

The Economist

Reflections on Armistice Day

Gene drives: don't ban, don't rush

Bangladesh's grotesque politics

Tencent at 20

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In America's mid-term elections, the Democrats won the **House of Representatives** for the first time in a decade. They gained a firm majority, helped by a surge in support from white women and from voters aged under 30. Just under a quarter of the new House will be female. Two Muslim women and two Native American women won seats, a first for both groups. Nancy Pelosi said she would stand for Speaker, again, but has said she would be a "transitional" figure.

A good night for the Democrats in the House wasn't replicated in the **Senate**, where the Republicans increased their majority by picking up Indiana, Missouri, North Dakota and probably Florida. Mitt Romney will embark on a new career after winning a Senate seat in Utah. Beto O'Rourke, the darling of the Democrats, narrowly failed to unseat Ted Cruz in Texas.

The Democrats also won seven **governorships**, which included the defeat of Scott Walker, public-sector unions' bête noire, in Wisconsin. Andrew Gillum fell just short in his bid to become the first black governor in Florida. Stacey Abrams was reluctant to concede in a tight race in Georgia in which she hoped to become that state's first black governor. Colorado elected the country's first openly gay governor.

Among the many **ballot initiatives** in the states, Florida's voters passed a law that restores voting rights to former prisoners. Colorado and Michigan approved independent commissions that will be responsible for drawing congressional districts.

Donald Trump sacked **Jeff Sessions** as attorney-general. Mr Sessions had attracted the president's ire for recusing himself from overseeing the special counsel's investigation into Russian meddling in elections. Mr Trump replaced him on an interim basis with Matt Whitaker, a critic of that investigation.

Penalty kicks

After pulling out of a nuclear deal with **Iran** earlier in the year, America's most punishing sanctions on the country came into effect, aiming to cripple its already struggling economy. Hassan Rouhani, the Iranian president, called it an act of "economic war". France vowed to help European firms defy the sanctions.

Saudi members of a team assisting the Turkish authorities investigate the killing of Jamal Khashoggi inside the Saudi consulate in Istanbul last month were accused of trying to remove evidence.

Despite America's call for peace talks, the war in **Yemen** escalated, as forces backed by a Saudi-led coalition advanced on rebel positions in the port city of Hodeida. More than 150 people are reported to have been killed in the past week. Hodeida's port is critical for feeding millions of Yemenis at risk of famine.



Dozens of schoolchildren kidnapped in north-west **Cameroon** were freed. The school's headmaster and a teacher are still being held. The government blamed Anglophone separatists in the English-speaking region, which the separatists denied.

UN investigators found more than 200 mass graves in **Iraq** containing between 6,000 and 12,000 bodies. The graves date from 2014 to 2017, when the jihadists of Islamic State ran the territory that is under investigation.

From judge to politician

Sérgio Moro, a **Brazilian** judge who has been leading the Lava Jato (Car Wash) investigations of corruption among politicians, accepted an offer from the country's rightist president-elect, Jair Bolsonaro, to lead a new "super-ministry" of justice and public security. Mr Moro had ordered the jailing of Luiz Inácio Lula da Silva, a left-wing former president.

A jury was selected for the trial in New York of Joaquín Guzmán, also known as El Chapo (Shorty), the former leader of **Mexico's Sinaloa drug gang**. Mr Guzmán escaped twice from prison, most recently in 2015, when he tunneled out of a maximum-security jail. He was recaptured and extradited to the United States.

Ecuador's supreme court ordered the country's former president, Rafael Correa, to stand trial on charges that he participated in a failed plot to kidnap an opposition congressman in 2012. Mr Correa has been living in Belgium since he left office in 2017. He denies wrongdoing.

Caving in to violence

The government of **Pakistan** gave in to mass protests by Islamist agitators and barred Asia Bibi, a Christian woman recently acquitted of blasphemy, from leaving the country. A few days later, however, it ordered her release from prison. Her precise whereabouts are unknown.

Voters in **New Caledonia** chose for the Pacific island to remain part of France, rather than become independent. But the margin was narrower than expected; there may be another referendum in two years.

Australia's government bowed to criticism from human-rights groups and said it would move refugee children and their families from a detention centre it operates in Nauru to Australia itself. But it also said it would not allow them to remain permanently.

Myanmar's ruling party, the National League for Democracy, lost by-elections in several districts inhabited mainly by ethnic minorities that it had won at the most recent national election, in 2015.

China's president, Xi Jinping, and his American counterpart, Donald Trump, held their first publicly disclosed telephone conversation in six months. Mr Trump described it as "long and very good", and said it had covered the two countries' trade conflict as well as North Korea. China's foreign ministry said the call was "positive".

