, Jeremy Corbyn, will yield an agreement. And, after watching two rounds of indicative votes in Parliament, they also doubt there is a clear majority among MPs for any alternative version of Brexit. Yet despite these doubts, they felt it was better to kick the can down the road for another six months than have a full-blown crisis now.

A bigger concern was what to do with a Britain that will now be a member for longer than planned. One difficulty is the European Parliament elections that are due at the end of May. Yet although Mrs May had previously resisted the notion that Britain might participate ("What kind of message would that send?" she asked in a televised address only three weeks ago), this time she quickly conceded that it would. Jean-Claude Juncker, the European Commission's president, called such an

► election “curious”, which indeed it will be. But fears that British voters might elect maverick MEPs are partly assuaged by the knowledge that so will those of many other countries.

More worrying is the notion that Britain could disrupt the EU’s everyday business by using its veto, as some Brexiteers have proposed. The EU summit sought assurances from Mrs May that she would act responsibly. But the real fear is over her own durability. After all, last month she told Parliament that she could not as prime minister accept any delay in Brexit beyond June 30th. In Brussels Mrs May defended herself over this by repeatedly saying that, if Parliament would only agree, Britain could still be out by then.

Yet her vulnerability and her lost authority are obvious to all—as is the plotting among Conservative MPs over the succession. Her own ministers have begun to talk openly about who might make the best candidate. The Tories are likely to do badly in local elections on May 2nd and worse still in the European ones on May 23rd, which will only increase the pressure on the prime minister to quit.

Till May be out

The concern in the EU is that any plausible successor as Tory leader will be a hard Brexiteer such as the former foreign secretary, Boris Johnson. Any new prime minister would doubtless be constrained by the same forces that have boxed in Mrs May. But a more hardline prime minister might be readier to contemplate a no-deal Brexit, perhaps after holding and winning another general election. The EU may have found Mrs May tiresome, but it is aware that her successor could be worse.

The deeper point is that Britain is still split down the middle. There is little sign of agreement between or even within the main political parties. Some revealing evidence emerged at two separate events in London on April 9th. A rally to promote a second referendum on the deal, which included several Tory MPs, loudly demonised both Mr Johnson and his fellow Tory Brexiteer, Jacob Rees-Mogg. Meanwhile a meeting of the hardline Eurosceptic Bruges Group was not only denouncing Mrs May as a traitor, but also expressing hostility to Mr Johnson and Mr Rees-Mogg for belatedly backing her deal. The atmosphere was more of a revolution consuming its own than of emerging consensus.

The biggest fear of all in Brussels this week may not have been about Mrs May’s weakness or even about her successor. It is that even in October Britain will still be unable to make its mind up. And as Donald Tusk, the European Council president, conceded after the meeting, that could mean more late-night summits to discuss further Article 50 extensions. ■

Internet policy

First, do no harms

Ministers unveil an ambitious proposal to regulate online content

IN THE SPRING a government’s fancy turns to thoughts of internet regulation. This month alone, Singapore announced a bill to clamp down on fake news, Taiwan said it would ban Chinese-owned video-streaming services and Australia rushed through its parliament a Sharing of Abhorrent Violent Material bill, which among other things seeks to hold tech-company executives personally liable for failing swiftly to take down offensive content.

On April 8th the British government published a 102-page policy paper outlining how it thinks internet regulation should work to reduce what it awkwardly calls “online harms”. It is enormous in scope and hugely ambitious, encompassing any company that allows people “to share or discover user-generated content or interact with each other online”. That would include not just big social networks but also community forums, review sites, dating apps and much else. The harms covered are similarly extensive, from terrorist material and child abuse to more subjective things such as trolling and disinformation. Some fear it opens the door to censorship of the internet.

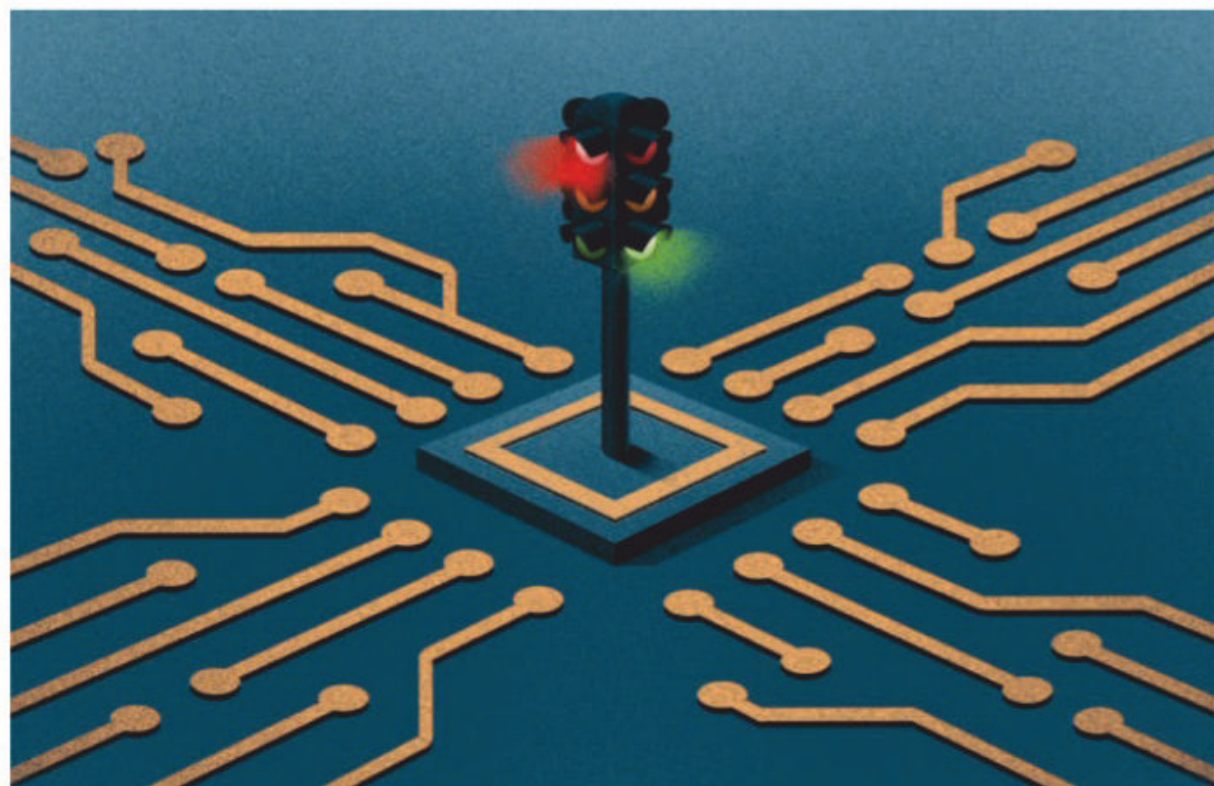
To be sure, there is a lot to iron out. The government appears keen to avoid stifling speech, imposing cumbersome regulation on small companies, snooping on private conversations or setting up large-scale monitoring of online traffic. But the paper is vague on how it will achieve its aims of

proportionate regulation and monitoring without infringing on liberties.

Moderating content on the internet has so far been a losing game of whack-a-mole. This was brought home by the Christchurch massacre in New Zealand in March, when a video of the shooting and a manifesto written by the alleged culprit spread rapidly on some of the world’s best-resourced social-media platforms despite efforts to prevent their dissemination. In the case of both copyright and terrorist- or abuse-related material, tech platforms are legally responsible for quickly removing content they find or are made aware of. Yet merely taking down objectionable content ignores the question of how it got there.

Britain’s approach—which it hopes will be adopted elsewhere—is to require companies to design their services in ways that make it harder for bad content to spread in the first place. The big idea is to impose a statutory “duty of care”. Companies must “take reasonable steps to keep their users safe and tackle illegal and harmful activity on their services”. The government will set up a new regulator or hand new responsibilities to an existing one, such as Ofcom, which oversees broadcast media and telecoms, or the Information Commissioner’s Office, the data-protection watchdog. The regulator’s mandate will be broad: publishing guidelines for companies, overseeing complaints, encouraging co-operation between firms and issuing fines, as well as other, harsher penalties, including blocking websites in Britain or holding senior managers personally responsible.

The eventual legislation will have to walk a tightrope between several conflicting imperatives. Maintaining national security and protecting the vulnerable must be balanced against individual liberties. Imposing substantial requirements on big tech companies must not stifle innovation ►



▶ or prevent smaller firms from thriving. And the new law must not conflict with existing British and European rules that protect online platforms from liability for content they simply host. On the last, the government's plans seem to suggest that, so long as companies live up to their duty of care by designing products in a way that discourages the dissemination of proscribed material, they will be protected.

Tech firms said they would work with ministers to fine-tune the regulations. They are already resigned to being kept on a tighter leash. Last month Mark Zuckerberg, Facebook's boss, called for more internet regulation in an article in the *Washington Post*. Draft legislation will appear at the earliest in the autumn, and is unlikely to become law for a couple of years. A change of prime minister, a general election or continued parliamentary gridlock around Brexit could see it slip down the agenda. As the policy paper puts it, the government will "bring forward legislation when parliamentary time allows". In the meanwhile, the harms continue to multiply. ■

International education

Art attack

Relying on Chinese students presents diplomatic problems for universities

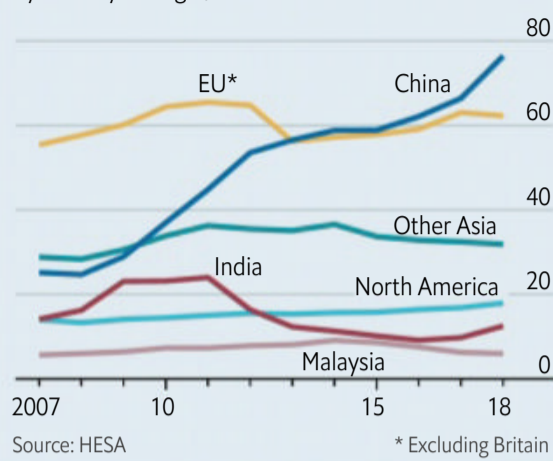
THE SCULPTURE, a large, upside-down globe, brightly coloured like a child's toy, looks innocuous enough. The intention behind it, according to the London School of Economics (LSE), is to recognise the university's "international community". That is not the spirit in which it has been received. Chinese students protested that Taiwan, which China claims, was shown as an independent country, and that Lhasa, in Tibet, was marked as a national capital. Following a meeting with students, press reports suggested that the LSE would change the map. Cue fury from Taiwan, whose foreign ministry fired off a letter expressing its disappointment and noting that Tsai Ing-wen, the country's president, is herself a graduate of the LSE.

The university now says the sculpture does not reflect the geographical boundaries that it expected, but that "no final decisions have been reached." It has stumbled into an important test of how willing universities are to stand up to China, says Kerry Brown, director of the Lau China Institute at King's College London. The LSE depends on foreign students, who count for 68% of those at the university (some 11% of the total number are Chinese). And the university already has an awkward history

Degrees in geography

Britain, first-year university students

By country of origin, '000



of foreign entanglements. In 2008 it awarded a PhD to Saif Qaddafi, son of Muammar, the late Libyan tyrant, after accepting a £1.5m (\$2.9m) donation from his foundation.

China is likely to be a source of angst for many more British universities in years to come. Along with Australia, Canada and America, Britain has benefited from the country's growing appetite for foreign education. The depreciation of the pound since the Brexit referendum in 2016 has provided an additional boost; British universities are now "quite a good bargain for Chinese students", says Yinbo Yu, the international officer at Britain's National Union of Students. In the past decade the number of Chinese students has more than tripled, with 76,425 starting a degree last year (see chart).

Like their classmates, most Chinese students just want to study and have fun. A minority, though, see themselves as "an extension of the party state", says Steve Tsang, director of the China Institute at SOAS. In 2017 students and the Chinese em-

bassy protested against a debate at Durham University entitled, "This house sees China as a threat to the West", as well as the participation of a supporter of Falun Gong, a sect outlawed in China. Chinese students' associations at some universities are believed to keep an eye on those who head overseas. "There is a fear on the part of Chinese students that anything they do or say could be reported and influence their future," says Charles Parton of the Royal United Services Institute, a think-tank.

The presence of students also grants the Chinese government leverage over universities. When Louise Richardson, vice-chancellor of Oxford University, was asked by the Chinese embassy to prevent Lord Patten, the university's chancellor (a largely ceremonial role), from visiting Hong Kong, she refused. Not all administrators are so steadfast. Mr Tsang says officials at another leading university attempted to get a speaker disinvited from an event after pressure from the embassy. Last summer an academic was removed from the management board of Nottingham University's campus in Ningbo, a city on China's eastern seaboard, after writing an essay critical of the 19th Communist Party Congress, a meeting of government bigwigs.

British universities have worked hard to court the Chinese, and the rush of students paying hefty international fees demonstrates the benefits of this approach. But as the LSE is now finding out, it is not without drawbacks. When threatened with receiving fewer Chinese students by the Chinese embassy, Ms Richardson of Oxford replied that there were many Indians who would be happy to take their place. The same is surely true at the LSE, one of the world's leading academic institutions. It might just want to think carefully about what colour it shades Kashmir. ■



A world of trouble



Kidney transplants

The gift of life

Kidney donors are wanted, dead or alive. There are not enough of either kind

MELISSA BENSOUA, of Kansas City, Missouri, was 25 when she was diagnosed with late-stage kidney disease. She had to start dialysis, hooking up three times a week to a machine that filtered her blood. “It wipes you out,” she says. Queasy and fatigued, Ms Bensouda struggled to care for her children and to keep working full time. To secure a place on the waiting list for a kidney transplant, she had to tackle other health problems first. It took a year and cost \$10,000 to treat dental problems, to which people with kidney disease are prone. In 2012, after nearly ten years on dialysis, Ms Bensouda was given a transplant. The new kidney lasted only five years. So she is back on the waiting list—along with 95,000 other Americans.

In a typical year just one in five of them would get a transplant. One in ten would die or become too sick and drop off the list. Europe struggles, too. In the European Union in 2013 more than 4,000 patients died while on a kidney waiting list.

And waiting lists are often just the tip of an iceberg. Many patients in Europe, for ex-

ample, suspect that doctors prefer to keep them on dialysis—which is a big, lucrative business—rather than to get them fit for a transplant. In America many people who need a transplant never join the list because they cannot pay for the drugs they need to take afterwards.

Some people’s kidneys fail because of a genetic disease or an injury. But the main reason is diabetes. This is caused predominantly by obesity, which is rampant in more and more countries. So kidney waiting lists will become even longer.

Shortening them will save more than personal misery. In Britain a kidney transplant, which lasts for 10 to 13 years on average, starts saving the National Health Service (NHS) money compared with the cost of dialysis in the third year. In America a transplant saves \$60,000 per year compared with remaining on dialysis. (In poor countries few people can afford dialysis, and so cannot wait for a deceased donor, meaning no waiting lists.)

Roughly two-thirds of kidney transplants in rich countries are from deceased

donors (see chart on next page). The rest are from living donors who part with a kidney to help someone. One kidney can perfectly well manage the job of the two that most people are born with.

Historically, northern European countries have promoted kidney donations from living donors. Southern Europeans have had reservations about the unnecessary surgery involved. Instead they have sought ways to increase donations from the dead. In Spain just 15% of families refuse to donate the organs of relatives who die; in Britain a third say no. Some are unsure what the deceased person wanted; others think that doctors might not do all they can to save their loved one if they can take the organs. Cultural differences play a role, too. Most Japanese, for example, feel uneasy about the idea of taking organs out of a dead body.

By and large more people say they want to donate than actually volunteer to add their names to a donor registry. This has encouraged more countries to follow Spain, which has the world’s highest organ-donor rate and in 1979 became the first ▶▶

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country to introduce a law making organ donation upon death the presumed choice of anyone who has not registered to opt out. England, France and the Netherlands recently changed their laws to that effect; Australia and several other countries are debating the idea.

But in practice these new laws may not make much difference. In Spain, for a decade after 1979, donations did not increase. They did so only after other measures were introduced: a new transplant co-ordination hub; intensive-care doctors and nurses were trained in organ donation; and looking out for potential donors became the norm. Croatia copied the Spanish model (rebranding it “the Croatian model”) and saw organ transplants more than double between 2007 and 2011.

All but a few presumed-consent countries still give next-of-kin a final say, as an extra safeguard (and to avoid an outcry from critics of organ donation). Mark Murphy, the outgoing head of the European Kidney Patients Federation, sees the fuss around presumed consent as a distraction. Politicians, he says, prefer to blame the organ shortage on bereaved people than to invest in the logistics and incentives proven to increase transplants.

Preservation orders

Beatriz Domínguez-Gil of the Spanish National Transplant Organisation says that Spain adapted earlier than other countries to the ageing of the pool of deceased donors. Its doctors learned to transplant organs from donors in their 70s and 80s (typically for older recipients). A quarter of deceased donors are people with devastating brain injuries put on organ-preservation treatment as part of their end-of-life care. In many countries they are sent instead for palliative care and lost as donors.

At what stage doctors are allowed to retrieve organs matters hugely. In less than half of European countries can the process start after the heart stops (and organ damage begins), rather than when the brain shuts down too. Across Europe, the “no-touch” time before organ retrieval can then begin varies from 5 to 20 minutes.

Nowhere, however, are enough kidneys available from the dead. Just 1-2% of people die in ways that make their organs suitable for donation—eg, from a brain injury sustained in an accident. So the living are needed. Some countries, such as Ireland and Germany, require a living donor to have close ties to the patient. But many allow people to donate a kidney to whomever they choose. Paula King, a 49-year-old American woman, decided to donate a kidney to a stranger after seeing the trouble a relative had in finding a bone-marrow donor, when nobody in the family was a match. “I wanted to alleviate the stress on another family out there at the mercy of a

stranger,” says Ms King. In Britain such so-called “non-directed” donors account for nearly 10% of living-donor transplants.

In the past, older people were rarely considered as potential donors. But it is clear that this is misguided, says Dorry Segev of the Johns Hopkins University in Baltimore. In fact, he says, predicting the lifetime risk of kidney failure for a 25-year-old is hard, whereas someone who has done well for 70 years will probably be fine with only one kidney. Between 2014 and 2018 in America the number of living kidney-donors aged 65 or older doubled; those aged 50-64 grew by more than a quarter.

A kidney donor typically needs two days in hospital and about a month to recover. About 20% suffer some, mostly minor, complications. In many countries some would-be donors are deterred by the cost of travel and other expenses. In the Netherlands, which has the highest rate of living organ-donors in the rich world, kidney donors get three months of paid leave to recover, as well as payment for related costs—even such needs as dog-sitting. In America, by contrast, donors get only some expenses paid for, and only if they are poor.

Almost half of would-be kidney donors are not biological matches for the person they want to help. So kidney-exchange schemes have evolved. In these a patient gets a kidney from a suitable living donor only if someone donates one on his behalf for another patient. Pioneered by South Korea in 1991, national kidney-for-kidney schemes have been adopted by Australia, Canada and many European countries. In America some transplant centres and several non-profit groups run their own.

Britain’s exchange scheme conducts an algorithmic search for matches quarterly. Non-directed donors are precious, because they can be used where they are most needed, depending on the mix of blood groups and other criteria, and so initiate a chain of

other matches—greatly boosting the number of transplants. Donors in a kidney-for-kidney swap have surgeries scheduled as close as possible in time—not because some may renege (that is rare) but because “life happens to people”, says Lisa Burnapp of the NHS. In a long gap, a recipient might become too ill for the operation, for example, or something unexpected might happen to prevent a donor from going ahead.

Such schemes are particularly beneficial for people who have had a blood transfusion or are waiting for a second transplant, because donors who suit their mix of antibodies may be extremely rare. If all living donors in America were allocated through a nationwide exchange, kidney transplants from such volunteers could double, says Jayme Locke of the University of Alabama at Birmingham.

Buddy, can you spare a kidney?

But many people, understandably, cannot bring themselves to ask others for a kidney. The task is not just embarrassing, says Price Johnson, who speaks from experience; the aim is to find several volunteers in the hope that at least one would stick to it through the many tests and get medical clearance for the operation.