Army dreamers



Emmanuel Macron used a speech at Verdun, part of the extensive commemorative events surrounding the 100th anniversary of the armistice that ended the first world war, to call for the creation of a "**true European army**". Commentators scrambled to decipher exactly what the French president meant by that.

A former Nazi concentration-camp guard went on trial in **Germany** at the age of 94.

A 69-year-old **Dutchman** launched a legal case to change his age to 49, arguing that the law already allows him to change his name and gender. He apparently wants to improve his dating prospects. ►►

Robyn Denholm was named as the new chairman of **Tesla**, as part of a deal with regulators under which Elon Musk is relinquishing the role at the electric-car manufacturer. Ms Denholm is the chief financial officer at Telstra, an Australian telecoms firm. She will be the first person at Tesla other than Mr Musk, who remains chief executive, to sit at the apex of the company since its very earliest days.

Citigroup also appointed a new chairman. John Dugan, who takes over from Mike O'Neill in the new year, is a former banking regulator.

Active consumers

As it prepares for Singles' Day, the world's biggest shopping event, on November 11th, **Alibaba** posted a solid rise in quarterly net profit, to 20bn yuan (\$2.9bn). The Chinese e-commerce company now boasts 601m "active consumers". Amazon reported a much lower customer base the last time it released such figures.

SoftBank reported a big jump in quarterly net profit, to ¥526.4bn (\$4.6bn). That was mostly due to returns from technology investments in its Vision Fund. The Japanese conglomerate has had to face some awkward questions about the Saudi money that is backing the fund since the murder of Jamal Khashoggi. Its share price has fallen by a fifth following the killing of the Saudi journalist, allegedly by Saudi government operatives.

The political manoeuvring continued in the **trade war** between America and China. Wang Qishan, a senior Chinese official, indicated that Beijing was ready for a discussion about "mutual concerns" with Washington. That came after President Xi Jinping lashed out at what he described as international trade's "law of the jungle". Mr Xi and Donald Trump are expected to discuss how they might end their stand-off when they meet at the G20 summit this month.

American prosecutors brought criminal charges against two former bankers at **Goldman Sachs** and a Malaysian financier in connection with the alleged misappropriation of funds from Malaysia's 1MDB development fund (one of the bankers has pleaded guilty). Goldman said it was co-operating with the Department of Justice's continuing investigation and acknowledged that the proceedings could result in significant fines or sanctions against the bank.

Berkshire Hathaway revealed that it had repurchased \$928m-worth of its shares in August, its first buy-back in six years. Warren Buffett's investment company has not completed a takeover in nearly three years. **Spotify**, a music-streaming service, announced a \$1bn buy-back of its own.

The share prices of **Italian banks** came under renewed pressure, ahead of a deadline for the Italian government to submit a revised budget that meets EU rules. Italy's big banks did better than many of their European counterparts in the recent stress tests conducted by the European Banking Authority. But questions remain about how tough those tests really are.

On the other hand

A remark by the governor of the **Bank of Japan**, Haruhiko Kuroda, that it was no longer appropriate to implement "a large-scale policy to overcome deflation" was taken as the clearest indication yet that he is minded to move on from the central bank's enormous stimulus programme and start tightening monetary policy. Mr Kuroda hedged his comments, however, and said he would keep interest rates extremely low for the foreseeable future.

United States
Unemployment rate, %



American employers added 250,000 people to the payrolls in October, the 97th consecutive month of **jobs growth**. The unemployment rate held steady at 3.7%, the lowest it has been since the late 1960s. Pay grew at the fastest pace, year on year, since April 2009, though that was in part because it bounced back from a low base

in October 2017, when wages were unusually depressed following a big hurricane.

Buoyed by higher oil prices, **Rosneft** reported a 150% rise in net profit for the third quarter compared with the same three months last year, to 142bn roubles (\$2.2bn). Russia's biggest oil company also benefited from being able to increase production, owing to an agreement between OPEC and Russia in June that eased restrictions on output.

Quality, not quantity

Apple's share price struggled to recover from the drubbing it received after it downgraded its outlook for the all-important final three months of the year, which includes the Christmas shopping season. The company also said it would stop reporting the number of iPhones, iPads and Mac computers it sells, unsettling investors who have come to rely on those figures as a gauge of Apple's health. It says unit sales are less relevant. In the latest quarter, for example, Apple sold 47m iPhones. Although that was similar to the same period last year, revenue from iPhone sales soared by 29% because it was shifting dearer devices.



Where next?