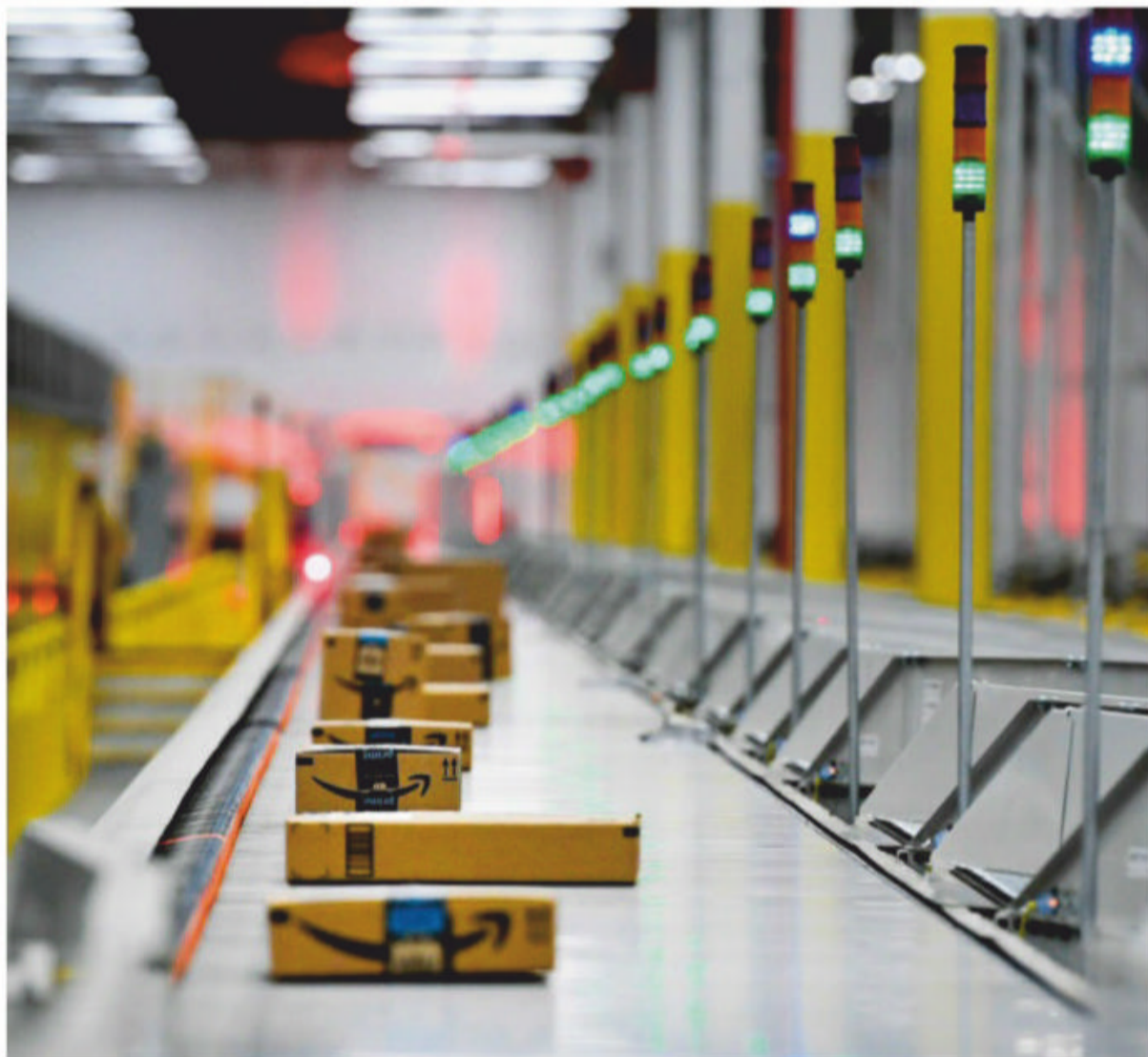
To help with all that, patient groups have developed a train-a-friend model, finding people willing to search on the patient’s behalf and teaching them what to do. A dedicated Facebook app helps to create a social-media appeal with links to vetted information about kidney donation. A small trial in America found that after ten months users of the app were six times more likely than non-users to find a donor. But this “lost-dog” approach to finding donors means losing privacy, says Mr Johnson. He wishes that donors could be paid.

The only country where that is legal is Iran. Buyers and sellers are mediated by patient foundations. The price of a kidney is set at roughly the average annual income of a family on the poverty line. The vast majority of sellers are poor; some sell a kidney to repay debts in order to avoid prison. Poor buyers rely on help from charities.

Academics in America have proposed versions of this system as a solution to the country’s shortage of kidneys. Patient groups have not thrown their weight behind the idea. They are lobbying for European-style benefits for living donors.

In five to ten years advances in medical technology could make this debate irrelevant. Both xenotransplants (pig kidneys adapted for humans) and bio-engineered artificial kidneys might become viable options within a decade. But for thousands of people whose kidneys have already stopped working, these medical miracles will come too late. They need a better system for organising the proven wonder of human-to-human transplants. ■





→ Also in this section

60 Afghan e-commerce

61 Turkish Airlines

61 Mittelstand and Brexit

62 Peak profits in America?

62 Gambling for millennials

63 The influence business

65 Schumpeter: Rebooting Airbus

— Bartleby is away

AI at Amazon

The learning machine

SEATTLE

The online commercial empire rests on a low-key approach to artificial intelligence

AMAZON'S SIX-PAGE memos are famous. Executives must write one every year, laying out their business plan. Less well known is that these missives must always answer one question in particular: how are you planning to use machine learning? Responses like “not much” are, according to Amazon managers, discouraged.

Machine learning is a form of artificial intelligence (AI) which mines data for patterns that can be used to make predictions. It took root at Amazon in 1999 when Jeff Wilke joined the firm. Mr Wilke, who today is second-in-command to Jeff Bezos, set up a team of scientists to study Amazon's internal processes in order to improve their efficiency. He wove his boffins into business units, turning a cycle of self-assessment and improvement into the default pattern. Soon the cycle involved machine-learning algorithms; the first one recommended books that customers might like. As Mr Bezos's ambitions grew, so did the importance of automated insights.

Yet whereas its fellow tech titans flaunt

their AI prowess at every opportunity—Facebook's facial-recognition software, Apple's Siri digital assistant or Alphabet's self-driving cars and master go player—Amazon has adopted a lower-key approach to machine learning. Yes, its Alexa competes with Siri and the company offers predictive services in its cloud. But the algorithms most critical to the company's success are those it uses to constantly streamline its own operations. The feedback loop looks the same as in its consumer-facing AI: build a service, attract customers, gather data, and let computers learn from these data, all at a scale that human labour could not emulate.

Mr Porter's algorithms

Consider Amazon's fulfilment centres. These vast warehouses, more than 100 in North America and 60-odd around the world, are the beating heart of its \$207bn online-shopping business. They store and dispatch the goods Amazon sells. Inside one on the outskirts of Seattle, packages

hurtle along conveyor belts at the speed of a moped. The noise is deafening—and the facility seemingly bereft of humans. Instead, inside a fenced-off area the size of a football field sit thousands of yellow, cuboid shelving units, each six feet (1.8 metres) tall. Amazon calls them pods. Hundreds of robots shuffle these in and out of neat rows, sliding beneath them and dragging them around. Toothpaste, books and socks are stacked in a manner that appears random to a human observer. Through the lens of the algorithms guiding the process, though, it all makes supreme sense.

Human workers, or “associates” in company vernacular, man stations at gaps in the fence that surrounds this “robot field”. Some pick items out of pods brought to them by a robot; others pack items into empty pods, to be whirred away and stored. Whenever they pick or place an item, they scan the product and the relevant shelf with a bar-code reader, so that the software can keep track.

The man in charge of developing these algorithms is Brad Porter, Amazon's chief roboticist. His team is Mr Wilke's optimisation squad for fulfilment centres. Mr Porter pays attention to “pod gaps”, or the amount of time that the human workers have to wait before a robot drags a pod to their station. Fewer and shorter gaps mean less down time for the human worker, faster flow of goods through the warehouse, and ultimately speedier Amazon delivery to ▶▶

▶ your doorstep. Mr Porter's team is constantly experimenting with new optimisations, but rolls them out with caution. Traffic jams in the robot field can be hellish.

Amazon Web Services (AWS) is the other piece of core infrastructure. It underpins Amazon's \$26bn cloud-computing business, which allows companies to host websites and apps without servers of their own.

AWS's chief use of machine learning is to forecast demand for computation. Insufficient computing power as internet users flock to a customer's service can engender errors—and lost sales as users encounter error pages. “We can't say we're out of

stock,” says Andy Jassy, AWS's boss. To ensure they never have to, Mr Jassy's team crunches customer data. Amazon cannot see what is hosted on its servers, but it can monitor how much traffic each of its customers gets, how long the connections last and how solid they are. As in its fulfilment centres, these metadata feed machine-learning models which predict when and where AWS is going to see demand.

One of AWS's biggest customers is Amazon itself. And one of the main things other Amazon businesses want is predictions. Demand is so high that AWS has designed a new chip, called Inferentia, to handle these

tasks. Mr Jassy says that Inferentia will save Amazon money on all the machine-learning tasks it needs to run in order to keep the lights on, as well as attracting customers to its cloud services. “We believe it can be at least an order-of-magnitude improvement in cost and efficiency,” he says. The algorithms which recognise voices and understand human language in Alexa will be one big beneficiary.

The firm's latest algorithmic venture is Amazon Go, a cashierless grocery. A bank of hundreds of cameras watches shoppers from above, converting visual data into a 3D profile which is used to track hands and arms as they handle a product. The system sees which items shoppers pick up and bills them to their Amazon account when they leave the store. Dilip Kumar, Amazon Go's boss, stresses that the system is tracking the movements of shoppers' bodies. It is not using facial recognition to identify them and to link them with their Amazon account, he says. Instead, this is done by swiping a bar code at the door. The system ascribes the subsequent actions of that 3D profile to the swiped Amazon account. It is an ode to machine learning, crunching data from hundreds of cameras to determine what a shopper takes. Try as he might, your correspondent could not fool the system and pilfer an item.

Fit for purpose

AI body-tracking is also popping up inside fulfilment centres. The firm has a pilot project, internally called the “Nike Intent Detection” system, which does for fulfilment-centre associates what Amazon Go does for shoppers: it tracks what they pick and place on shelves. The idea is to get rid of the hand-held bar-code reader. Such manual scanning takes time and is a bother for workers. Ideally they could place items on any shelf they like, while the system watches and keeps track. As ever, the goal is efficiency, maximising the rate at which products flow. “It feels very natural to the associates,” says Mr Porter.

Amazon's careful approach to data collection has insulated it from some of the scrutiny that Facebook and Google have recently faced from governments. Amazon collects and processes customer data for the sole purpose of improving the experience of its customers. It does not operate in the grey area between satisfying users and customers. The two are often distinct: people get social media or search free of charge because advertisers pay Facebook and Google for access to users. For Amazon, they are mostly one and the same (though it is toying with ad sales). Where regulators do raise concerns is over Amazon's dominance in its core business of online shopping and cloud computing. This power has been built on machine learning. It shows no signs of waning. ■

Online retail

Social costs and benefits

KABUL

How Facebook came to dominate Afghan e-commerce

S AID SALIM, a 26-year-old entrepreneur in Kabul, Afghanistan's mountain-fringed capital, recently opened his first shop. On the top floor of Dawoodzai mall, one of Kabul's fanciest shopping destinations, he stands behind a counter stacked with his best-selling products: bottles of hair-loss lotion from Russia; posture-correcting devices from China; children's toys from the United Arab Emirates. Missing, however, are customers. The real storefront for Mr Salim's enterprise is Facebook. His “Global Online Shop” takes virtually all its orders over the internet. Its deliveries go out to customers by motorbike.

Few Afghans surf the internet. Although mobile phones have spread rapidly—and enterprising firms have put up masts even in places beset by fighting between government forces and the Taliban—only one in ten Afghans uses them to access the web. At least in big cities, though, that is changing fast. Younger, more affluent Kabulis are addicted to their phones. In the absence of e-commerce giants such as Amazon or Alibaba, small online retailers, who import products in bulk and sell them on, have stepped in. Facebook, access to which mobile-phone operators throw in at no extra charge, has become the country's premier internet bazaar.

Online business in Afghanistan faces the same grievous problems as the offline sort. Security is the most obvious. Nemat Ullah, a business graduate who set up his shop “Smart Sales Online” in 2017, says that last year one of his delivery drivers was murdered and his packages stolen. Smaller obstacles add up, too. Drivers can spend hours searching for a customer in streets unencumbered by a system of addresses. Without trade-



Window shopping

marks, competition is vicious—a successful shop can expect a flurry of imitators, often selling cheaper, poorer-quality versions of its wares.

The biggest problem of late has been Facebook itself. It is impossible to run an online store any other way, says Mr Ullah; other, unsubsidised mobile data is too pricey. But relying on Facebook means that to reach his potential customers he has to buy advertisements from it. Recently, as the social network has tried to reduce the clutter on its users' feeds, the price of advertising has gone up. Mr Ullah complains that it currently costs him \$10 to reach 1,000 customers. Previously, he could get to four times as many for that amount. His weekly advertising bill has soared. “I need a real shop,” he says.

Turkish Airlines

Soaring ambition

ISTANBUL

A new home helps Turkey's flag carrier challenge Gulf rivals

AIRPORT MEGAPROJECTS are ten a penny these days. China is building Beijing Daxing International Airport, a new hub airport near its capital, with a total capacity up to 100m passengers a year. Construction has begun on a vast new airport for Dubai, which its government hopes will eventually draw 130m flyers annually. Abu Dhabi and Qatar plan to erect cavernous new terminals. Yet perhaps none is as ambitious as Istanbul's New Airport, on Europe's eastern fringe in Turkey. It became fully operational on April 6th, and aims not just to impress visitors but also to help the country's flag carrier, Turkish Airlines, wrest the skies from its successful Gulf rivals.

It is easy to dismiss the endeavour as a white elephant erected by Turkey's sultan-like president, Recep Tayyip Erdogan. Everything about it is huge. Turkish, which is by far the new airport's biggest user, had to move 10,000 pieces of equipment weighing over 47,000 tonnes 40km (25 miles) from its old home at Ataturk airport. In less than five years a forested valley the size of Manhattan has been transformed into a facility with enough room for 3,000 flights a day carrying 90m flyers a year. That could make it one of the world's largest airports by international passenger numbers. If all goes to plan, by 2028 the airport will have six runways and capacity for 200m passengers a year.

Its \$1bn price tag, too, is gargantuan, especially when Turkey's economy is shrinking and inflation is more than 20%. Delays and cost overruns forced the grand opening to be postponed by six months. In the rush to get the airport finished at least 52 builders have died, sparking protests.



Foreign airline executives see more than a prestige project, however. Compared with many of those in the Gulf, this one presents a sounder business case, thinks Mark Martin, an aviation consultant based in Dubai. Turkish is growing at an annual rate of 30%, unlike its Gulf rivals, whose expansion has stalled or gone into reverse (see chart). While it was fast running out of room at Ataturk airport, the threat it posed was limited. No longer.

Over the past decade the Gulf's three biggest carriers—Emirates of Dubai, Etihad of Abu Dhabi and Qatar Airways—redefined air travel. Most international carriers transport passengers to and from the airlines' home countries. Emirates, Etihad and Qatar used their "super-connector" home bases as places where flyers changed planes en route to elsewhere. The focus on higher-margin long-haul routes allowed them to charge less for superior service, luring passengers away from hub airports in America and Europe, and from the Western airlines that use them.

Now they risk being disrupted in turn by Turkish. The new airport is designed to turn Turkish into a fully fledged super-connecting airline. Fees that airlines, including Turkish, are charged for every passenger favour those in transit over those who start or end their journey there. Kadri Samsunlu, chairman of IGA, the new airport's operator, also says that its shopping areas were designed to be more attractive even than Dubai's and Qatar's.

The falling value of Turkey's currency has also proved beneficial. Analysts at CAPA, an aviation consultancy, calculate that Turkish earns 14% of its revenue in Turkish lira, but incurs 26% of its expenses in the currency. A weaker lira therefore lets it undercut rivals in the Gulf, which do not enjoy a similar advantage.

Finally, Istanbul is helped by its proximity to Europe. Turkish can use smaller narrow-body aeroplanes, which are cheaper to operate, on its routes to Europe. The Gulf carriers have to use bigger, more expensive wide-body jets that are great for long-haul flights but less efficient for middling distances. Smaller aircraft, including long-haul ones, allow Turkish to offer more flights to most destinations each day. Business travellers are willing to pay a premium for such flexibility.

The Gulf carriers are not giving up without a fight. In February Emirates cancelled most of its remaining orders for the Airbus A380 super-jumbo, the world's biggest passenger plane, in favour of smaller models. Sir Tim Clark, the president of Emirates, hopes that a partnership with flydubai, another Emirati airline that flies only narrow-body jets, will help it to preserve market share. If imitation is the sincerest form of flattery, Gulf carriers are reciprocating Turkish's earlier compliments. ■



Mittelstand and Brexit

Wait and see

BERLIN

Britain's departure from the EU is a headache for German businesses

GERMANY'S MID-SIZED manufacturers, collectively known as the Mittelstand, form the backbone of the world's fourth-largest economy. The fifth-biggest export market for their precision-engineered machinery and components is Britain, especially its car industry. Brexit, then, should be a worry. Yet according to BVWM, their trade association, only 17.6% of *Mittelständler* surveyed at the end of 2018 said they were "well prepared" for Brexit. Fully 77% thought Brexit would not affect them.

Plenty of German business folk long believed that Brexit would not happen, explains Mats Persson, head of the Brexit team at EY, a consultancy. They perceived the British as sensible people who would find a solution, even as evidence to the contrary piled up in Westminster. Many view Brexit as a local problem for Britain. And preparing for a range of Brexit scenarios would be too costly to trouble themselves with.

Or is it? Over the past three months the Mittelstand's nonchalance has turned into mild alarm. Seminars and panels for entrepreneurs and managers all over Germany dissect Brexit almost daily. Several federal states, including Hamburg and Lower Saxony, have set up hotlines for entrepreneurs with questions about Brexit. Many Mittelstand companies found excuses not to prepare for Brexit, says Christoph Torwegge of Osborne Clarke, a British law firm in Ham- ▶

burg with Mittelstand clients. Only two of Mr Torwegge's 20 clients took Brexit seriously from the start, he says. Now the other 18 are getting nervous.

Multinationals such as BMW, which owns the Mini brand and has plants in Britain, can afford a dedicated Brexit team. Smaller companies lack the resources to play around with hypotheticals. As a result, says Mr Persson, most of German business is unprepared, especially if there is a no-deal Brexit.

Consider a supplier of Jaguar Land Rover (JLR), a carmaker in Britain. A few weeks ago he rang his lawyer in a panic to ask how he could honour his "delivered duty paid" agreement, which dictates that he assumes all the responsibility, risk and costs of getting his wares to JLR within a day or two, if Britain crashes out of the EU leaving lorries stranded at customs in Calais or Dover. He tried to secure space to stockpile his products in warehouses near JLR plants in the West Midlands, but found they were all choc-a-bloc. The lawyer told him his options would be to renegotiate his contract—or break it.

Lucia Puttrich, Europe minister of Hesse, one of Germany's 16 *Länder* (states), cites three main Brexit concerns for Mittelstand firms: delays at customs, workers' mobility and the weakness of the pound, which makes German products less competitive. Less pressing but potentially big problems include different rules on data privacy, tariffs (if Britain leaves the customs union) and export and import licences. Britain is Hesse's fifth-biggest trading partner. The state exports €4.2bn (\$4.7bn) of goods and services a year across the Channel and im-

ports €5bn-worth. At least Frankfurt, Hesse's biggest city and Germany's financial centre, stands to benefit from Brexit more than most. Up to 10,000 banking jobs could migrate there from London.

There is a silver lining for the Mittelstand, too. In the three years since the Brexit referendum, with its loud anti-immigrant undertones, German firms have found it easier to hire welders and other skilled labourers from central and eastern Europe who began to feel unwelcome in Britain. According to a survey in February of 262 big German companies by Deloitte, an accounting firm, many German entrepreneurs hope that Brexit will divert foreign direct investment from Britain to Germany and prompt more startups to pick Berlin over London. Berlin's *Silicon Allee* received €2bn in venture-capital funding last year, less than half the sum showered on London's tech scene.

Hans-Peter Raible of Rödl & Partner, a consultancy that works with mid-sized and family-owned German firms, thinks that *Mittelständler* will ultimately adapt to whatever Brexit brings. BMW scheduled a maintenance shutdown at its operations in Britain after March 29th, the day when Britain was due to leave the EU. Honda and JLR also scheduled down time in their factories. When it became clear that Britain would not leave by that date, these costly breaks were too late to postpone. Mr Raible advises his anxious clients to avoid expensive contingency planning and instead pre-emptively draft new contracts with trading partners and apply for a customs number. Other than that, he counsels, best to wait and see. ■

Gambling

Jackpots and joysticks

Casinos want to make slot machines more attractive to millennials

ONE-ARM BANDITS make a killing for gambling dens. In America and Europe slot machines usually account for two-thirds of the house's takings. Their relative unpopularity among younger punters is therefore a worry for casino operators keen to preserve gaming revenues, which exceeded \$40bn in 2017 in America alone. Surveys in Las Vegas find that the typical player of slots is around 58, compared with 36 for all casino-goers. To make the machines more attractive to a new generation of gamblers—who are also cooler towards table games, where they fear looking gauche in front of a supercilious croupier—casinos are looking at machines that resemble video games millennials favour.

Many gambling authorities require each slot machine to offer all bettors an equal probability of winning. They fear that skill-based contraptions feed the "illusion of control", which in turn fuels gambling addiction (Japan's ubiquitous pinball-like Pachinko machines, which are played for prizes rather than cash, are a long-standing exception). But several are reconsidering their skill-aversion—possibly fearful of losing sin-tax revenues, which generate \$9bn annually for American states. In 2016 Nevada permitted slots that award greater winnings to players who demonstrate aptitude. New Jersey, home to Atlantic City, followed suit later that year.

Combining slots, which rely on dumb luck, and video games, which require skill, presents a number of challenges for their makers, and for casinos. Algorithms embedded in such hybrids must generate a mix of wins and losses which ensures that the house always wins in the end, but which lets punters succeed often enough that they do not take their dimes elsewhere. This is straightforward for purely probabilistic slots. It is considerably harder for those where skill improves the likelihood of winning. Mike Tomasello, operations chief at American Gaming and Electronics, a firm based in New Jersey that installs and repairs slots, says that casinos send skill-based slots back to the lab for tinkering more often than traditional ones.

On top of that, authorities in many places dictate that the odds of winning cannot be worse than a certain level. This "return to player" tends to be set at around 75% of whatever has been wagered over many bets. The complicated mathematics involved in squaring all these factors has ▶▶

Spring in their step

S&P 500, predictions for earnings per share, \$

○ Reported year-end



Peak profit?

Spring is all about growth. Not, it appears, for American bottom lines. As S&P 500 firms start reporting first-quarter results, FactSet, a data firm, estimates that their total earnings per share fell for the first time since 2016, by 4.2% year on year. Last year profits were fertilised by President Donald Trump's tax giveaway. Now margins are shrinking and the world economy has slowed. After upward revisions a year ago, profit forecasters have been pruning rosy predictions for 2019 and 2020. Still, they are not expecting a prolonged earnings winter. Corporate America looks ever the hardy perennial.



Skilling it

turned the area into a minefield of overlapping patents, says Georg Washington, boss of Synergy Blue, one of half a dozen firms which develop hybrid machines.

Get it right, though, and it pays off. Cocktail waitresses struggle to get the attention of players on hybrid machines built by Gamblit Gaming, crowns the company's boss, Eric Meyerhofer. Gamblit leases them to casinos for about \$60 a day. He says the average player is 15-20 years younger than for traditional slots. Pascal Camia, in charge of gaming at Société des Bains de Mer, which runs four casinos in Monaco, reports that its handful of skill-based slots rake in as much as traditional ones. Fruttis, a matching game akin to Candy Crush, has done reasonably well on the roughly 18,500 multi-game cabinets to which Veikkaus, Finland's state-owned gambling monopoly, has uploaded the title since September 2017. Last year Synergy Blue's puzzle-slot hybrid called Safari Match generated 10% more revenue than one-arm bandits at Augustine Casino in Coachella, California (takings have subsequently reverted to the average for traditional machines, possibly because the novelty is wearing off).

Because skill-based games require concentration, players take longer than the six or seven seconds typical of traditional one-arm bandits to place successive bets. Stable revenues from newfangled slots suggest that either punters are wagering higher sums, or occupying the machines for longer. Either way, it is good news for casinos.

Sina Hentunen, Veikkaus's head of slots, reckons that punters may ultimately prefer the mindless distraction of traditional slots to brain-racking video games. Messrs Meyerhofer and Washington will take the other side of that bet. ■

The influence business

Lobbying in Trumpland

WASHINGTON, DC

Advancing corporate America's interests is no easier under the CEO president

SINCE DONALD TRUMP was elected president, received wisdom has it, big business has run rampant in Washington, DC. The chief-executive-in-chief has filled his cabinet with fellow plutocrats, executives and, horrors, lobbyists. One who used to represent the coal industry runs the Environmental Protection Agency (EPA). The acting interior secretary, David Bernhardt, risks so many potential conflicts of interest from his previous life lobbying for energy and natural-resources firms that he carries around a card listing all 22 of them. Last year businesses spent more than \$3.4bn advancing their interests in the halls of government, 8.5% more than before the self-styled "CEO president" took office (see chart 1). The health-care, finance and industrial sectors each splurged over \$500m.

Yet these sums may reflect not how easy life is for corporate America in Mr Trump's Washington, but how difficult. The Chamber of Commerce, which has had the ear of every president, has successfully championed massive corporate-tax cuts but failed to dissuade the president from imposing tariffs and curbing immigration. Big Pharma, which had managed to raise drug prices regardless of which party controlled the White House, is being pressed by Mr Trump to lower them. Big Tech has three firms among the ten biggest spenders on lobbying—Alphabet, Facebook and Amazon—but few friends in Washington, not least because Silicon Valley has been critical of the president, often vocally so.

An interrogation of data and, mostly on the condition of anonymity, of lobbyists from across the political spectrum confirms that advancing corporate interests in

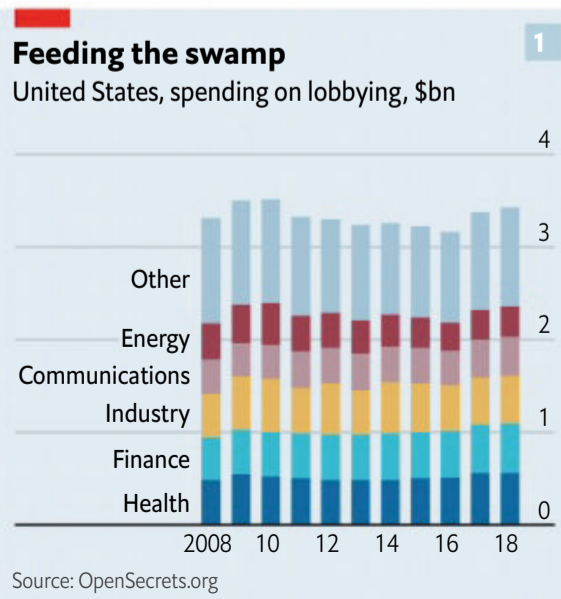
Mr Trump's Washington is no easier than under previous presidents. In some ways, it has got harder. And its results, gauged by firms' stockmarket performance, are ambiguous. Tax cuts have helped fuel a bull market in equities. But health care, which spends more than any other industry, has lagged behind (see chart 2 on next page).

One reason is that there is more to lobbying than buttering up the administration. As one veteran lobbyist notes, "80% of what business cares about is in the ambit of Congress." Lawmakers, meanwhile, have grown chary of business folk. And not just left-leaning Democratic representatives swept onto Capitol Hill in November's mid-term elections; high drug prices have so angered ordinary Americans that even previously reliable Republican allies in Congress can no longer protect pharmaceutical firms. Tech firms are out of favour on both sides of the aisle. Gone are the days when a well-connected fixer could have a discreet word with a committee chairman and make a client's problem go away. Social media mean no more "quiet issues", says Tony Fratto, a former senior official in George W. Bush's administration and now an adviser at Hamilton Place Strategies.

More counterintuitively, currying favour with Mr Trump's supposedly business-friendly administration is no picnic, either. Lobbyists cite four main reasons.

First, the president is an outsider. "Trump owes nothing to us," explains one of Big Pharma's top lobbyists. Nor do many of his appointees. Mr Trump rejected experienced Republicans who had not supported his candidacy, confides a senior financial lobbyist whose paymaster is an ardent Trump supporter. As a result, his administration is full of unknown entities.

Many, it is true, are business-friendly, especially compared with Barack Obama's big-government-loving lieutenants. But, and this is lobbyists' second headache, this must be weighed against the Trump bureaucracy's inefficiency. People are promoted for fealty to Mr Trump, not competence, which puts off many Republican technocrats; two years into the president's term, a record number of jobs across the executive branch remain unfilled. "You don't take every issue to the White House," notes Thomas Donahue, the long-serving head of the Chamber of Commerce. On most, lobbyists must try to win over other officials. The top lobbyist for a big technology firm ►



▶ struggles to find out who is working on given issues and how to reach them to build connections. Sometimes, he says, it is difficult to tell if anyone is working on them at all. James Connaughton, a senior environmental official in George W. Bush's administration, calls Mr Trump's unceremonious rollback of environmental rules "not deregulation but non-regulation". Anarchy is bad for business.

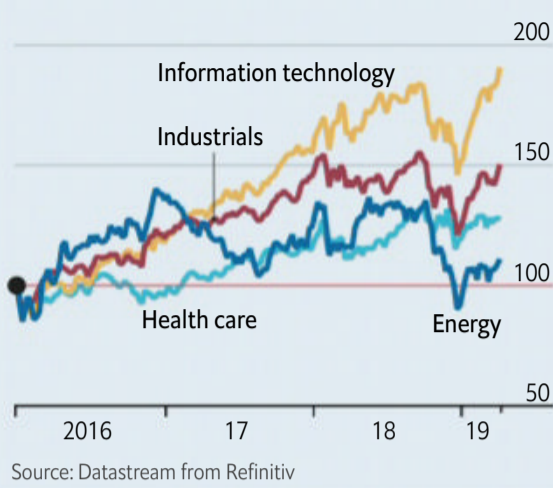
Third, respectable businesses promoting their legitimate interests worry about being sullied by association with Mr Trump's entourage, or his views. His campaign manager and personal lawyer have been sentenced to prison terms. The president himself is under investigation for alleged campaign-finance violations. A veteran lobbyist turned unregistered influencer is convinced that "everything will be investigated at some point". She makes sure all her contacts with government are above board.

Mr Trump's opinions, meanwhile, do not necessarily reflect the interests of corporations. His anti-environmentalism has helped some polluters, particularly in his beloved coal industry, but provoked unease among big firms. Carmakers and large utilities both oppose laxer rules, which could backfire. A conservative lobbyist takes pains to distinguish his blue-chip clients from small-time coal firms seeking cronyistic carve-outs from the EPA. Several corporate-advisory councils to Mr Trump's administration disbanded in the wake of his refusal to condemn white supremacists. Get close to the president, sums up Mr Fratto, and "you take on all of the baggage of Trump".

Finally, the intrigue of the Trump White House would baffle a Kremlinologist. A lobbyist for a leading private-equity firm warns that power there "shifts around very quickly". Boutique lobbying shops have

Health checked

S&P 500, share prices, January 1st 2016=100



mushroomed, as under every new president. These claim to offer access, observes a former Republican heavyweight turned lobbyist, "but lack substance". In any case, only a handful of Mr Trump's closest advisers carry any clout with their boss. Chief among them is Jared Kushner, his son-in-law, whom one lobbyist describes as "the last guy to put the president to bed". Even so, Mr Trump can catch out top aides with tweets born of gut feelings. "How do you lobby Trump's gut?" grumbles an environmental lobbyist with experience in the Clinton administration.

Evolution of the swamp creatures

Lobbyists are not short of ideas. Some use hyper-targeted advertising to reach the president as he watches Fox News or retreats to his Mar-a-Lago resort in Florida, according to a recent exposé by the *Washingtonian*, a magazine. T-Mobile, a telecoms firm, recently admitted to spending \$195,000 at Mr Trump's hotel near the White House, with executives reportedly sporting bright pink shirts emblazoned with the firm's logo. Others advise clients

to find a way to create jobs and to let the president take credit. A lobbyist for the lobbying industry warns that firms can no longer be too critical of the president, lest he unleash a withering tweet. But, he says, you can appeal to Mr Trump via Snapchat or Twitter. To reach the president, "you've got to make him the hero of your story," counsels a seasoned Democratic lobbyist.

Some bosses, for their part, are getting more personally involved with the president, risk to reputation notwithstanding. "Trump wants to hear directly from business leaders," says a former adviser to the president, whose administration he calls "the most CEO-friendly" ever. A Democratic operative agrees, noting the difference between Mr Trump and Mr Obama's posture of "we know what's best for the American people". A Republican member of one of Mr Trump's disbanded CEO councils recalls how past administrations' meetings with bosses "felt perfunctory", whereas now "they seem to pay attention and seek company input". When in late March Mr Trump addressed the Business Roundtable of America's biggest firms, Jeff Bezos, boss of Amazon, joined for the first time, even though Mr Trump had mocked him on Twitter as Jeff Bozo.

The "swamp" of Washington has not been drained, as Mr Trump implausibly pledged to do in his campaign. In some ways, concedes Anthony Scaramucci, a Trump loyalist who briefly served in his White House, it "has gotten extra swampier"—a state of affairs he blames on both Democrats and Republicans. Unregistered "strategic advisers" began replacing registered lobbyists, whose number has fallen from 14,000 to 11,500 in a decade, before Mr Trump came along. Sheila Krumholz, head of the Centre for Responsive Politics, an independent watchdog that monitors lobbying trends, worries about influence-peddlers "trading on only whom they know and not what they know". Disclosure requirements remain weak and poorly enforced. Hyper-partisanship in Congress makes the House Democrats' sweeping anti-corruption bill, which was passed in March and, among other things, would tighten rules on lobbying, unlikely to clear the Republican-controlled Senate.

Swampier does not necessarily mean better for corporate America. It does, though, benefit the lobbying ecosystem's endemic species, which thrive on chaos. Haley Barbour, a former governor of Mississippi, ex-chairman of the Republican National Committee and one of Washington's most influential lobbyists, praises Mr Trump's tax cuts and deregulation efforts. Even so, he warns, "the next reform might not be good for your firm, so you need somebody advocating your position to the White House." A friendly swamp creature will be there to help. ■



Schumpeter | Rebooting Airbus

With Boeing in trouble, the other half of the aerospace duopoly risks losing its competitive thrust



NO AIRCRAFT BETTER SUMS up the quaint absurdity of Airbus's origins than the Beluga. The cargo jet, which resembles a winged whale, carries aerofoils, tails and bits of fuselage from production sites across Europe to be turned into aeroplanes in Toulouse and Hamburg. In a normal company, it would be redundant. Like the Beluga, Airbus is far from normal. Started in 1967 as a jumble of aerospace firms from Germany, France, Britain and, later, Spain, it needs the ungainly plane to make it function smoothly.

As one of Europe's biggest industrial firms, though, Airbus is neither quaint nor absurd. It has stood out for its innovation, competitiveness and, sometimes, inspired leadership. Under Tom Enders, an outspoken former German paratrooper, it has achieved its mission of becoming (Beluga notwithstanding) a more "normal" company. Mr Enders managed to reduce the influence and ownership of the French and German states. Airbus's share price quadrupled in his seven-year tenure. Its American former head of sales, John Leahy, who retired last year, was a salesman extraordinaire, racking up, he claims, \$1.6trn of aircraft sales at Airbus, making him the nemesis of its arch-rival, Boeing. With such men, it was harder to argue that the aerospace industry was a lazy duopoly.

But in the past year Airbus has acquired a controlling stake in the c Series jet, designed by Bombardier of Canada, while Boeing has joined forces with Embraer, Bombardier's Brazilian rival, making the fortress in single-aisle commercial-aircraft manufacturing even more impregnable. Meanwhile, Boeing is in disarray following two air disasters since last October that have grounded its best-selling jet. On the face of it, both developments are good for Airbus. In fact they could be the biggest potential traps for Guillaume Faury, the 51-year-old Frenchman who replaced Mr Enders on April 10th, because they risk dulling Airbus's competitive edge.

From an operational point of view, Mr Faury takes over at an ideal time. Like everyone at Airbus, he will lament the crashes of Boeing's 737 MAX aircraft in Ethiopia and Indonesia, which killed 346 people. Undeniably, though, the longer that plane is grounded, the stronger the outlook for Airbus's own highly successful narrow-body, the A320neo. Airbus may already be reaping the benefits: a bumper deal for 290 A320s from China last month was a further kick in the teeth for Boeing. In February Airbus took the tough

decision to scrap its loss-making A380 super-jumbo. That will bolster margins on commercial aircraft, which hit 9% last year, according to Bloomberg—short of Boeing's 13% but an improvement.

One of the curiosities of the Airbus-Boeing duopoly is how restrained those margins were—especially at Airbus. In his recent book about the global jetliner business, "AeroDynamic", Kevin Michaels, an aerospace analyst, notes that between 2011 and 2017 both firms delivered more than 6,600 A320s and 737s between them. Normally, a duopoly and sky-high barriers to entry would have allowed them to jack up prices. Instead, they offered big discounts. The competition for orders was cut-throat, partly owing to the "John Leahy factor", Mr Michaels writes.

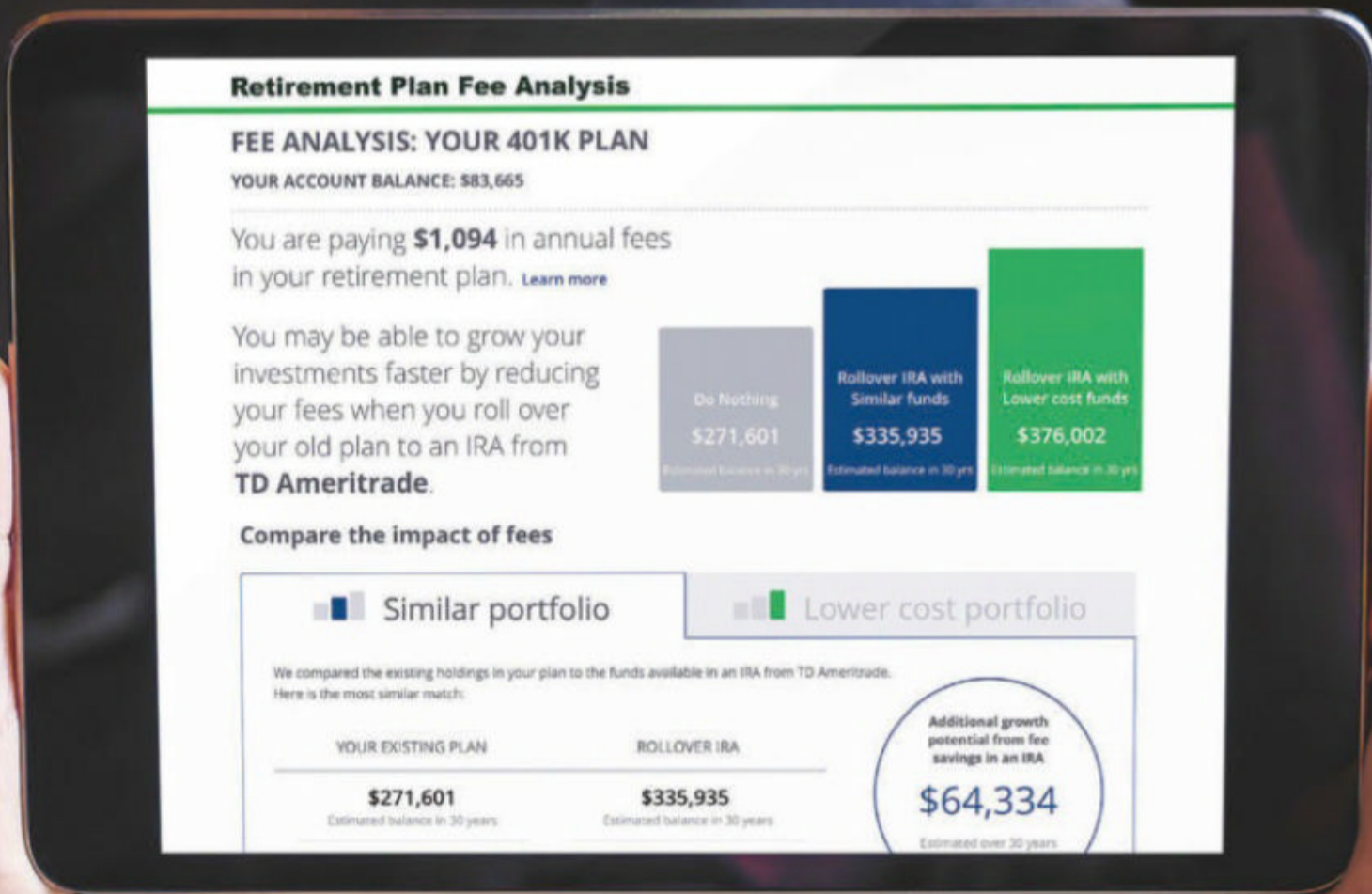
As operating margins at both firms have crept up recently, however, both have reduced the share of sales they spend on research and development of commercial aircraft. This is partly because the experience of building complex and costly new planes, such as Boeing's 787 Dreamliner and Airbus's A380, has been chastening. Such "moonshots" have gone out of fashion. Excessive re-engineering also played a part. Boeing's 737 series dates back to 1967, the same year Airbus was conceived, and has been tinkered with extensively. As Boeing grapples with the two disasters, the prospect of deciding swiftly to build a new mid-sized aircraft, known as NMA, is receding. That takes more pressure off Airbus to innovate.

Meanwhile, Airbus's shareholders are clamouring for it to follow Boeing in handing back more cash through dividends and buy-backs. That is common across the capital markets. But it would make both companies keener than ever to milk their duopoly status. Richard Aboulafia of the Teal Group, a consultancy, describes Boeing dismissively as a "legacy jet manufacturer and distributor of shareholder returns". Its rising payouts may be one reason Boeing's shares have not fallen more steeply, despite the firm's admission this month that its software contributed to the crashes. Airbus will be tempted to move in the same direction.

The European firm would be wise to resist this urge and instead consider ploughing money back into the business. For a start, Mr Faury's must contend with Brexit, which risks disrupting Airbus supply chains in Europe but may provide an opportunity to expand its operations beyond the continent. Then there is the long-running stand-off with Boeing over subsidies and tax breaks. On April 8th the Trump administration threatened tariffs on \$1bn-worth of European goods, including aircraft and helicopters, which would hurt Airbus. The European Union immediately threatened retaliation. Nothing will be decided until the World Trade Organisation sets the level of damages this summer. But one thing is clear: it will be harder for either firm to rely on state support in the future.