Divided government for a divided country

FOR ONCE, the outcome that was predicted actually occurred. Democrats took the House of Representatives in America's mid-term elections on November 6th, and will provide some welcome oversight of the White House when members of the new Congress take their seats in January. Republicans held the Senate—with a bigger majority, which will make presidential appointments easier to confirm. Both sides declared victory. A starkly divided country now has a divided government. Underpinning the results, though, is the deepening of a structural shift in American politics that will make the country harder to govern for the foreseeable future. Democrats represent a majority of America's voters, but Republicans dominate geographically.

Democrats won the popular vote for the House of Representatives by a comfortable margin. Their position as the party that enjoys most support among Americans, thanks to its strength in urban centres, was reinforced by a surge in support from the suburbs, where revulsion with President Donald Trump was evident. Meanwhile Republicans tightened their grip on less populous, more rural states, easily beating Democratic senators in Indiana, Missouri and North Dakota. In a country where one chamber of the legislature is based on population and the other on territory, this division is a recipe for gridlock, poor governance and, eventually, disenchantment with the political system itself.

The breadth of the divide is striking. Ten years ago there were 17 states with one Republican senator and one Democratic one. From January 2019 there will be just seven. In federal elections hardly any candidates seem able to survive in opposition-party territory. Only six Democratic senators won their elections in states carried by Mr Trump in 2016. The picture is less stark for governors, but in statehouses the pattern reasserts itself. From January Minnesota will be the only state where one chamber is controlled by Democrats and the other by Republicans. The last time that was the case was back in 1914.

This equilibrium may be stable, but it is damaging for the country and for both parties. For the Republicans, the danger is a long-term one. For now, they hold the White House and have an increased majority in the Senate. But in a two-party system, a party that prevails while consistently failing to capture a majority of votes will one day find it is no longer seen as exercising power legitimately by a majority of voters. For the Democrats, the challenge is immediate. They may rail against a system that disadvantages them in structural ways, but cannot change that system until they can work out how to win within it. Running up vast vote shares in New York and California is all very well, but on its own will not deliver a governing majority.

What is the way out of this impasse? The main onus is now on the Democrats. For their own good, not to mention the country's, they have to find ways to appeal in America's heartland.

That starts with exercising restraint. Yes, they should use their majority in the House to scrutinise a president who shows contempt for the norms that have constrained past presidents. They should look carefully at what has been going on in federal

agencies, and investigate possible presidential abuses of power or misuse of the office for personal aggrandisement. But Democrats should resist the urge to use their majority in the House to take revenge, hounding the president in the way that Newt Gingrich and his Republican colleagues once hounded Bill Clinton. Prosecution should be left to prosecutors. It is not obvious, for instance, that there would be much to gain by investigating the circumstances of Justice Brett Kavanaugh's confirmation to the Supreme Court. There is certainly no ground to impeach him, as some Democrats want.

A second Democratic priority should be to show that they have the ideas and capacity for governing that can appeal to a broader swathe of voters. One way to do so is to make a good-faith effort to work with the president and the Republicans. There are deals to be done on infrastructure and on drug prices. They also need to make immigration less toxic (see Lexington).

In 2010, when Republicans won the House during Barack Obama's presidency and proceeded to block everything Democrats wanted to do, the White House argued that it was unjust for half of one branch of the federal government to stand in the way of everything else. That was right then and it is right now. House Democrats should not declare, as Mitch McConnell once did, that they will oppose everything the president does. There should be no repeat of the hostage-taking that saw the Republican House flirt with a sovereign default during Mr Obama's second term.

Plenty of Democrats will counsel against holding back, arguing that the scorched-earth strategy that the Republicans used when they had a majority in the House worked perfectly well for them. Why, they will ask, should Democrats be the party of compromise in the name of better government, when their opponents have so often refused to give an inch?

For two reasons. First, it might just yield results. Admittedly, Mr Trump's recent behaviour does not bode well. Accusing Democrats of facilitating the murder of policemen, as he did in the closing stages of the campaign, is not the best way to foster bipartisan spirits. Mr Trump could give up on the idea of signing any legislation in the next two years, preferring to rule by executive order, while ranting against the opposition.

But he may also surprise, proving more willing to deal with Democrats than other Republican presidents have been. The Trump motivating principle is self-interest rather than party loyalty. He has proved willing to discard some long-standing party positions, for good and ill. The role of dealmaker-in-chief could rather suit his ego.

Second, even if bipartisan efforts fail, behaving responsibly is in Democrats' long-term interests. By and large, Democrats want the federal government to work well. Republicans, by contrast, still consider the words "I'm from the government and I'm here to help" to be a micro-aggression. Gridlock does nothing for confidence in government, which is something Democrats need if they are to win more voters' confidence. Like it or not, they have more to lose from dysfunction than Republicans do. ■



European defence

EU and whose army?