A change in the climate

Meanwhile, Mr Faury has a chance to take advantage of a coming wave of technological change. Acknowledging this, he talks of innovation over the next decade and beyond that could match anything in the history of aviation. That includes engine electrification, artificial intelligence and advanced connectivity that would change how aircraft are developed, manufactured, flown, powered and serviced. It means increased use of new materials (see Science section) and 3D printing, and greater efforts to reduce greenhouse-gas emissions. Airbus may be slow to embrace these long-term opportunities, given its cosy position. Gingerliness may even bring short-term gains. But technology could lower barriers to entry. In the end, ambition will pay off—even if it endangers the Beluga. ■



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→ Also in this section

- 68 David Malpass at the World Bank
- 69 Buttonwood: Reserve managers
- 70 International money transfers
- 70 Importing credit records
- 71 HDFC, India's star bank
- 72 Free exchange: Central-bank independence

The European Central Bank

Succession questions

FRANKFURT

A changing of the guard at the bank means that 2019 will be a momentous year

THE HEADQUARTERS of the European Central Bank (ECB) tower over the river Main. The institution has been equally imposing in the life of Europe's monetary union. As its only policymaker, it rescued the euro from financial and sovereign-debt crises, and powered a recovery in 2015-17.

But it cannot rest on its laurels. This year promises to be one of high drama. Three of its six-strong executive board will depart, notably its president, Mario Draghi, and its chief economist, Peter Praet (see graphic). By the end of the year eight of the 19 national central-bank governors on its rate-setting body will have stepped down. The end of Mr Draghi's eight-year tenure coincides with European elections and the top jobs in Brussels coming up for grabs. That makes the choice to replace him unusually political. Should their quest for the commission or council presidencies fail, the French or Germans could seek to put a compatriot—or in the Germans' case another hawkish northerner—into the ECB job as a consolation prize.

All this could alter the course of monetary policy. Poor choices could mean blunders in dealing with a slowing economy or

too-low inflation. The bank's hard-won credibility as the guardian of the euro could come under threat.

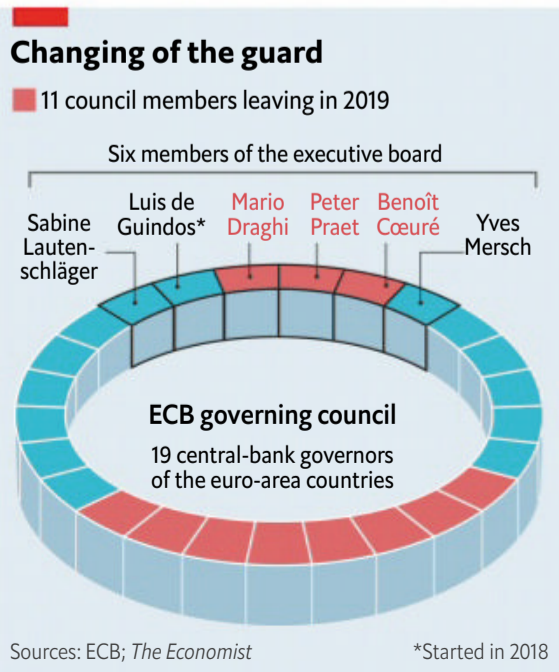
The ECB was set up in 1998, a central bank without a fiscal counterpart. To soothe German fears that it would go too easy on inflation, it was based in Frankfurt and modelled on the Bundesbank. Its intel-

lectual direction came from its chief economist, Otmar Issing, a former Bundesbank rate-setter. Like other central banks, it targeted inflation. But to appease the Germans, it also concerned itself with the rate of money-supply growth.

Two decades on, the Bundesbank's influence has waned. The ECB focuses less on the money supply, after its link with inflation proved wildly unstable. Philip Lane, a doveish Irishman, takes over as chief economist in June. Neither the economic nor monetary-policy areas is overseen by a German staff member.

To see why the choice of successor for Mr Draghi is so important, consider what he has done—and left undone. Observers are gushing: one compares him to Cincinnatus, a loyal citizen who saved the Roman republic from invasion. His open-minded pursuit of price stability led to the use of unconventional tools such as quantitative easing (QE) to stave off deflation, despite northern members' horror of monetising government debt. Like other central banks, the ECB has gained bank-supervision and macroprudential powers since the crisis.

Fittingly for a governor who sees communication as central to his role, his biggest policy intervention was uttered but not implemented. In 2012 he said he would do "whatever it takes" to save the euro, promising to buy unlimited amounts of government bonds if sovereigns hit trouble. The ECB's communications compare well with those of other big central banks, says Marcel Fratzscher, a former staffer now at DIW, a think-tank. Recent policy shifts ►►



▶ have caused remarkably little market volatility, unlike some by the Federal Reserve.

The next boss, though, will need to overhaul the bank's monetary-policy strategy. Mr Draghi seems almost certain to depart having never raised interest rates; price pressures and inflation expectations, currently subdued, are likely still to be well below target. An economic slowdown kiboshed rate rises this year: on April 10th the bank promised to keep them on hold in 2019. They are already at rock-bottom levels, and the bank has bought €2.6trn (\$3trn) of government bonds. Should the slowdown worsen, the new boss will have to find the firepower to reassure markets.

The ECB's independence is a matter of international law. EU members must all agree to any changes to its mandate. But another risk defies any attempt to legislate: that of politicised appointments to its governing council. National central-bank governors are often picked for reasons of domestic politics. The march of populism across the continent complicates matters. Austria's incoming central-bank boss has no monetary-policy experience and is reportedly linked to the FPÖ, a hard-right party. Italy's populists want to "reboot" their central bank's management.

Such appointments could exacerbate divisions among the governing council, which tend to be along national lines. It must set policy for the euro zone as a whole. But some members still play to domestic audiences. Take the decisions to announce outright monetary transactions (OMTs) that backed up Mr Draghi's "whatever it takes" commitment, and to begin QE. Both were attacked by some northern central-bank governors and faced legal challenge in Germany. Jens Weidmann, the head of the Bundesbank and a possible successor to Mr Draghi, testified against OMTs.

One interpretation of a ruling on QE by the European Court of Justice in 2018 is that the ECB has room to raise self-imposed limits on the share of government bonds it can buy in each member country. But heightened national divisions would make it harder to build support in the governing council. It might not help that, according to the Eurobarometer poll, public trust in the bank is far below pre-crisis levels both in countries like Spain and Greece, where the ECB is regarded by some as partly to blame for austerity, and in Germany, no fan of low interest rates and bond-buying.

As the ECB gains powers, clashes with politicians become more likely. It now oversees large lenders, in which governments also take a keen interest. Last year, under pressure from the European Parliament, its supervisory arm toned down a plan to ask banks to make more provisions for non-performing loans. It also withdrew a request for new powers to centralise the regulation of clearing houses. Govern-

ments had sought to narrow their scope; the bank says that threatened its ability to conduct independent monetary policy.

The ECB keeps banking supervision and monetary policy quite separate. But the president will set the tone of its response to political pressure, argues Sir Paul Tucker, a former deputy governor of the Bank of England who has written a book on the power of central banks in democracies. And Mr Draghi's successor will need great skill to nudge governments to speed up fiscal and banking reforms, he says, to avoid monetary policy being the only game in town. That person will have to direct the bank's efforts to return inflation to target, and perhaps deal with a recession, while balancing competing political interests. If its only functioning economic institution stumbles, so too will the euro zone. ■



The World Bank

Malpass v Malpass

The new boss will find that the job is harder to do than it was to get

WHEN HE WAS nominated to lead the World Bank by President Donald Trump, David Malpass, a former Treasury official, faced no rival for the position. He was approved unanimously by the bank's board, which represents its 189 member governments, and began work promptly this week. The process could not have been easier. But stiffer resistance lies ahead. Chances are that nothing in the job will become him like the entering it.

The institution he now leads is dedicated to eradicating poverty and fighting inequality. By its estimates, 10% of the world's population (736m people) lived below the global poverty line in 2015 and per-

haps 8.6% did in 2018. It aims to lower that share to 3% by 2030.

Because poverty is falling quickly in India and Bangladesh, most of the people living so uncomfortably now reside in sub-Saharan Africa, especially Nigeria and the Democratic Republic of Congo. They are harder to reach, concentrated in "fragile" regions, afflicted by violence. They would benefit greatly from sound economic policies and rapid GDP growth. But in these settings, the bank cannot always count on governments using its money and advice well. It therefore tends to back tightly monitored projects that benefit the poor directly. A big initiative in Congo, for example, helps women giving birth and vaccinates children against tuberculosis, hepatitis B and other diseases.

Mr Malpass no doubt applauds such efforts. But his animating passions lie elsewhere. He wants the bank to focus on promoting economic growth: "breakthroughs that materially raise median incomes", as he wrote in the *Financial Times* shortly after his nomination. Bank insiders say he has shown a close interest in the world's ten biggest emerging markets. Understanding their paths to growth may yield lessons for others. And improving their growth prospects would benefit both their own large populations and the world economy, in which they now weigh heavily.

The bank's influence on such countries is small. But the potential gains are so great that even a small nudge can yield a magnificent return. Lant Pritchett of Harvard University cites the example of the Indian Council for Research on International Economic Relations. This think-tank, based in Delhi, got started in the early 1980s with the help of \$857,000 from the Ford Foundation (almost \$3m measured using 2005 purchasing-power-parity rates). Mr Pritchett reckons that its research helped shape India's successful response to its balance-of-payments crisis in 1991. Those reforms, in turn, set the stage for faster growth in a country hosting a sixth of humanity. Mr Pritchett has calculated that the 1991 response and later reforms added \$3.6trn to India's output from 1991 to 2010. Even if Ford's money increased the chances of reform by only 1%, that represents a 12,000-fold return on its investment (ignoring the lag between outlay and the reforms).

But this kind of thinking is out of fashion at the bank. The ten largest emerging markets are not necessarily its biggest clients. Nor, India aside, are they where many of the world's poorest people live. Improving median incomes in these ten would not necessarily reduce poverty in Nigeria or Congo. Nor would it ensure that the incomes of the bottom 40% rise faster than the rest (which is one way the bank monitors its fight against inequality). Mr Malpass's instincts may therefore fail to mesh ▶▶

▶ with the bank's institutional priorities.

His interest in engaging with the world's big emerging markets also sits uneasily with his other preoccupation: disengaging from the biggest emerging market of all. In his previous role at America's Treasury he expressed worries about China's "inroads" into the multilateral lenders. America agreed to an increase in the World Bank's capital only on condition that in future it devoted a smaller share of its lending to countries as prosperous as China, charged them higher interest rates and encouraged them to "graduate" out of World

Bank borrowing altogether.

China's income per person already exceeds the threshold for graduation (\$6,795 in 2017). But it is not alone: 31 other eligible clients exceed that level, including some large countries with considerable clout (Brazil, Mexico, Turkey). Efforts to usher them off the bank's books would meet insurmountable opposition. China and its peers will instead insist they do not meet the bank's vaguer criteria for graduation, which include progress in institution-building. Thus China's backers will highlight its shortcomings even as its critics,

like Mr Malpass, tout its accomplishments.

The duties Mr Malpass inherits from his predecessor, Jim Yong Kim, are lighter than those bequeathed to previous presidents. Mr Kim's managerial failings prompted the bank to appoint a capable chief executive, Kristalina Georgieva, to handle day-to-day operations. By some estimates, she does 75-80% of the job that fell to previous presidents. Mr Malpass may therefore struggle to impose himself on the bank. Some powerful constituencies stand in opposition to his ideas—and some of his ideas stand in tension with each other. ■

Buttonwood The diversification illusion

Reserve managers are locked in an unhealthy relationship with the dollar

JAMES M. CAIN'S novel "The Postman Always Rings Twice" portrays a violent love affair between Frank Chambers, a drifter, and Cora Papadakis, a former beauty queen now married to a man she despises. Their romance is doomed from the beginning. Every attempt to find happiness fails. Any attempt at being apart is equally hopeless. "Why did you have to come back?" she hisses after one break-up. "I had to, that's all," he replies.

The story comes to mind when contemplating the fate of the managers of the world's \$1trn-worth of foreign-exchange reserves. This is not to say they are obsessives wracked with guilt and paranoia (though a few might be). But rather that, like Frank and Cora, it has probably occurred to them that their dominant relationship, which is with the dollar, may not be entirely good for them.

The latest figures from the IMF show that the share of dollars in global reserves fell to 62% at the end of last year. Reserve managers seem to be for a cooler, less intense affair with the dollar. But eventually, they will find that it is hard to break free. That is not so much because the alternatives to the dollar have flaws (though they do); rather, it is because the pain of a weaker dollar will become too much to bear.

The dollar is the closest thing to a world currency. Commodities that are traded globally are quoted in dollars. So are other currencies. A lot of cross-border trade is invoiced and settled in dollars, too. Dollars are the unit by which the world of finance keeps score. So there is logic to countries keeping stores of them in reserve. It is generally dollars that you need in an emergency.

But money is also a store of value. There is no guarantee that the dollar will hold its value better than other cur-

rencies. So like other portfolio managers, reserve-holders seek to diversify. That means fewer dollars.

There are other reasons for breaking free of the greenback. Its global role gives America the means to impose financial sanctions to great effect. Its use of such powers has steadily grown. In response, Russia has slashed the share of dollars in its currency reserves. It is not hard to imagine that some other countries have weighed the odds of at some stage being caught in a dispute with America.

Changes in the market value of currencies can mask underlying shifts in the mix of assets within reserves. For instance, if the euro falls sharply against the dollar, its share in reserves would also fall without any change in the stock of assets held. Steven Englander of Standard Chartered, a bank, applies a constant exchange rate to the IMF data to adjust for this valuation effect. What emerges is a clearer long-term trend downwards in dollar holdings and a sharp sell-off last year (see chart). What kept the dollar strong was the strength of private-sector purchases.

Greenback mountain

World, US\$ share of allocated reserves, %



Sources: IMF; Standard Chartered

*Q4 2018

Reserve managers appear to be countercyclical investors, selling when others are buying. This is rather cheering. The dollar looks overvalued on many benchmarks. And if anyone can take a long-term view, it ought to be reserve managers. Even so, Mr Englander suspects that some of them are waiting for signs of dollar weakness before selling.

By then it may be too late. Once private-sector demand for dollars wanes, the combination of this downward pressure and selling by reserve managers might mean that the dollar has to fall a long way to balance supply and demand. That would be a big headache for reserve managers. In one regard they are not like other portfolio managers. They are also charged with keeping their own currency at a competitive level to support exports.

Reserve managers who start off wanting to sell dollars often end up buying them back when they see competitiveness is at risk, says Mr Englander. Their attempts to diversify by, say, selling those dollars for euros is doomed to fail. It is hard to induce private-sector investors to buy dollars for euros when they, too, are trying to diversify away from them. The outcome, says Mr Englander, is that both dollar and non-dollar reserves increase, with the dollar share not much changed.

In Cain's novel, the star-crossed lovers are joined by a dark passion and by complicity in a murder. What tethers reserve managers to the dollar is not quite as sinister. For a while they can achieve a little distance: if they want to get out of dollars, they can do so while everyone else is trying to get into them. But if the dollar falls hard enough, they will be buyers. Ask a reserve manager, then, why he ever went back, and he may tell you: "I had to, that's all."



International money transfers

Special FX

Sending money across borders is getting less painful—at long last

FOR MIGRANT workers, sending money home is an expensive chore. They send plenty: remittances to developing countries are set to reach \$550bn this year, beating foreign direct investment, the World Bank said on April 8th. Total cross-border transfers to and from individuals and small businesses come to \$10trn a year. But a hefty chunk is taken in fees along the way.

American high-street banks can charge over 5% for smallish transfers between major currencies. MoneyGram, an established money-transfer giant, levies 5% for the hop from Britain (sterling) to Ireland (euros). Fees for minor currencies are swingeing. Wiring \$200 from South Africa to Nigeria can take days, and costs over 25%. Cash transfers are even worse value.

Now some fintechs are trying to disrupt the cosy status quo. In a world made smaller by Skype and instant messaging, “why does money still go on a donkey?” asks Taa-vet Hinrikus of TransferWise, a London-based fintech that typically charges a tenth as much as British banks. As yet the newcomers have merely nibbled around the edges. But as incumbents abandon tricky markets, technology improves and financial regulators take aim at unclear pricing, they look set to take a bigger bite.

To send money across borders, banks use “correspondent” accounts they open with each other. When Anna at Bank A

wants to wire \$10 to Boris at Bank B, Bank A takes \$10 from Anna’s account. It then sends a message through SWIFT—a system used by 11,000 banks to communicate—telling Bank B to wire \$10 from its correspondent account into Boris’s. The matter is then settled. Money transfers become about moving data, not money.

There is a wrinkle that will be familiar to air travellers. When two banks have no direct connection, the chain of requests has to involve stopovers. Each “airport” levies a fee and makes the transfer go through security, creating delays. That is happening more often. Afraid of falling foul of tightening anti-money-laundering rules, banks are increasing their oversight by shrinking their sprawling networks. The number of active correspondent relationships fell by 16% in the six years to 2018.

That leaves space for fintechs willing to do the due diligence needed to forge their own correspondent relationships. Their

Importing credit records

You can take it with you

SAN FRANCISCO

A Californian startup is helping migrants bring their financial histories to America

THE WINDOW to submit applications for an H1B visa, a golden ticket for foreigners wishing to work in America, closed on April 5th. Soon the 85,000 winners will take up new jobs in the land of fresh starts. But those lucky few, most of them highly qualified, and many handsomely paid, will leave their credit histories at home, rendering them invisible to financial institutions. They will find it almost impossible to get a credit card, mortgage or any other type of loan.

It is a difficulty that affects millions worldwide. In 2017 immigrants made up 17% of America’s civilian workforce. Despite having free movement of labour as one of its core principles, the European Union has no system for transferring credit records across its internal borders. Banks suffer, too, missing out on potentially lucrative customers.

Building a new credit profile from scratch takes time. But what if you could use a credit report from your home country when applying for a loan abroad? That is the idea behind Nova Credit, a financial-technology startup in San Francisco. It requests data from international credit bureaus such as Experian and Equifax (with the individual’s consent), paying a fee for the service. It then packages the information to be usable by American banks and landlords. Mpower, a student-loan company, is already using Nova Credit’s data to help it make lending decisions for international students.

The company works with bureaus in countries that send lots of migrants to America, including India and Mexico, as well as some that send fewer, such as Brazil, Britain and Canada. China and Nigeria will be added this year. It also imports data to Canada, where immigrants are a fifth of the population.

The hard part, says Misha Esipov, Nova Credit’s boss and co-founder, is dealing with the many origins and destinations for migrants and data, and therefore a massive, non-standardised jumble of databases. Not only do most countries have several credit bureaus as well as their own rules on credit-reporting, but rules on consumer privacy and data protection also vary. Coping with the mess is too much trouble for most lenders, especially domestic-focused ones. That is where Nova Credit comes in. It cleans up the data and transfers them to the American lender, which is how it makes its money.

Individuals request their own credit reports and consent to pass them to Nova Credit. Often they do so while still on a lender’s website, with Nova Credit a simplifying intermediate step. “We’re just a tech platform that allows a customer to gain access to their own information,” says Mr Esipov. His firm has found a way to make money from a notion that is still subversive in Silicon Valley—that people should be able to control the use of their data.

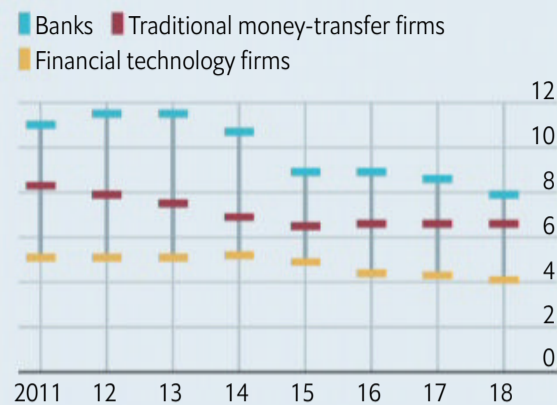
costs are lower, too. They generally seek to reduce the “float”—the currency they must hold offshore to match users’ requests. Many of them save by aggregating transfers to net them out against payments going the other way. And, unencumbered by high-street banks’ outdated computer systems, they can be more technologically nimble.

Some use machine learning to predict demand. Small World, a firm based in London, found that migrants send more money home when it is raining where they are living, says Nick Day, its boss. According to Fxc Intelligence, a data provider, the best fintechs keep fees below 2%, and much less on popular routes. They are generally faster, too. London-based Azimo does near-instant transfers to over 80 countries.

Remitly, based in Seattle, processes transfers of \$6bn a year. But so far, rather than gobbling up market share, remittance-focused start-ups are taking slices of an expanding pie. Most stick to specific ▶▶

Flat fee

Average cost for sending the equivalent of \$200 of remittances, %



Sources: FXC Intelligence; World Bank

corridors and digital channels. That leaves many destinations, and customers holding cash, to decades-old giants like MoneyGram and Western Union, which runs a global network of 550,000 agents.

Western Union is everywhere except in Iran and North Korea, says Hikmet Ersek, its chief executive. The firm, which handles \$88bn of consumer-to-consumer transfers a year, is on average 15% dearer than competitors, he admits. But he does not see pressure on pricing, “because no one is in the last mile”.

Challengers have taken a bigger share of transfers between developed countries. TransferWise, which processes \$46bn a year, says it accounts for 15% of British consumers’ outbound transfers, beating banks. The banks seem unconcerned: their pricing has not budged since 2015. “The brand equity of big banks still allows them to charge more,” says Daniel Webber of FXC Intelligence.

Opaque pricing makes that easier. Unlike loans, the cost of which is neatly captured in the interest rate, cross-border transfers attract two sorts of charges, a fixed commission and a margin on the mid-market exchange rate. And, like plane fares, fees can rise or fall depending on the timing and amount of the transfer.

Regulators are turning their sights on what they see as a malfunctioning market. Last December the European Commission passed a law that will force banks and firms to disclose markups from 2020. Australia’s regulator is considering a similar move.

Startups should benefit. A study in 2018 found that when fees were clear, the share of consumers who chose the cheapest provider of transfers rose by a quarter. But in the longer term the result may be to change the way incumbents work. In Europe mobile-only banks such as N26 and Monzo already use TransferWise to handle transfers. Their bricks-and-mortar peers should seek similar deals, says Martin Griffiths, head of fintech at Barclays, a British bank, if they do not want to see the market disrupted around them. ■

Banking in India**Bucking the trend**

MUMBAI

How one private-sector institution breaks a dismal pattern

INDIA’S BANKS have a poor reputation—and for good reason. The state-controlled ones offer cheap credit to the well-connected, have piles of bad loans and are barely accountable. Nor are the private ones flawless. In the past year the bosses of two of the biggest left after concerns were expressed by the Reserve Bank of India: at Axis Bank because of credit problems and at Yes Bank because of governance worries. The head of the second-largest, ICICI, stepped down because of a scandal involving loans to a firm whose shareholder had dealings with her husband.

In this dismal scene one bank, HDFC, consistently shines. In the coming days it is expected to announce the latest in a series of stellar performances. Profits are expected to be around 20% higher than last year. Return on assets is 1.8% and return on equity is around 17%—excellent for a bank. The share price is 286 times what it was in 1995, when the firm went public—and 132 times its 1995 level in dollars. The bank’s market value is over \$90bn, and Goldman Sachs thinks that it could exceed \$200bn by 2024. That would gain HDFC admittance to a global elite now made up of American and Chinese behemoths.

HDFC Bank is an offshoot of a mortgage company of the same name (the initials stand for “housing development finance corporation”), which was set up in 1977 by Hasmukh Parekh, the chairman of ICICI’s board. Mr Parekh persuaded his nephew, Deepak Parekh, then at Chase Manhattan Bank, to return to India to run the new company. In 1994 Deepak obtained a licence for a new bank and recruited people with experience similar to his own to run it—that is, Indians who had worked in big global banks. The chief executive, Aditya Puri, came from Citi; staff from Bank of America, ANZ Grindlays, Deutsche, Barclays, Standard Chartered and many others were also hired.

He was initially hesitant about the move from Citi, says Mr Puri. At the time Citi seemed well-placed to become a dominant force in Asian finance. It and the other global banks in India had advanced products, good service and talented employees. But with hindsight it is clear that he made the right call. Though Citi retains a local business in many Asian countries, it largely serves a high-income niche. Most of the other foreign banks have retrenched and focused on cross-border transactions.

The global banks were not wrong about the size of the opportunity. In the Indian market, says Mr Puri, “demand is not an issue”. A vast segment of the population was unbanked or underbanked—not just individuals, but also small businesses.

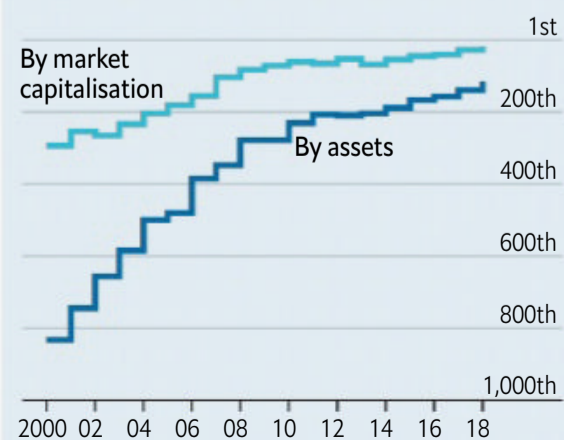
At first HDFC Bank focused on large corporate customers, where its newly hired staff’s contacts were useful. The recruits from global banks brought valuable know-how with them. Notably, it did well in niches where Citi was strong, such as credit cards. It beefed up its technology and gained the scale needed to press into the mass market. Mr Puri says HDFC can now process a personal loan and put money in an account in 11 seconds. And it expanded its business offering to sophisticated areas, such as the payment mechanisms of India’s stock exchange.

It also sought to serve small companies previously excluded from the financial system. In February it opened its 5,000th branch, giving it by far India’s largest private-bank network. Equally important are the 30,000 employees who promote phone-based banking to shops and individuals in smaller cities and villages. Among the most prominent of these marketers is Mr Puri. Though he owns neither a mobile phone nor a computer, he has begun showing up in far-flung regions to sell the bank’s services to small shops. These make more profitable customers than is generally understood, he says, since their entire financial lives are within the bank’s system and they are easy to cross-sell to.

Of great interest to India’s business community is what comes next for HDFC. Indian law requires bankers to retire at 70; that gives Mr Puri a little over a year more in the job. Corporate bosses can stay until 75, so there may be a way to find him another five years. Plans are in place for both eventualities, he says. Romesh Solti, who turned round another private bank, IndusInd, is also nearing retirement. The departure of a successful leader is always a ticklish moment—even more so in India’s harsh banking scene. ■

Indian champion

HDFC Bank, rank among global banks



Sources: The Banker; Bloomberg

Free exchange | Monetary targets

How not to weaken central banks' independence



THERE ARE more than a few echoes of the Nixon era in the presidency of Donald Trump. Monetary reverberations are among them. Facing re-election in 1972, Richard Nixon felt he needed a strong economy at his back, and made a habit of haranguing Arthur Burns, the chairman of the Federal Reserve at the time. Burns recounted the meetings in his diaries: "The president looked wild; talked like a desperate man; fulminated with hatred against the press; took some of us to task..." Historians reckon Burns was too accommodating of Nixon's demands, and so helped launch the inflation of the 1970s. Mr Trump is now waging his own assault on the Fed's independence. He has repeatedly complained about the central bank's decisions and urged it to take a more doveish stance.

More strikingly Mr Trump, who has already chosen three of the five sitting members of the Fed's board of governors, has named Stephen Moore and Herman Cain to fill the remaining two vacancies. In contrast to candidates who have come before, both are political activists. But the parallel with the 1970s is less apt than it seems. There are different ways to politicise monetary policy, and Mr Trump's is particularly poisonous.

Nixon's inflation helped inform modern ideas of central-bank independence. In 1977 Finn Kydland and Edward Prescott, who won the Nobel prize together in 2004, published a seminal paper on the problem of "time inconsistency". Governments can promise to keep inflation low, they argued, but that promise becomes harder to keep as time goes on. Once the public expects low inflation, there are political advantages to generating a burst of higher-than-anticipated price growth, which reduces the real (inflation-adjusted) value of debt and generates a short-run increase in real incomes and output. As governments succumb to the temptation to inflate, expectations adjust and the inflation rate needed to surprise the public rises ever higher. In the absence of a mechanism to keep inflation low, prices accelerate. Along with policy rules and inflation targets, central-bank independence became one of the ways governments' promise not to inflate were made credible.

Yet even as independence became more common, it remained incomplete. Governments are often responsible for setting central banks' mandates, appointing their heads and determining what tools they can use to do their jobs. Many elected leaders have suc-

cumbed to the temptation to jawbone monetary policymakers. In the months before the election of 1992, George H.W. Bush urged Alan Greenspan to cut interest rates; he later blamed the Fed for his loss at the polls. In his memoirs Paul Volcker recalls an awkward meeting with Ronald Reagan and his chief of staff, James Baker, in which he was ordered not to raise rates in the run-up to the election of 1984. During the financial crisis, central banks around the world came under fire from politicians for having allowed financial excess to build up, bailing out banks during the crisis and using unconventional measures to support damaged economies.

These political intrusions did not prevent central banks from keeping inflation low. On the contrary, economists are increasingly asking whether stubbornly low rates of inflation, interest and growth show that the need for independence was overstated. Inflation was high around the world in the 1970s. Perhaps rather than a weak-willed Fed chairman being to blame, the problem lay in factors specific to that period, or a flawed understanding of the relationship between monetary policy and inflation.

Faced with today's chronically low interest rates, central banks may need to revise their policy frameworks to stop economies falling into slumps. But without a shove from politicians, they may be too institutionally conservative to do so. Shinzo Abe, Japan's prime minister, won election in 2012 on a promise to rejuvenate the economy, and immediately pressed the Bank of Japan to be more zealous. The result has been an impressive run of growth rather than a macroeconomic disaster. Structurally low interest rates also mean that central banks need more help from fiscal policymakers when demand slackens. That co-operation will inevitably weaken central banks' institutional independence.

The fool's mandate

Might one argue, then, that by pressing the Fed to aid his re-election campaign Mr Trump is undercutting a norm that has outlived its usefulness—even, that he could be helping America claw its way out of the low-rate trap that has ensnared most of the rich world? In fact, the selection of Mr Moore and Mr Cain suggests a very different sort of politicisation is at work. Neither is a professional economist; both have worked extensively in Republican politics. Mr Moore advised Mr Cain during his campaign for the Republican presidential nomination in the election of 2012, which was derailed after a promising start by allegations of sexual harassment. Both have expressed monetary-policy positions that might mark them out as hawks. In 2008, when the American economy was on the brink of a deep recession, Mr Moore said that the Fed should be raising rates rather than cutting them, and predicted high inflation to come. Mr Cain has said he favours a return to the gold standard. But politics, rather than data or principles, appears to guide their views. Mr Moore now joins the president in complaining that the Fed is holding back growth unnecessarily. Mr Cain has repeatedly claimed, falsely, that statistical agencies faked economic data in an effort to boost the fortunes of Barack Obama.

Perhaps, if appointed, the pair would surprise Mr Trump and vote as his prior picks have, in an orthodox fashion. If they behave instead as party loyalists, the greatest risk is not that an ineffectual Fed will allow inflation like that of the 1970s to take hold. The opposite might well result if the pair revert to hawkishness when power changes hands. The danger is rather that the Fed will become a political weapon, and that America will move closer to becoming a nation where the welfare of the ruling party trumps that of the country as a whole. ■



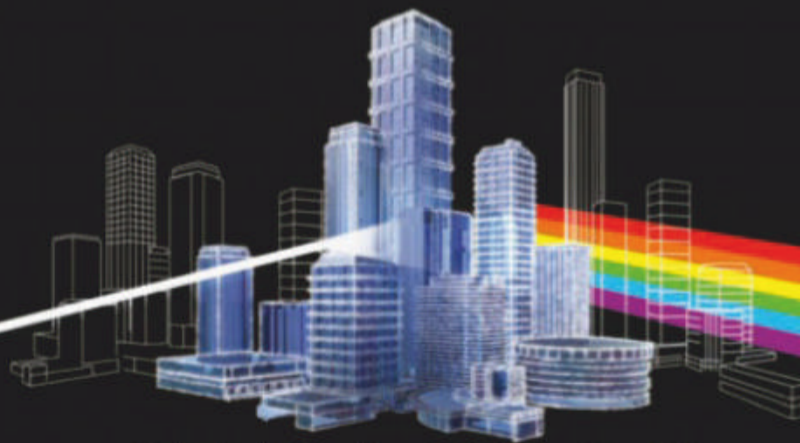
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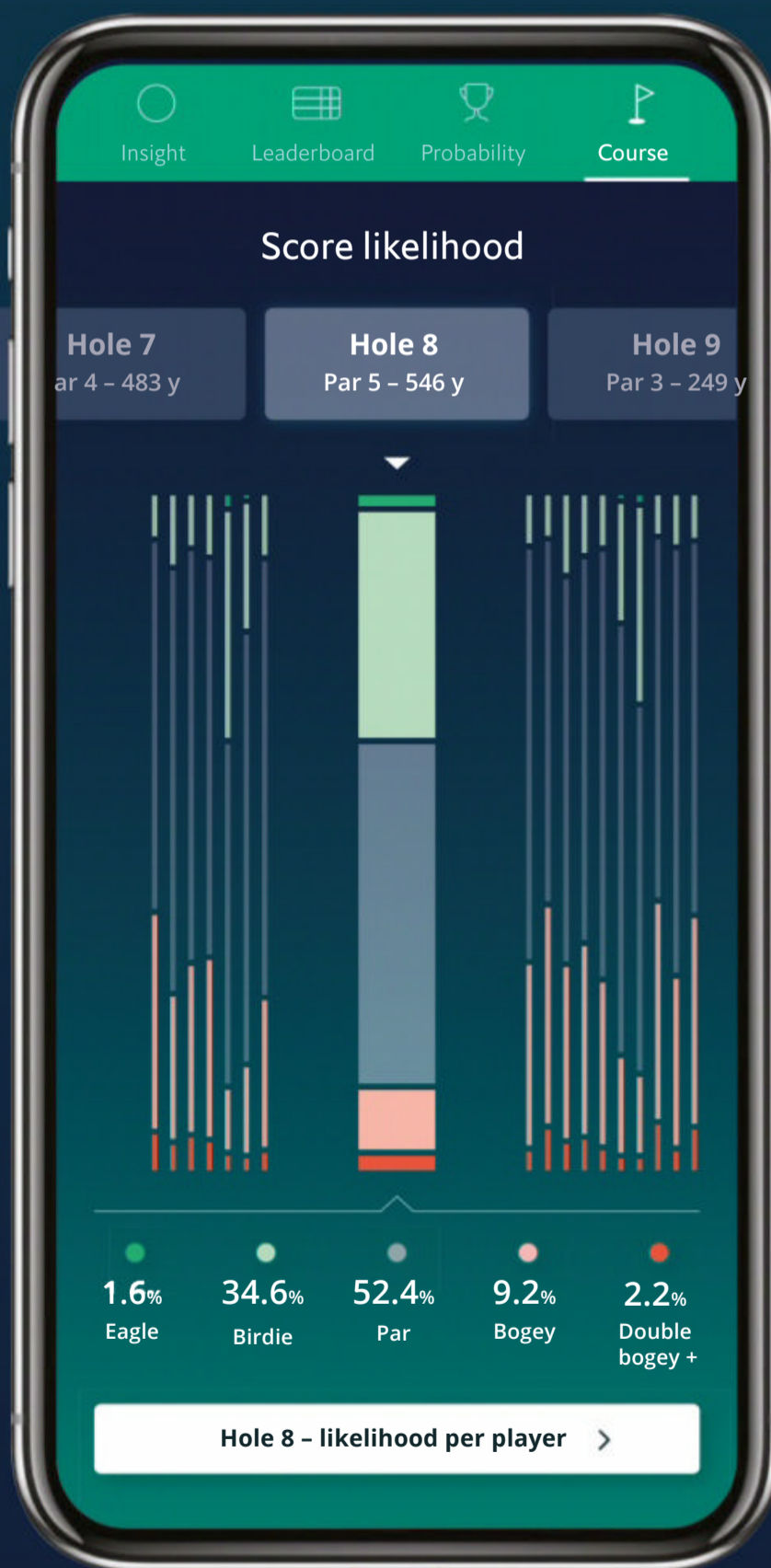


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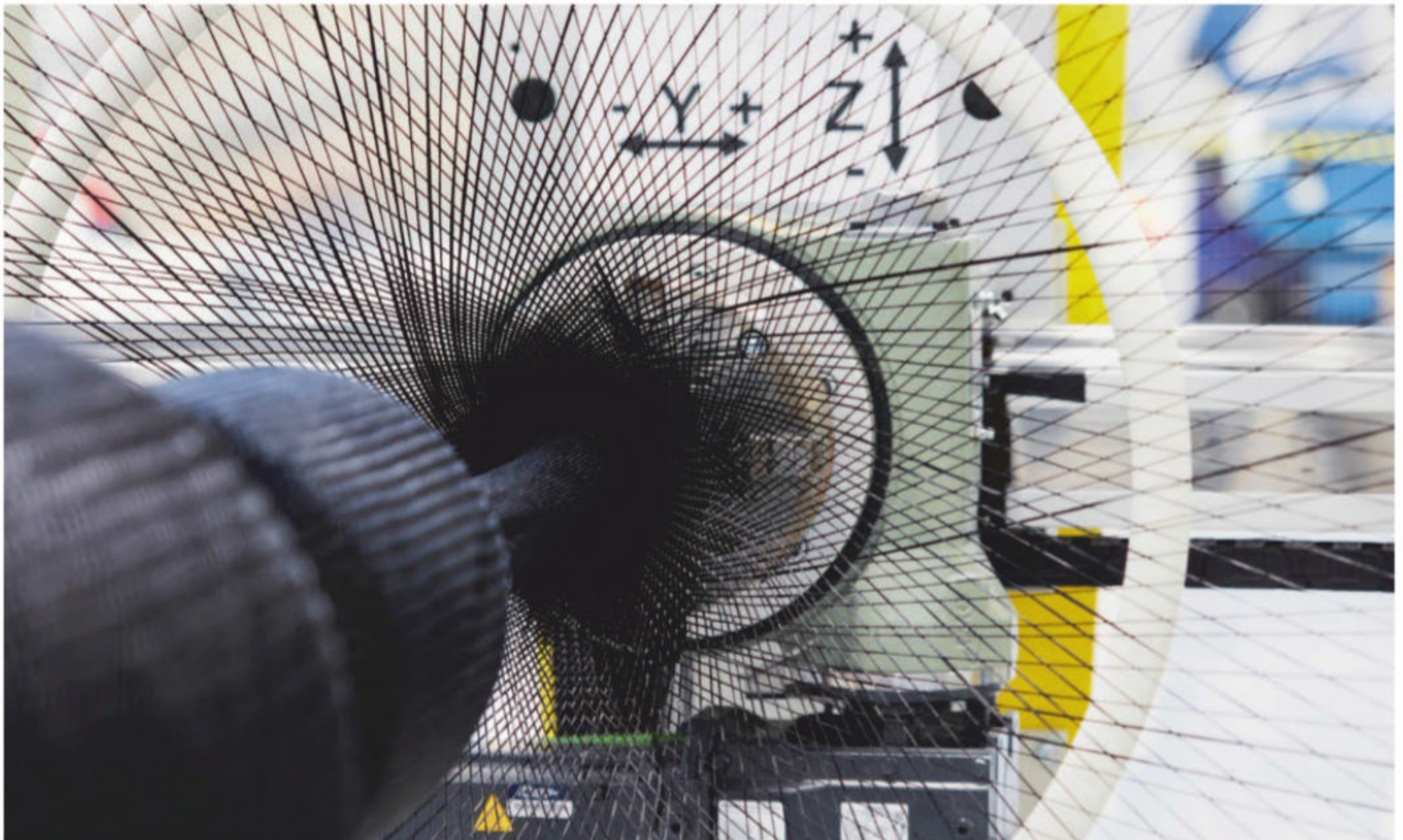
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The new black arts of manufacturing

How to knit a sports car

BRISTOL

Faster ways to knit together carbon fibre will transform many products

BERTHA RESIDES on a quiet industrial estate in Bristol, in the west of Britain. The affectionate name has been given to what at first appears to be a giant loom from the Industrial Revolution. And in some ways it is. Bertha (pictured above) is an automated braiding machine. Like a horizontal maypole, ribbons of carbon fibre are drawn from 288 bobbins contained on a pair of huge rings, and passed over and under one another as they are wound tightly around a revolving mould. The final product could be a propeller for an aeroplane, a ship's hydrofoil or a set of wheels for a sports car. In fact, Bertha can knit just about any hollow component up to 800mm by ten metres, and do so quickly and accurately by depositing some 300kg of carbon fibre an hour.

Just as textile production began to be mechanised at the end of the 18th century, creating the modern factory, manufacturing is going through another revolution. This time it is driven by digital processes and new materials, such as carbon-fibre composites. Automated braiders are one of

several new systems turning carbon-fibre production from a slow, labour-intensive craft into a mass-manufacturing process that will change many industries.

Carbon fibre is attractive because it is lightweight and exceptionally strong. The toughest fibres are up to ten times stronger than steel and eight times more so than aluminium, reckons Zoltek, an American carbon-fibre producer. Carbon fibre is also five times lighter than steel and half the weight, or less, of aluminium. Nor does it corrode. In transport industries, where "lightweighting" is most valuable, carbon fibre allows aircraft and cars to be made lighter and so travel farther on the same amount of fuel or a single charge of their

→ Also in this section

76 Birds and climate change

77 More human species

78 Picturing a black hole

batteries. This will help them meet tougher emissions targets.

And there are other advantages, too. One is that carbon fibre allows manufacturers to make much larger, more complex parts in one go, says Richard Oldfield, chief executive of the National Composites Centre (NCC), a research laboratory set up by the University of Bristol, and home to Bertha. Instead of making an aircraft's wing or car body by welding, riveting and bolting together hundreds of individual components, these bits can be consolidated into a single carbon-fibre structure. This saves time and materials and allows designers to come up with novel products.

Hot stuff

Engineers got interested in carbon fibre in the 1960s. The fibres consist of carbonised polymers, made up of long strings of molecules bound together by the powerful bonds between carbon atoms. The fibres are made by heating a precursor material to around 3,000°C in a protective atmosphere of inert gases. The most commonly used precursor is polyacrylonitrile (PAN), which is produced by the petrochemicals industry. Pitch, obtained from coal tar, is sometimes used instead. Once carbonised, the fibres are wound onto bobbins, spun into yarns or formed into tapes. Depending on the final application, they can also be woven into fabric sheets.

On their own, carbon fibres are brittle ▶▶

▶ and can break easily. But their strength comes in tension (they resist being pulled apart). So, the fibres need to be aligned in such a way to impart their strength by distributing loads throughout a structure. This is done by placing the fibres, tapes or mats onto a mould in the required orientation, creating what is known as a preform. It is a slow process often done by hand. This is now being automated, aided by the fact that the optimal alignment of the fibres is often calculated using sophisticated computer-aided design systems, and the same data can program robots to lay-up the fibres or wind them on braiding machines such as Bertha.

The preforms then need to be made solid. This is done by impregnating the fibres with a chemically activated resin, which hardens when it is cured. The curing process is usually carried out inside a large oven called an autoclave, which applies heat and pressure to consolidate the structure and force out any air bubbles. It can take hours, sometimes with autoclaves left to run overnight. For a relatively low throughput this might not be a problem. But for higher volumes, especially in car-making, faster cycle times are needed.

Various out-of-autoclave curing techniques are starting to be used. One is resin transfer moulding (RTM). This involves placing preforms inside a mould which is then closed. Resin is injected into the mould and heat and pressure applied. Depending on what is being produced, RTM can cut processing times by half or more.

Fast cars

McLaren has been making sports cars out of carbon fibre since the British company used the material for the world's first Formula 1 racing car in 1981. All F1 cars are now made from carbon fibre, and the protection it affords drivers has allowed many to walk away from spectacular crashes. To build its sports cars the company starts with a carbon-fibre "MonoCell", a giant tub which forms the main structure of the vehicle.

The company uses a specialist contractor to make MonoCells, although those for future car models will be produced at a new £50m (\$65m) McLaren Composites Technology Centre in Sheffield, Britain. The first of the new cells has just been delivered. Impressively, the large and complicated structures are produced with RTM in one go—although McLaren is keeping the details secret. "I often look at the MonoCell and wonder myself how it is possible to make it," says Claudio Santoni, the centre's technical director.

McLaren says carbon fibre will be essential in keeping weight down in future hybrid and electric models. By 2025 it expects the centre to be making MonoCells for some 6,000 cars a year. As a high-end brand, it is not seeking large volumes. But

other carmakers are. One is BMW, which uses a variant of RTM in Leipzig, Germany, to make bodies for more than 130 of its i3 electric cars every day. BMW plans to increase that number substantially.

Another speedy production process is "overmoulding". This combines sheets of carbon fibre with injection-moulded plastic. Injection moulding has long been used to produce plastic parts by extruding a molten polymer into a mould. It is quick and accurate. By combining the two processes, overmoulding allows plastic parts to be selectively reinforced with carbon fibre. Thus strengthened, such parts could be used as car doors, aircraft interiors and in many

other products. The NCC reckons an overmoulding system it is working with in Bristol can churn out finished components in just 60 seconds.

Progress is also being made in reducing the cost of carbon fibre itself. Prices vary according to quality, but industrial-grade carbon fibre is roughly \$20 a kilogram, although aerospace versions are more expensive. By comparison, steel used in car-making is about \$1 a kilogram. As carbon fibre is so much lighter and stronger than steel, less material is needed. And the additional cost is also compensated for by product-lifetime savings on fuel and emissions. Nevertheless, cheaper carbon fibre ▶▶

Avian biology

Doubling their luck

How some birds adapt to climate change

ONE OF THE great concerns that ornithologists have is that climate change will throw the nesting activities of birds out of sync with the availability of food for the raising of chicks. For one species, the pied flycatcher, a new study shows that some of its clan are proving to be remarkably adaptable.

Upon returning to Europe from their African wintering grounds, the flycatchers time their egg-laying to the short period when juicy caterpillars are most abundant. During the past three decades this caterpillar peak has advanced by three weeks. Pied flycatchers initially had difficulty adjusting, but over time have started laying their eggs earlier to grab the caterpillars. Some, though, are doing a lot more to improve their reproductive chances of success, according to a study in the *Journal of Avian Biology* led by Christiaan Both of the University of Groningen, in the Netherlands.

Like most bird species, pied flycatchers have long been thought to lay a single clutch of eggs during the breeding season. This was widely considered to be a trait that does not change. Then, in 2007, a Swiss team led by Pierre-Alain Ravussin began to suspect that clutch numbers were flexible. They discovered a female pied flycatcher that immediately produced a second brood with a new male after raising an early set of chicks. Aware of Dr Ravussin's findings, Dr Both wondered whether this was just a single, odd instance or if second broods might be happening on a larger scale driven by the arrival of earlier springs. So, they collaborated to delve into the data to find out.

The team studied pied-flycatcher populations in the Netherlands and Switzerland that were known to be



Do this all over again?

among the earliest nesting members of the species. In total, they tracked the egg-laying times and hatchling-rearing success of 8,848 breeding pairs in the Netherlands and 1,372 in Switzerland between 1980 and 2018. They found that since 2006, 11 cases of second broods were observed, all of them among the earliest breeders in both populations.

Further studies ruled out that the birds were making up for a failed first attempt at raising chicks or that the second group of nestlings suffered.

With no obvious downside to laying a double clutch, Drs Both and Ravussin conclude that the birds are attempting to double their annual reproductive output. While this behaviour is still rare, they argue that if the tendency is driven by heritable genes (which it may well be) then a succession of early springs could make the strategy much more common.

► would find greater use in manufacturing.

Oak Ridge National Laboratory in Tennessee thinks it could cut the cost of industrial-grade carbon fibre by about half with more efficient production processes. According to some estimates, roughly 90% of the energy needed to make things with carbon composites is consumed in producing the fibre itself. Oak Ridge is looking at the use of cheaper alternatives to PAN and low-temperature carbonisation processes.

The lab also uses chopped-up carbon fibre in large-scale 3D printers to produce structures. It recently employed the system to print moulds for the precast concrete façade of the Domino tower, a new 42-storey building in Brooklyn, New York.

Chopped carbon fibres can be made from manufacturing offcuts or recycled material. Recycling will become even more important once a greater number of carbon-fibre cars, aircraft, ships, wind turbines and other products reach the end of their working lives. There will be mountains of the black stuff to deal with. Companies are coming up with ways to recover the fibres, usually with heat or chemicals. Sometimes the fibres can be re-spun, but if they are too short they can still be suitable for parts subject to less stress. A combination of lower-cost mass-production techniques and effective carbon-fibre recycling, will lead to a lot more Berthas knitting away furiously. ■

teeth. From these, they have identified at least three individuals with features that indicate that they belonged to a new species of human.

The fossil remains of *H. luzonensis* are bizarre. The toe bones, for instance, suggest it was adapted to climbing trees as well as walking on two legs—something more typical of distant australopithecine relatives who lived millions of years ago in Africa. The Luzon premolar teeth also look primitive, but the molars are modern and *H. sapiens*-like. As with the Hobbit, it is likely that these features evolved in *H. luzonensis* as a result of its island living. Previous studies have shown that when species become isolated, as on an island, unusual features emerge.

The islands of South-East Asia were also once home to the mysterious Denisovans. What little is known about them has more to do with laboratory work than digging in the ground for remains. That is because very few Denisovan fossils have been found. A finger bone, a skull fragment (announced in March) and a handful of teeth are the only physical testimonies to their existence. They are not enough to say what the Denisovans looked like, or to assign them a species name.

However, by comparing DNA extracted from the finger bone to the genomes of people alive today, researchers have shown that Denisovans and Neanderthals shared a common ancestor sometime between 500,000 and 700,000 years ago, and that they interbred with each other and with the direct ancestors of *H. sapiens* on more than one occasion. These matings conveyed new traits to their descendants. Even today Tibetans carry a Denisovan gene that helps them reproduce at high altitudes. And the Denisovans seem to be widely travelled, with genetic evidence that at one time they could be found all the way from Western Siberia to Indonesia.

Murray Cox, a computational biologist at Massey University in New Zealand, and his colleagues pushed the analysis further by probing a new genetic database, containing modern genomes from the islands of South-East Asia, a region that is both densely populated and largely unrepresented in genetic surveys. The database includes genomes from New Guinea, where previous studies have indicated modern genomes contain more Denisovan DNA than is found in other regions.

Three's a crowd

As they report in *Cell*, Dr Cox and his colleagues found evidence of not one but three distinct groups of Denisovans that interbred with the ancestors of modern Papuans. One group, dubbed D2, evolved separately from the individual whose finger bone was found in the Siberian cave for 12,500 generations, or roughly 360,000 ►

Human origins

The Hobbit's cousin

More new human species are discovered

THE HUMAN species is a lonely one. Today there are two species of gorilla, two of chimpanzees and a whopping three species of orang-utan, but just one sort of human. It wasn't always so. People are familiar with the idea that *Homo sapiens* once shared Eurasia with another human, *H. neanderthalensis*. In 2004 researchers announced to great fanfare that they had found the bones of a third contemporaneous relative, a rather short human species who lived on the Indonesian island of Flores. This became *H. floresiensis*, and was quickly dubbed the "Hobbit". Then, in 2010, geneticists declared that a single finger bone found in a cave in the Altai Mountains of western Siberia carried a distinct genome which suggested it belonged to a fourth group, the Denisovans.

Two new studies reveal that the landscape the ancestors of *H. sapiens* roamed across was even more crowded, until quite recently. One report draws on the power of genetic sequencing to show that the Denisovans comprised at least three different populations, which evolved separately for hundreds of thousands of years. The other study announces an entirely new species of hominin, *H. luzonensis*. Both findings centre on the islands that lay at the fringes of the ancient world; in South-East Asia, a region that has until quite recently been largely ignored by palaeoanthropologists.

Glimpses of the new species came in 2010, when a collaboration of Philippine, French and Australian researchers announced that they had found a human-like foot bone (pictured opposite) on Luzon, the largest island in the Philippines. The

bone was 67,000 years old, meaning its owner was alive shortly before *H. sapiens* ventured out of Africa. It was discovered alongside butchered animal bones on an island separated from mainland Asia by a sea. All this pointed to a fairly sophisticated human, capable of creating sharp cutting tools, and quite possibly also able to build and steer a boat or raft (though some argue it may have floated, or swam across to the islands).

The same team, led by Florent Détroit of the Musée de l'Homme in Paris, report in *Nature* this week that alongside the foot bone they have also found two finger bones, two toe bones and a number of



A little bit of luzonensis



years. That makes it “about as different from the individual found in the Denisova cave [in Siberia] as it is from Neanderthals,” says Dr Cox. Indeed, D2 evolved separately for longer than the 300,000 years that *H. sapiens* has been around.

There could be profound consequences, says Dr Cox’s collaborator Guy Jacobs of Nanyang Technological University in Singapore. For starters, D2 could have looked very different from the Siberian individual. “If we’re going to call Neanderthals and Denisovans by special names,” says Dr Cox, “this new group probably needs a new name, too.”

The genetic analysis estimates that the D2 Denisovans interbred with *H. sapiens* in Papua roughly 30,000 years ago, which suggests they outlasted the Neanderthals by some 10,000 years. Another Denisovan population may have interbred with *H. sapiens* as recently as 15,000 years ago, say the researchers. That would mean the Denisovans, not Neanderthals, were the last cousin of humanity to vanish, leaving *H. sapiens* as the only hominin game in town.

That they mated on the islands provides some of the first behavioural and social information about this group of early hominins. Like *H. luzonensis* or its ancestors, the Denisovans may have been capable of navigating, in order to cross the strong currents of the Wallace Line (see map). Present-day attempts to reproduce such journeys show this to be no small feat. Successful crossings require craft, and careful planning.

Through their promiscuity with *H. sapiens*, Neanderthals and Denisovans passed on fragments of genetic code that survive in humans today. Some of the fragments identified by Dr Cox and his collaborators appear to have played a role in helping *H. sapiens* adapt its diet and immune system as it spread into new regions, and are still present to varying degrees in modern populations. As Michael Petraglia, a palaeoanthropologist at the Max Planck Institute for the Science of Human History in Germany, puts it: “This is a story not only about history but about us ourselves today.” ■

Black holes

Staring into the abyss

Astronomers take the first snap of a black hole

WHAT BLACK HOLES do to the things around them is hard to miss. Matter hurtling into them at almost the speed of light gives off all sorts of radiation, sometimes so much of it that it can be seen half a cosmos away. The black holes themselves, though, are another matter. They are, by cosmic standards, extremely small. And they are defined by having gravitational fields so strong that nothing, not even light, can escape them. That is why it is remarkable that an international team of more than 200 radio astronomers have, through years of painstaking work, actually contrived a glimpse of one.

The black hole in question (pictured below) is located at the centre of a galaxy 55m light-years from Earth called Messier 87, one of the largest and most luminous galaxies in the nearby universe. Astronomers have for some time suspected that it houses a phenomenally massive black hole—one 6.5bn times more massive than the Sun, and more than a thousand times more massive than the black hole at the centre of the Milky Way galaxy in which the Earth and Sun sit.

But massive does not mean large. The edge of a black hole is called an event horizon, because nothing that happens beyond it can ever be seen under any circumstances. The black hole in Messier 87 has an event about half a light-day across (about the size of the bit of the Solar System that has planets in it). This means that, seen from the Earth, it looks no larger than a coin on the surface of the Moon.

The smaller the thing you are observing appears in the sky, the larger the aperture of the telescope you need to look for it. The Event Horizon Telescope (EHT) team put together one with an aperture the size of Earth by bringing together data from radio telescopes all around the world. Adding together the signals received by these various telescopes allowed them to synthesise an image as good as the one they would have got from single telescopes as large as the distance between any two of the dishes, though a great deal dimmer. This sort of “extremely long baseline interferometry” has been used for decades—but never before with this amount of data.

In total, eight observatories on four continents were used to hunt for the black hole in Messier 87, including two, in Antarctica and Chile, that enjoy particularly dry skies. Because the observations needed

to be precisely synchronised, each instrument was tethered to its own atomic clock.

Once all the dishes were properly configured, the astronomers calculated they required ten days of clear weather in all the locations to collect the data that were needed. When they began their search in April 2017 the weather behaved, and they got five petabytes of data in seven days. These data were transported to the Haystack Observatory at the Massachusetts Institute of Technology in America and the Max Planck Institute for Radio Astronomy in Bonn, Germany, on half a tonne of hard drives.

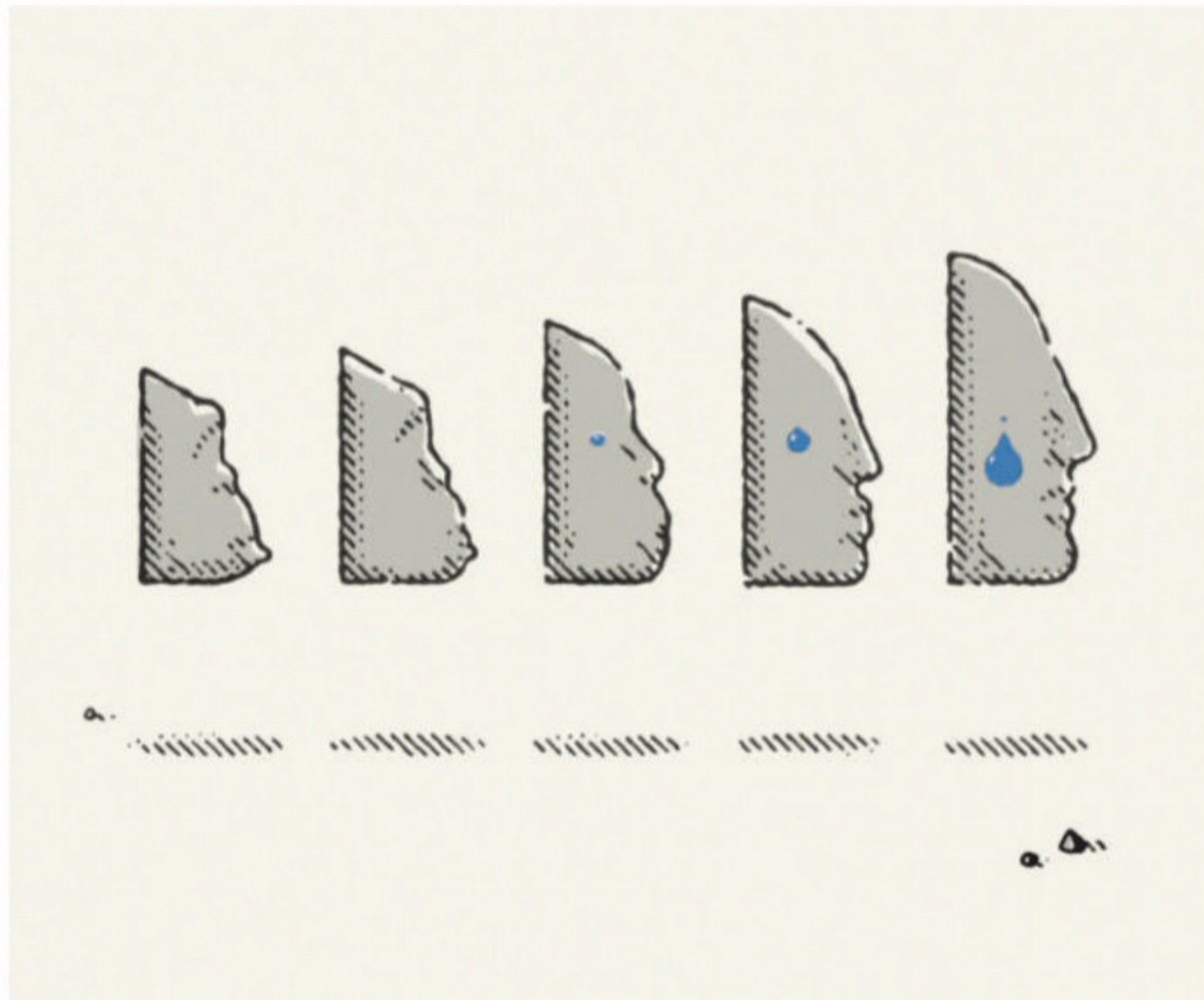
These many numbers underwent much crunching. On April 10th the result was revealed. The first real picture of a black hole, which looks satisfyingly black and blobby, consists of radiation emitted by hot gases on the far side of the black hole and then bent by its gravity into a tube of light with darkness in its central cavity. The brighter yellow at the base of the circle indicates gases moving particularly quickly, hinting at a something of a slingshot effect taking place as the vortex of gases travel in a clockwise direction, much like water pouring down a plug hole.

In time, the same approach should be able to track changes in the environment around this black hole and others, helping to show, among other things, how the vast jets of energy it emits get their oomph and structure. In the meantime, there are two important take away messages. One is that black holes are round, as Einstein’s theory of relativity predicted they would be. The world is used to Einstein being proved right; but each test that might contradict him and doesn’t is an event.

The other is that if they see a possibility fascinating and spectacular enough, astronomers will be remarkably dogged in its pursuit, even using the whole moving Earth to plumb the heavens. ■



Seeing the unseeable



Evolution and psychiatry

The wisdom of sorrow

After centuries of discredited quackery, evolution may suggest a way to understand mental illness

“YOUR WHOLE field is confused. You know that, right?” The patient who delivered this parting shot had a perpetual knot in the pit of her stomach. She had lost interest in everything, was anxious, irritable and nauseous, and struggled to sleep. Her family doctor had told her it was “nerves”. A psychotherapist asked about sexual feelings in childhood for her father. A psychiatrist offered drugs to fix what he said was a chemical imbalance in her brain.

Confused and desperate, she had found her way to yet another doctor, an assistant professor of psychiatry. Anxiety can be useful, he told her, but most people experience more than they need—because whereas too much merely makes you miserable, too little can make you dead. She was stuck in a cycle of worry, heightened vigilance and more worry. Cognitive behavioural therapy, which teaches people to break corrosive thinking patterns, would help. She brightened up—and offered a few home truths about the psychiatrist’s profession.

Randolphe Nesse, now of Arizona State University, cites that encounter in his fascinating book to illustrate why he has spent his career studying the evolutionary roots

Good Reasons for Bad Feelings. By Randolphe Nesse. Dutton; 384 pages; \$28. Allen Lane; £20

Mind Fixers: Psychiatry’s Troubled Search for the Biology of Mental Illness. By Anne Harrington. Norton; 384 pages; \$27.95

of mental illness. Though doctors who treat physical ailments do not routinely refer to evolution, their theories about bodies are based on the fact that humans, and the pathogens that afflict them, are the product of aeons of natural selection. Disorders are defined by comparison with normal functioning. Symptoms such as rashes, fevers and pain are understood to be consequences of, or defences against, illness, not the illness itself. Treating an ailment like diabetes, in which a complex system malfunctions, means knowing how that system is supposed to work—and what it evolved to do.

Mental-health specialists lack such solid foundations. In general, they neither study the feelings of the well, nor consider what feelings are for. Of the 4,500 pages in America’s most popular psychiatry text-

→ Also in this section

80 Walter Gropius and the Bauhaus

81 Susan Choi’s new novel

81 Robert Caro’s life and craft

82 Johnson: African-American English

book, normal emotions get half a page. Moreover, when it comes to diagnosis, they fail to consider underlying causes. The current version of the American “Diagnostic and Statistical Manual for Mental Disorders” (DSM-5) defines hundreds of disorders solely by their symptoms. Depression, for example, means at least two weeks experiencing five or more of eight symptoms, such as loss of pleasure in life, loss of appetite and feelings of worthlessness. The diagnosis is the same if you have just been bereaved or divorced or lost your job.

In Dr Nesse’s definition, “specialised states that...increase the ability to meet adaptive challenges” constitute normal emotions. They are experienced as positive or negative because only situations containing opportunities or threats affect evolutionary fitness. A negative emotion may be just as evolutionarily useful as physical pain. A depressed patient’s low mood, for example, may result from his realisation that a major life project is sure to fail. It feels terrible, but makes sense in evolutionary terms. People who do not suffer when pursuing unachievable goals may waste their energies on pointless effort, thereby harming their chances of reproduction. That insight taught Dr Nesse to ask the depressed: is there something very important that you are trying and failing to do, but can’t bring yourself to give up?

Evolution has equipped people for a world very different from the one they now inhabit. They are obese because their appetites are adapted to scarcity, not superabundance. Similarly, some mental ill- ▶▶

nesses may be the result of having to negotiate situations they are not fit for. Others may be side-effects of selection for desirable traits. Dr Nesse draws an analogy with racehorses, bred for speed with the unfortunate result that their cannon bones are brittle. For every 1,000 that start a race, he says, one breaks a leg and has to be put down. It may have slightly weaker bones than the rest. Or it may simply be unlucky and stumble. Humans may have “minds like the legs of racehorses, fast but vulnerable to catastrophic failures”.

When it comes to doctoring the body, you have to go back to the 19th century to find a time when the theories were baseless (infections were caused by miasmas, for instance) and the treatments often harmful (bloodletting, purging and the like). For doctoring the mind, as Anne Harrington's fine history of psychiatry shows, that point is much more recent. In 1949 a Nobel prize went to the Portuguese inventor of the lobotomy, an operation intended to sever the “worry nerves” of the brain. In 1952 the technique was sufficiently honed for an American acolyte to launch “Operation Ice-pick”—a 12-day road trip during which 228 patients were strapped down and anaesthetised, before he or an assistant slipped an ice-pick-shaped knife under each eyelid and into their brains, and gave a twist.

What ended that practice was not an outbreak of compassion, but the arrival of thiorazine, a drug that caused such mental deadening that it was nicknamed the “chemical lobotomy”. It was the start of the age of blockbuster drugs for mental illness. By the end of the 1950s one in three prescriptions in America was for meprobamate, which dampened anxiety. By 1990, 1m Americans received Prozac prescriptions each month. Pharmaceutical companies popularised the notion that anxiety, depression and so on were caused by chemical imbalances. Right them and you could become not just well, but better than well.

Under the influence of Freud, psychiatrists had sifted their patients' life histories for repressed emotions and memories. But in the 1980s psychiatrists declared a post-Freudian world, with mental illnesses ascribed to brain biochemistry and neuroanatomy. They expected to discover the genes that caused mental illnesses, and bespoke drugs that could heal them.

That revolution never happened. Instead pharmaceutical firms are pulling back, as stricter testing rules reveal how little good many of their products do. The evidence linking mental illnesses to defects of brain architecture or chemistry, or to specific genes, is scanty. With its checklist approach to diagnosis, DSM-5 is under attack. Ms Harrington's history ends with today's crisis in the psychiatric profession. If Dr Nesse is right, evolutionary thinking could provide a fruitful new direction. ■

Architecture

Haus style

Gropius: The Man Who Built the Bauhaus.

By Fiona MacCarthy. *Belknap Press*; 560 pages; \$35. Published in Britain as “Walter Gropius: Visionary Founder of the Bauhaus”; *Faber & Faber*; £30

“IF I HAVE a talent it is for seeing the relationship of things,” reflected Walter Gropius in 1967, not long before he died. The world remembers him as an innovative architect of pared-down modernist buildings and the founder of the Bauhaus, a revolutionary school of art and design. His aim was to bring architects, designers and artists together in a working community to create what he called the *Gesamtkunstwerk*, or total work of art.

Charismatic, gifted, idealistic and well-connected, he wanted to do something new and life-affirming after fighting in the first world war. His invitation to join the Bauhaus was taken up by the most vibrant artists and designers of his day, including Vasily Kandinsky, Paul Klee and Laszlo Moholy-Nagy. The teachers and students led quasi-communal lives; their parties were legendary. In its various incarnations—starting in Weimar in 1919, then moving to Dessau and finally to Berlin—the fabled school lasted a mere 14 years, after which the *Bauhäusler* dispersed across the globe,



Gropius in excelsis

many, including Gropius, to America.

Gropius was born in 1883 in Berlin into a cultured upper-middle-class family. His first job was in the office of Peter Behrens, a successful architect and designer who had already taken on a young Mies van der Rohe and a little later recruited Le Corbusier. In 1910 Gropius left to set up his own practice and was soon working on the Faguswerk in Alfeld, a futuristic factory built from glass, steel and yellow brick that became his first important building.

As Fiona MacCarthy's new book recounts, his private life was chaotic. In 1910 he had an affair with Alma Mahler, an accomplished society beauty who at the time was married to the composer Gustav Mahler. After Gustav died she took various lovers, including the painter Oskar Kokoschka, but she and Gropius were married in 1915. Their daughter, Manon, was born the following year. Then Alma started an affair with the writer Franz Werfel; after she and Gropius divorced, she made it hard for him to see his child. In 1923 Gropius found his life's companion in Ilse Frank, an independent-minded woman who was 14 years his junior. (He persuaded her to change her name to Ise, perhaps because it sounded less bourgeois.)

By then the Bauhaus was in full swing, but in 1928 Gropius left the school to devote more time to his neglected architectural practice. He and Ise settled in Berlin, where their home became a hub for the avant-garde. After the Nazis came to power, his commissions dried up (Ise, meanwhile, began a relationship with a former *Bauhäusler*, the graphic designer Herbert Bayer). The school suffered, too. Gropius had tried hard to keep politics out of art, but the Nazis were increasingly hostile to the Bauhaus, branding its output degenerate. Starved of funds, it closed in 1933.

Germany's loss proved the world's gain. In 1934 Gropius moved to London, but he found the artistic climate uncongenial. Soon he was offered the chairmanship of a new graduate architecture programme at Harvard, where he made a deep impression on a generation of students. After the second world war, with a group of colleagues half his age, he started an architectural practice which was to become America's largest and gave him the chance to design many striking buildings. He spent the last few years of his life burnishing the story of the Bauhaus and managing its legacy.

Ms MacCarthy, who has previously published books on William Morris and Edward Burne-Jones, among others, met Gropius (and Ise) decades ago and determined that one day she would write his biography. She eventually got round to it in time for the Bauhaus's 100th birthday this year. The result is a riveting book about a man who nurtured a vastly ambitious project through extraordinary times. ■

New American fiction

Dangerous games

Trust Exercise. By Susan Choi. *Henry Holt*; 272 pages; \$27. *Serpent's Tail*; £14.99

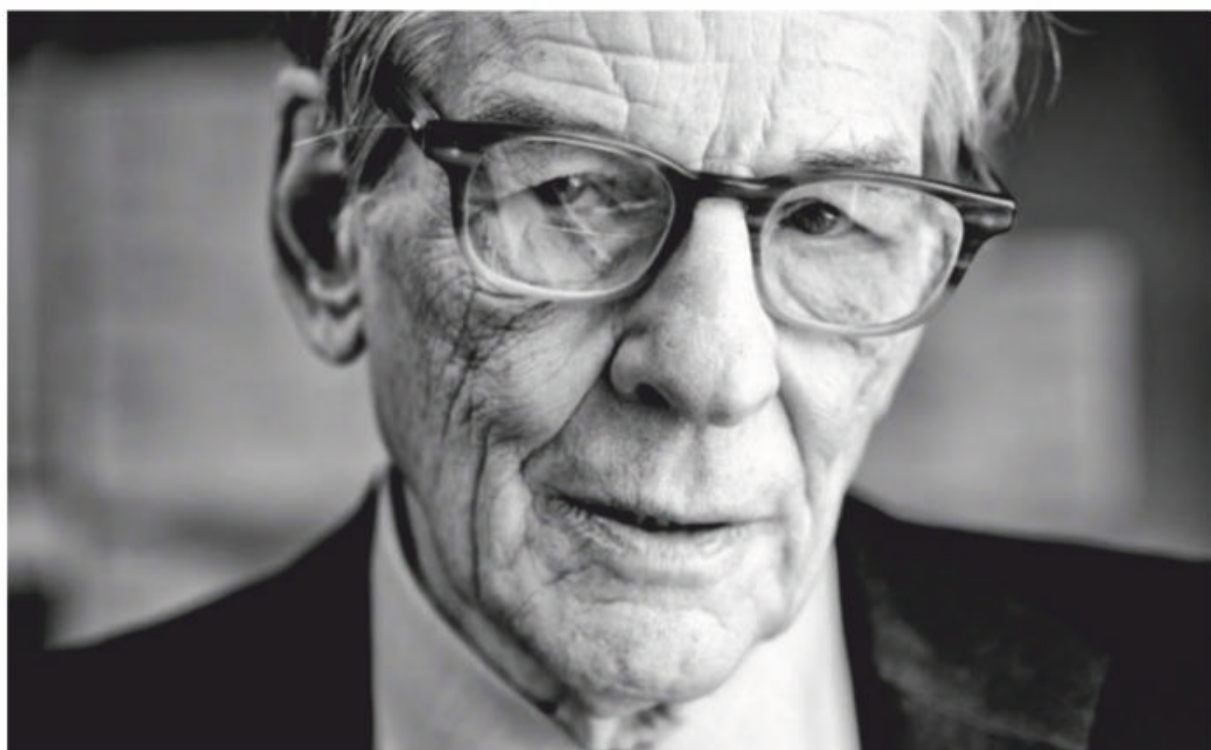
SARAH AND David are theatre students at a performing-arts high school, preparing for “exceptional lives”. From the first page of Susan Choi’s twisting novel, they are connected by a hot wire of desire. The stage seems set for a classic tale of young love. But nothing is as it seems in this artistic hothouse. Immediately, the story shifts: their teacher, Mr Kingsley, emerges as a Pied Piper, seductive and dangerous.

“Of the Trust Exercises there were seemingly infinite variations,” Ms Choi writes. Mr Kingsley sets students groping in the dark, or falling into waiting arms, to learn an attitude of openness. Again and again, the youngsters are raked raw, their emotions deconstructed in the name of Art. In the course of this obsessive, repetitive examination, their lives begin to unravel.

Ms Choi’s novels have won praise for their blend of exceptional prose and propulsive storytelling. Her previous book, “My Education”, was a story of sexual obsession; the limit of self-knowledge is a recurring theme in her fiction. “Trust Exercise”, her fifth novel, focuses on trust and its abuse—particularly between predatory men and teenage girls. But her vision is much broader than the politics and recriminations of #MeToo.

As the narrative unfolds, it becomes clear that it, too, is a “trust exercise”. Readers place themselves in this gifted author’s hands, only to be yanked, sometimes violently, in unexpected directions. Each of the three sections initially jars, as perspectives shift and splinter. Yet for all the dramatic reversals, this is not a straightforward thriller. The real pleasure of the novel lies in recognising the echoes that reverberate towards its unsettling conclusion, and the questions it raises about the truth of the stories people tell.

The author uses language brilliantly. Sarah and her friend do everything possible to their hair, from bleach to perms, “as girls do when vandalising themselves seems the best way of proving their bodies are theirs.” Descriptions of sex are powerfully real. “Then Sarah is naked”, Ms Choi writes, “and the hot, slippery fit is accomplished.” She is an astute, forensic cartographer of human nature; her characters are both sympathetic and appalling. In the end, hers is a tale of missed connection and manipulation—and of willing surrender to the lure and peril of the unknown. ■



Lives of the biographers

A master builder

NEW YORK

Robert Caro, America’s biographer-in-chief, reflects on his life and craft

ON NEW YORK’S Upper West Side, a stone’s throw from Central Park, Robert Caro is in his office, writing. America’s biographer-in-chief, now 83, is working on the fifth and final volume of “The Years of Lyndon Johnson”, his seminal portrait of the 36th president. Cork boards displaying the outline of this last instalment hang on an otherwise bare wall. In the next room, filing cabinets house hundreds of folders of notes and interviews. The shelves include several copies of “The Power Broker”, Mr Caro’s Pulitzer-winning biography of Robert Moses, the “master builder” of mid-20th-century New York.

His books trace the lives of towering figures in American history. Both Moses and Johnson bent people and institutions to their will through cunning, determination and ruthlessness; both nurtured ambitions that inspired awe. They were supreme manipulators with complicated motives. Moses built New York’s parks, bridges and expressways; but his schemes betrayed contempt for minorities and the poor, destroying their neighbourhoods and obstructing public transport. Johnson passed landmark legislation on civil rights, education and health care. He also pushed America deeper into war in Vietnam.

Yet Mr Caro’s method triumphantly transcends such headlines. Few authors lavish attention on places and people as he does. His books are also about New York, Tammany Hall, the Senate, the Texas Hill Country, American individualism and, above all, political power, how it is wielded and what it can achieve.

Working. By Robert Caro. *Knopf*; 240 pages; \$25. *Bodley Head*; £20

His latest book, “Working”, is a collection of personal reminiscences. The journalist-cum-historian is conscious of time, and of all the books he has yet to publish. How to make sure that the knowledge he has acquired outlives him? “If it’s not preserved between the covers of a book,” Mr Caro reckons, “it’s gone.” In the course of explaining his reporting and writing process—which involves many longhand drafts and a typewriter—he also charts his own extraordinary life.

Mr Caro was a reporter for *Newsday* on Long Island when he began paying attention to Moses. “The Power Broker”, a 700,000-word epic, tells the story of a man who shaped America’s biggest city over four decades without ever being elected to office. Even now, 45 years after it was first published, Mr Caro is counting the words that were cut out. He mourns the would-have-been chapters on the city planning commission; his own copy is marked up with changes he still wishes he could make. “Cutting that book was really sort of the hardest thing I ever did,” he says, thinking of the 350,000 words that never made it into print. He speaks quietly when recalling these lost sections. Evidently their absence pains him still.

After the success of “The Power Broker”, Mr Caro decided to think bigger. Whereas his book on Moses was a study in urban politics, Johnson’s ascent to the White ▶▶

▶ House was a way to document power on the national stage. The most delicious parts of “Working” are behind-the-scenes snippets from interviews he conducted with associates of the president.

For example, when Mr Caro was searching for LBJ’s college classmates to decipher how he acquired the nickname “Bull” (short for “Bullshit”) Johnson, he called up a Texan named Ella So Relle. Peeved at the intrusion, Ms So Relle asked why she was being asked so many questions when the answers were all printed in the college’s yearbook for 1930. Mr Caro looked for the

pages she mentioned and found them to be torn out neatly from the binding.

A frantic drive to a second-hand bookstore turned up more copies—with the same pages missing. When he finally found an intact copy it was, as Ms So Relle had said, “all there in black and white”: snide cartoons and drawings of Johnson depicting how he had stolen campus elections. It was that moment “of true revelation”, Mr Caro says, that led him to rethink the golden image of LBJ that others had conveyed. He is animated as he recalls the discovery, gesturing as if to slap his desk as

if he has just found the missing pages all over again. Fellow journalists will delight in such intrepid shoe-leather escapades.

In assessing Mr Caro’s long career, one thing becomes obvious: he didn’t do it alone. Each of his books is dedicated to his wife Ina, and for good reason. When Mr Caro spent all day, every day at the LBJ Presidential Library in Austin, Texas, Ina—an acclaimed author in her own right—sifted through documents two or three desks away. The Caros sat at those tables, together but walled apart by towers of boxes and papers, intent on turning every page. ■

Johnson Many and one



How to think about African-American English

AMERICA HAS always been full of languages, a fact that has been both a source of pride and a cause for consternation. But there has long been a fundamental misconception about one of its distinctive tongues: the speech of some of the country’s black population, especially in highly segregated areas. Not only is the nature of this dialect widely misapprehended; often its speakers are literally misunderstood by some of their fellow citizens.

African-American English (AAE), is not a broken version of standard English, the mistake-filled attempts of someone trying and failing to talk correctly. Instead, it is like a cousin. It developed from the same roots, but in a different direction, born of unique circumstances. Enslaved people from various African backgrounds took what they learned of English and made it their own.

Centuries later, AAE is a rule-bound, internally consistent dialect. In some ways it is simpler than standard English. For example, it omits the -s on third-person singular verbs: *I speak, you speak, she speak*. But in some ways it is more complicated. *She comin’ by my house* means something different from *She be comin’ by my house*: the first is a one-off event, the second is habitual. *I been done that* means that I did something a long time ago. Standard English can achieve these effects with adverbs, but AAE integrates them into the verb system itself.

Misplaced snobbery about the nature of AAE is not the only problem. The dialect’s differences from the standard also lead to dangerous confusion. Taylor Jones, a graduate student in linguistics at the University of Pennsylvania, carried out a worrying study that found a group of professional court reporters were able to transcribe only 60% of AAE sentences

accurately, and 83% of the words. Asked to paraphrase what they had heard, they did even worse: about 33% of utterances were conveyed accurately. They are supposed to achieve a 95% accuracy.

Experienced court reporters did no better than newer ones, and black reporters little better than the white ones. Black participants explained their trouble with AAE by saying that they (like many other African-Americans) didn’t “speak like that”. Worse, both black and white court reporters tended to assume the recordings were from criminal court (they weren’t). That people associate AAE with ignorance and criminality is bad enough. Misunderstanding aggravates the risk. No one can get justice from a court that doesn’t know what they are saying.

The miscommunication runs both ways. Adult black Americans who use AAE can easily understand standard English, from exposure in school, work and the media. But youngsters from homes and neighbourhoods where AAE predominates are a different matter. In another study, Mike Terry of the University of North

Carolina tested AAE speakers in second grade (roughly 7 years old) on their maths. He found that questions including the third-person-singular ending -s (*he talks*, which in AAE is *he talk*) made the students 10% less likely to answer correctly. Language is not just language; it is the interface with other kinds of knowledge. Such pupils are being judged as less capable than they really are.

A close linguistic analogy to AAE is Scots, which differs from standard English to a similar extent. In its full form, it is at least as hard for outsiders to understand. But in policymaking terms, it is not a useful comparator. Scots have a homeland and a nationalist movement; they are not generally the subject of disparaging prejudice.

It may be better to think of AAE as posing the same challenges as a foreign language, albeit in diluted form. Seeing the problems some of its speakers face as essentially ones of translation might let policymakers appreciate and solve them. This does not mean providing courtroom interpreters for black speakers, or classes taught in AAE. It means training court staff or teachers in the issues involved.

America is a diverse place, and standard English is part of the glue that holds it together. All the more reason to take a linguistically informed approach to teaching it. For example, classroom exercises similar to “translation” from AAE to standard English can help children master the standard, in a way that shaming them for “mistakes” (in fact, correct AAE) does not. The standard is not the only kind of English there is. Paradoxical as it may seem, recognising this linguistic diversity will help a divided country approach the ideal of its motto: *e pluribus unum*.



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Economic data

	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units		
	% change on year ago latest	quarter*	2019†	% change on year ago latest	2019†	%		% of GDP, 2019†	% of GDP, 2019†	10-yr gov't bonds latest,%	change on year ago, bp	per \$ Apr 10th	% change on year ago			
United States	3.0	Q4	2.2	2.3	1.9	Mar	2.2	3.8	Mar	-2.5	-4.9	2.5	-28.0	-		
China	6.4	Q4	6.1	6.3	2.3	Mar	2.5	3.8	Q4§	0.2	-4.5	3.2	§§	-42.0	6.72	-6.3
Japan	0.3	Q4	1.9	1.0	0.2	Feb	1.4	2.3	Feb	3.9	-3.4	-0.1		-8.0	111	-3.4
Britain	1.4	Q4	0.9	1.0	1.9	Feb	2.0	3.9	Dec††	-4.2	-1.6	1.1		-36.0	0.76	-6.6
Canada	1.6	Q4	0.4	1.6	1.5	Feb	1.7	5.8	Mar	-2.8	-1.4	1.7		-50.0	1.33	-5.3
Euro area	1.1	Q4	0.9	1.3	1.4	Mar	1.4	7.8	Feb	3.0	-1.1	nil		-55.0	0.89	-9.0
Austria	2.4	Q4	5.1	1.3	1.5	Feb	1.8	5.0	Feb	2.0	-0.1	0.3		-46.0	0.89	-9.0
Belgium	1.2	Q4	1.4	1.3	2.3	Mar	2.2	5.7	Feb	0.4	-0.9	0.4		-37.0	0.89	-9.0
France	1.0	Q4	1.3	1.3	1.1	Mar	1.3	8.8	Feb	-1.2	-3.4	0.4		-38.0	0.89	-9.0
Germany	0.6	Q4	0.1	1.0	1.3	Mar	1.4	3.1	Feb‡	6.6	0.8	nil		-55.0	0.89	-9.0
Greece	1.6	Q4	-0.4	1.8	0.9	Mar	0.9	18.0	Dec	-2.5	-0.4	3.4		-58.0	0.89	-9.0
Italy	nil	Q4	-0.4	0.1	1.0	Mar	0.9	10.7	Feb	2.1	-2.9	2.6		76.0	0.89	-9.0
Netherlands	2.2	Q4	2.2	1.4	2.8	Mar	2.3	4.3	Feb	9.8	0.7	0.2		-47.0	0.89	-9.0
Spain	2.4	Q4	2.2	2.2	1.4	Mar	1.2	13.9	Feb	0.8	-2.4	1.0		-18.0	0.89	-9.0
Czech Republic	3.0	Q4	3.4	2.8	3.0	Mar	2.2	2.0	Feb‡	0.4	0.7	1.8		4.0	22.8	-9.9
Denmark	2.5	Q4	3.4	1.9	1.2	Mar	1.1	3.7	Feb	6.3	0.2	0.1		-48.0	6.64	-9.2
Norway	1.7	Q4	1.9	1.9	2.9	Mar	2.3	3.9	Jan††	7.1	6.4	1.7		-22.0	8.51	-8.2
Poland	4.5	Q4	2.0	3.8	1.7	Mar	1.7	6.1	Feb§	-0.6	-2.4	2.9		-13.0	3.80	-10.8
Russia	2.7	Q4	na	1.5	5.3	Mar	4.9	4.9	Feb§	6.5	2.4	8.3		59.0	64.4	-2.4
Sweden	2.4	Q4	4.7	1.6	1.9	Feb	1.8	6.6	Feb§	3.5	0.4	0.2		-45.0	9.28	-10.6
Switzerland	1.4	Q4	0.7	1.8	0.7	Mar	0.7	2.4	Mar	9.8	0.5	-0.3		-28.0	1.00	-4.0
Turkey	-3.0	Q4	na	1.1	19.7	Mar	15.5	13.5	Dec§	-3.8	-2.3	17.4		403	5.70	-27.9
Australia	2.3	Q4	0.7	2.6	1.8	Q4	2.0	4.9	Feb	-2.2	-0.2	1.9		-77.0	1.40	-7.9
Hong Kong	1.3	Q4	-1.4	2.2	2.1	Feb	2.3	2.8	Feb‡‡	4.5	0.5	1.6		-29.0	7.84	0.1
India	6.6	Q4	5.1	7.4	2.6	Feb	3.3	6.7	Mar	-1.8	-3.4	7.4		-1.0	69.1	-5.9
Indonesia	5.2	Q4	na	5.2	2.5	Mar	3.1	5.3	Q3§	-2.8	-2.2	7.7		104	14,150	-2.8
Malaysia	4.7	Q4	na	4.5	-0.4	Feb	0.8	3.3	Jan§	2.4	-3.4	3.8		-18.0	4.11	-5.8
Pakistan	5.4	2018**	na	3.4	9.4	Mar	7.8	5.8	2018	-4.2	-6.0	13.4	†††	436	141	-18.2
Philippines	6.3	Q4	6.6	5.9	3.3	Mar	4.4	5.2	Q1§	-2.2	-2.5	6.0		9.0	51.9	0.1
Singapore	1.9	Q4	1.4	2.4	0.5	Feb	0.5	2.2	Q4	16.5	-0.6	2.1		-31.0	1.35	-3.0
South Korea	3.2	Q4	3.9	2.4	0.4	Mar	1.6	4.3	Mar§	4.6	0.5	1.9		-75.0	1,139	-6.3
Taiwan	1.8	Q4	1.5	1.8	0.6	Mar	0.1	3.7	Feb	13.1	-1.2	0.8		-24.0	30.8	-5.3
Thailand	3.7	Q4	3.3	3.5	1.2	Mar	0.9	0.8	Feb§	8.8	-2.5	2.1		-31.0	31.8	-1.7
Argentina	-6.2	Q4	-4.7	-0.9	50.7	Feb	46.1	9.1	Q4§	-2.2	-3.4	11.3		562	43.1	-53.2
Brazil	1.1	Q4	0.5	1.8	4.6	Mar	3.7	12.4	Feb§	-1.4	-5.8	7.1		-97.0	3.83	-10.7
Chile	3.6	Q4	5.3	3.2	2.0	Mar	2.2	6.7	Feb§††	-2.8	-1.4	3.9		-57.0	663	-9.2
Colombia	2.9	Q4	2.4	3.1	3.2	Mar	2.9	11.8	Feb§	-3.5	-2.0	6.3		-11.0	3,096	-10.7
Mexico	1.7	Q4	1.0	1.6	4.0	Mar	4.1	3.4	Feb	-1.7	-2.3	8.0		70.0	18.8	-3.0
Peru	4.8	Q4	11.4	3.7	2.2	Mar	2.2	9.0	Feb§	-1.6	-2.0	5.6		64.0	3.29	-1.5
Egypt	5.5	Q4	na	5.1	14.2	Mar	12.1	8.9	Q4§	-0.1	-7.3	na		nil	17.4	1.9
Israel	2.8	Q4	3.0	3.1	1.2	Feb	1.2	4.1	Feb	2.7	-3.7	1.9		13.0	3.58	-2.2
Saudi Arabia	2.2	2018	na	1.8	-2.2	Feb	-1.1	6.0	Q4	2.7	-7.7	na		nil	3.75	nil
South Africa	1.1	Q4	1.4	2.2	4.1	Feb	5.0	27.1	Q4§	-3.0	-4.1	8.5		35.0	13.9	-13.4

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. †††3-month moving average. §§5-year yield. ††††Dollar-denominated bonds.

Markets

In local currency	Index Apr 10th	% change on:	
		one week	Dec 31st 2018
United States S&P 500	2,888.2	0.5	15.2
United States NAScomp	7,964.2	0.9	20.0
China Shanghai Comp	3,241.9	0.8	30.0
China Shenzhen Comp	1,779.3	0.4	40.3
Japan Nikkei 225	21,687.6	-0.1	8.4
Japan Topix	1,607.7	-0.9	7.6
Britain FTSE 100	7,421.9	nil	10.3
Canada S&P TSX	16,396.3	0.7	14.5
Euro area EURO STOXX 50	3,424.7	-0.3	14.1
France CAC 40	5,449.9	-0.3	15.2
Germany DAX*	11,905.9	-0.4	12.8
Italy FTSE/MIB	21,671.8	-0.4	18.3
Netherlands AEX	561.9	0.1	15.2
Spain IBEX 35	9,406.5	-0.9	10.1
Poland WIG	61,556.5	-0.6	6.7
Russia RTS, \$ terms	1,262.5	3.1	18.4
Switzerland SMI	9,556.3	-0.1	13.4
Turkey BIST	97,015.0	2.7	6.3
Australia All Ord.	6,316.5	-0.8	10.6
Hong Kong Hang Seng	30,119.6	0.4	16.5
India BSE	38,585.4	-0.8	7.0
Indonesia IDX	6,478.3	nil	4.6
Malaysia KLSE	1,639.5	-0.2	-3.0

	index Apr 10th	% change on:	
		one week	Dec 31st 2018
Pakistan KSE	36,579.3	-3.8	-1.3
Singapore STI	3,327.7	0.5	8.4
South Korea KOSPI	2,224.4	1.0	9.0
Taiwan TWI	10,868.1	1.5	11.7
Thailand SET	1,662.1	0.8	6.3
Argentina MERV	32,154.5	1.2	6.1
Brazil BVSP	95,953.4	1.5	9.2
Mexico IPC	44,909.1	3.6	7.9
Egypt EGX 30	15,106.5	-0.6	15.9
Israel TA-125	1,455.2	1.4	9.2
Saudi Arabia Tadawul	9,077.2	1.0	16.0
South Africa JSE AS	58,411.7	0.8	10.8
World, dev'd MSCI	2,148.0	0.2	14.0
Emerging markets MSCI	1,096.0	1.5	13.5

US corporate bonds, spread over Treasuries

	Dec 31st	
Basis points	latest	2018
Investment grade	162	190
High-yield	454	571

Sources: Datastream from Refinitiv; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

2005=100	The Economist commodity-price index			
	Apr 2nd	Apr 9th*	% change on month	% change on year
Dollar Index				
All Items	139.8	140.2	1.5	-9.5
Food	143.5	144.3	2.3	-9.5
Industrials				
All	136.0	135.9	0.6	-9.5
Non-food agriculturals	125.7	126.7	1.5	-10.2
Metals	140.4	139.8	0.2	-9.2
Sterling Index				
All items	195.2	195.4	1.9	-1.7
Euro Index				
All items	155.4	154.6	1.5	-0.8
Gold				
\$ per oz	1,290.6	1,304.9	0.6	-2.6
West Texas Intermediate				
\$ per barrel	62.6	64.0	12.5	-2.3

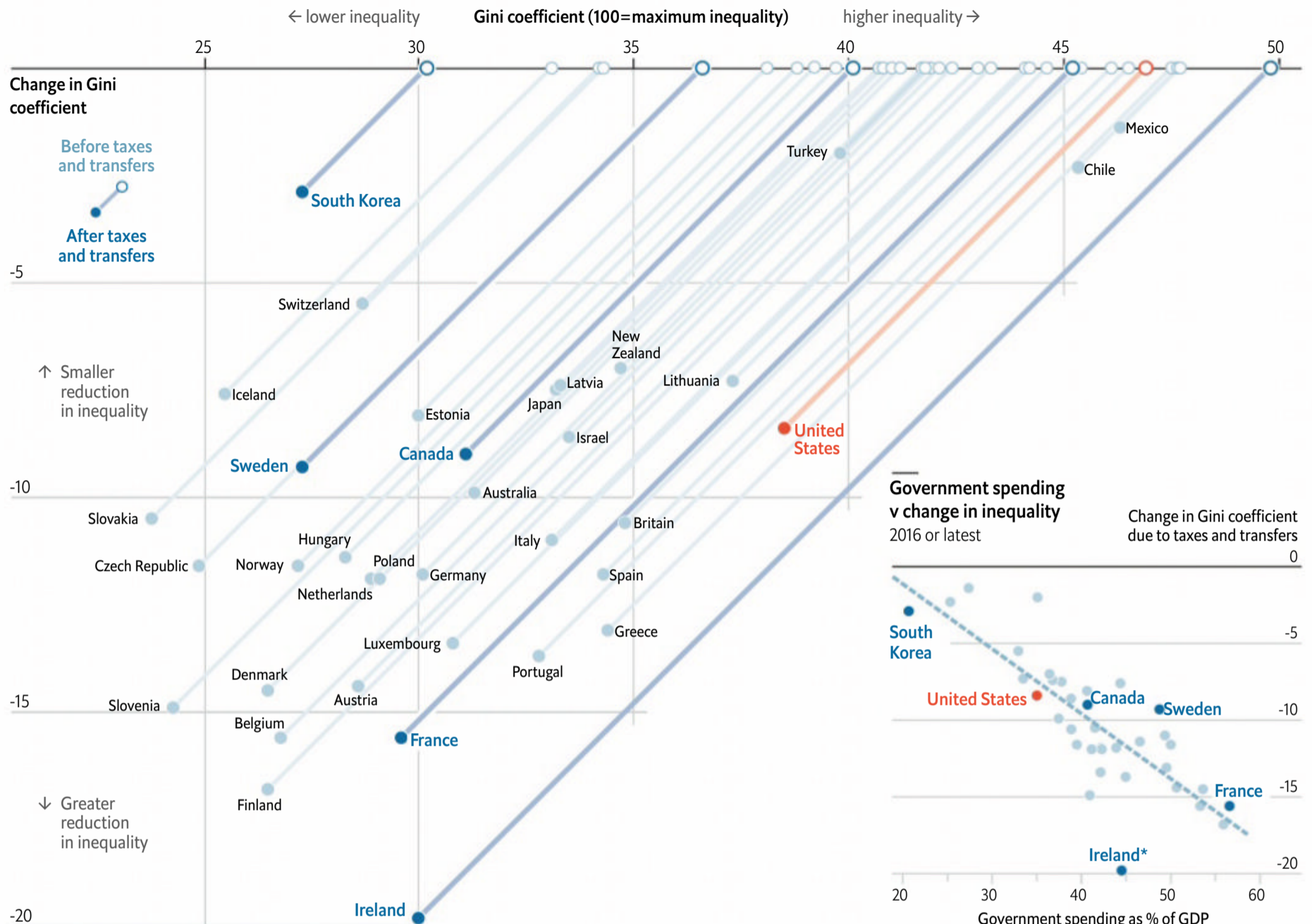
Sources: CME Group; Cotlook; Darmann & Curl; Datastream from Refinitiv; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

For more countries and additional data, visit Economist.com/indicators

Which countries' tax systems do the most to offset income inequality?

Effect of taxes and transfers on income Gini coefficient

OECD countries, 2016 or latest



*Tax revenue as % of modified GNI Sources: IMF; OECD; Central Statistics Office Ireland

Net benefits

America's high inequality reflects gross incomes as much as its tax system

WHEN PEOPLE think about which rich countries have the least equal income distributions, America often jumps to mind. The country has a much smaller welfare state than many of its European counterparts, which suggests it does not redistribute much. But does it?

One common measure of income inequality is the Gini coefficient. The index ranges from zero to 100. A score of zero implies that income is shared equally; 100 implies that one person scoops the lot. By comparing a country's Gini coefficient before and after taxes and transfers, a rough gauge can be created of how progressive (or regressive) its tax and benefit system is.

By this measure at least, America's tax system is in fact fairly progressive. It does roughly as much to reduce inequality as does Canada's or Sweden's (even though most European systems do more). What distinguishes America from those two countries is that its pre-tax Gini coefficient is high, so that the government has to put in more work to level the playing field. In contrast, countries with low pre-tax inequality, such as South Korea, manage to achieve low post-tax inequality without doing much by way of redistribution.

The difference in countries' Gini coefficients after taxes and transfers correlates strongly with the economic weight of government. In France government spending accounts for 57% of GDP. America's federal, state and local authorities spend just 35%. Although pre-tax inequality is almost as high in France as in America, the two countries look very different after taxes.

Nordic countries are generally thought to be champion redistributors. But within the OECD, a club of mostly rich countries,

Ireland does most to slash inequality. After taxes and transfers, Ireland's income distribution goes from the most skewed in our chart to the middle of the pack. The rich pay a higher share of income tax than in most other countries, while low-earning households receive generous tax credits.

Most countries would struggle to copy the Irish system in full. Part of the reason Ireland is able to do so much redistribution is that it relies more than most on taxes paid by multinational companies. Foreign-owned firms accounted for 80% of corporate tax in 2017. Cross-country data suggest that if America wanted to bring its level of inequality down to the OECD average, it would have to boost government spending to 50% of GDP. That would require increases in taxes across the board—a highly unlikely prospect. ■

Correction: In a story on British universities ("Money and meaning", January 26th), we mislabelled the entry tariff for Hull University's medical school as 123 points. It is in fact 184. Sorry.



Ask the right question

Andrew Marshall, the Pentagon's longest-serving military strategist, died on March 26th, aged 97

AT THE HEART of many a large and ambitious empire sits one man who is not the ruler, though the ruler often listens to him; and who runs no department, though his faithful followers are found all through government. He is rarely seen in public, publishes very little, avoids journalists, sits silently through meetings, and yet steers the country. For more than four decades, America's version of this inscrutable figure was Andrew Marshall.

He looked the part, small and benign, with a bald dome of a head, wire-rimmed glasses and a bureaucrat's bland suit. He also inhabited the part, hidden behind thick buzzer-locked doors in the innermost A ring of the Pentagon in an office buttressed with papers and books on every branch of knowledge. There from 1973 he ran the Office of Net Assessment (ONA), a tiny independent think-tank whose remit was to compare the capabilities of the United States and its enemies in weaponry, troop training, efficiency, spending, deployment, planning, decision-making, readiness and any other point of variance. These painstaking assessments, highly classified, sparingly distributed and compiled at a rate of only six a decade, gave America as much detail about its adversaries as could be had. Then it could plan how to counter them.

ONA, as he set it up and ran it (originally at Henry Kissinger's request and in the NSC, but the Department of Defence was a much neater fit) was not a problem-solving place for times of crisis. Like him, it took the long view. Ten years ahead was his preferred span, with many longer backward reflections, influenced by his lifelong love of Toynbee's "A Study of History", to see how states amassed power and how, often foolishly, they lost it. He was no futurist, a word he disliked, since the non-rationality of humans, especially in war, made prediction impossible; if people wanted their fortune told, they should visit a gypsy. And his office was not there to give answers, offer bland-bunkum analysis or follow Pentagon fads, but to ask the right questions and provide true information. After

that, there was only so much stupidity one man could prevent.

For years all defence strategy centred on the Soviet Union, and there his chief questions were: could it afford its military machine? And was the government as ruthlessly monolithic as American officials supposed? His assessments, contrary to the CIA's, answered no to both. (His estimate for the percentage of Soviet GDP going to military spending was almost triple the spooks', for whom he had little time.) Once these facts were known, it made sense to deploy "competitive strategies", borrowed from the business strategy he had studied at RAND in the mid-1960s, and make the weaker competitor overspend until it was driven out of the market. Hence the B2 Stealth bomber programme, to force the USSR to modernise its air defences, and Ronald Reagan's strategic defence initiative ("Star Wars"), to strain to the utmost Soviet investment in its missile shield. These had the desired effect even when merely talked about; they hardly needed deploying.

All this gave him a hawkish reputation, and certainly he had consorted with hawks at RAND, where from 1949 he spent two decades considering the nuclear threat. Never having fought in a war himself, since a heart murmur had kept him out of military service, he was shaken when, witnessing a nuclear test in the Nevada desert, he saw his bones through the palms of his hands. An arms race was not just about weapons, but about psychology: *let us show you what we could do to you*. The Pentagon did not fully appreciate that. He did, because he spent hours each day reading anthropology, economics and behavioural studies as well as war books, and instructed his recruits, whom he commissioned to write ONA's studies, to do the same. To his trainees he was Yoda (the bald, benign Jedi Master of "Star Wars", whom he had never heard of) and they were his Jedi Knights or alumni of "St Andy's Prep", sitting at his feet and, more usefully, lobbying fiercely for him when cutpurse or unpersuaded presidents tried to close ONA down. Thanks to these acolytes, as they moved on to think-tanks or government jobs, he kept his methods running through eight administrations.

Prominent among them was his seven-page memo, "Some Thoughts on Military Revolutions" of 1993. These were ideas he had chewed on since the 1980s, on how advances in technology, coupled with operational changes, might radically alter warfare and sharpen America's edge. As a free element in the Pentagon, disliking the grandiose talk of big platforms and one-or-two-theatre wars and the numbing inter-service rivalry, he relished a type of combat that would be nimbler and quicker, with sensor-fitted precision weapons, robotic devices and IT co-ordination between forces. This new thinking, the Revolution in Military Affairs, was adopted in 2001 by the Bush administration, only to be sideswiped by 9/11; but his points remained, and permeated.

The terrorist attacks did not surprise him; America had been wide open. What did surprise him—apart from the speed with which the USSR fell apart—was the Pentagon's new fixation on fighting terror, jumping from crisis to crisis. His mind was still set on the long view and the next great-power rival, and from the mid-1990s, too early for everyone else, he turned his gaze on China. Its sheer size implied that it must begin to compete for hegemony. As he had done with the Soviet Union, he watched its mindset and bureaucracy as well as its weapons, and ran war games encouraging officials to contemplate a sudden Chinese attack in the Pacific. Others thought that unlikely, but his question was: what if it did?

Appropriately for one so hidden, he revealed almost nothing about his private life: his love of French food and sports, a first marriage that had lasted longer than his time in the Pentagon, and a flat in Alexandria even more piled with good reading than his office in the A ring. Among all those books and papers, however, there was no laptop or iPad; e-mails were read to him, and he never went on the internet. For him the world of strategic threats was tactile and physical, a matter of geography and the clash of forces. Cyberwarfare, of which he knew nothing, he left to the equally unknown master who, he hoped, would follow him. ■

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