Emmanuel Macron's call for a European army is misguided

NORWAY'S COUNTRYSIDE teemed with European soldiers in the past two weeks. A Montenegrin platoon drilled within a Slovenian company, which was wrapped in a Spanish battalion, which in turn was inside an Italian brigade. All were part of NATO's biggest exercise since the cold war (see Europe section). Yet this is not quite what President Emmanuel Macron had in mind when he called for a "true European army" on November 6th. Striking a Gaullist pose, Mr Macron urged Europe to free itself from military dependence on America.

Mr Macron did not say precisely what he meant. Even so, his loose talk of a Euro-army is confused, quixotic—and reckless at a time of growing transatlantic uncertainty.

European federalists have long dreamed of defence integration, but they have had little to show for it beyond some joint equipment projects and anti-piracy operations. The most ambitious plan for a common army collapsed in the 1950s because of French opposition. Since then, however, France has pushed lesser schemes to develop autonomous European forces. These were mostly blocked by Britain, which feared splitting NATO (whose integrated military command France left in 1966 and then rejoined in 2009).

European defence has returned to the fore for three reasons: Brexit will remove its most dogged opponent within the European Union; Donald Trump has shaken European faith in the NATO alliance; and France and Germany have been desperate to find common cause. But European leaders cannot agree on its aims: should it be a symbol of ever-closer union, a roving gendarmerie to police the continent's periphery or, as Mr Macron implied this week, a force that could beat off the very biggest powers, such as Russia and China?

Germany is keen on using EU defence schemes, like Permanent Structured Co-operation, a cluster of EU projects launched

with fanfare last year, to bind big and small European countries closer together. Mr Macron, irked that this gives priority to politics over firepower, proposed a European Intervention Initiative: a smaller club of more ambitious powers, open to non-EU members, who would jointly plan future expeditionary campaigns. Germany saw this as an attempt to drag others into France's African wars, but grudgingly signed up anyway.

For all these plans, Europeans would struggle to wage even medium-sized wars without extensive help from America, as they discovered during their air campaign in Libya in 2011. Though their defence spending is growing, there are still large gaps in their arsenals. In Norway, Europeans flaunted their armoured vehicles, air-refuelling tankers and transport aircraft. But data collected by the German Council on Foreign Relations, a think-tank, shows that their stock of equipment in all these areas has been shrinking. The EU will be weaker still when Britain leaves.

So what if some fantasise about Euro-forces? If that pushes them to equip their armies properly, and stop duplicating capabilities, so much the better. The merging of Dutch, Romanian and Czech units into the German army is promising. The danger is that little new fighting strength will be created, giving America yet more reasons to feel exasperated with its allies. European leaders rebuked America for pulling out of the INF treaty, a cold-war nuclear pact, but until recently kept silent about Russia's brazen violation of the accord. Mr Macron was crass in talking of the need to "protect ourselves" from America, in effect comparing Europe's awkward but indispensable ally to Russia and China.

Europeans must do more to defend themselves, but the only effective European "army"—or armies—are forces that plug firmly into NATO. Anything else would be good only for ceremonial parades, not real wars. ■



Bangladesh

Electoral troll

A poster-child for development is disfigured by grotesque politics

IN MANY WAYS, Bangladesh is a role model for South Asia. Its economy grew by an average of 6.3% a year over the past decade. Last year it expanded by 7.3%—faster than India's or Pakistan's. Once the region's poorest big country, its GDP per head is now higher than Pakistan's, when measured at market exchange rates. Better yet, it boasts lower infant mortality, higher school enrolment and longer life expectancy than its peers. With 165m citizens, it is the world's eighth-most-populous country. But its fertility rate is lower than that of the region's other giants.

No one, however, would envy Bangladesh's politics. They are characterised by an all-or-nothing, no-holds-barred aggression between two parties, the ruling Awami League and its main rival,

the Bangladesh Nationalist Party (BNP). Disputes are most commonly settled not in parliamentary debate or at the ballot box, but through paralysing *hartals*—strikes-cum-blockades enforced by partisan thugs. At the most recent election, in 2014, clashes claimed 18 lives on election day alone. More than 100 polling stations were set ablaze.

This week the Election Commission is expected to set a date for the next parliamentary vote, probably in late December. Things look calmer this time around. There have been no *hartals*; instead, the government has met with an alliance of opposition parties to discuss ways to improve the political climate. Even so, there is little hope the election will be fair (see Asia section). The ►►

▶ Awami League has spent its ten years in power systematically co-opting state institutions and hobbling the opposition. It has locked up hundreds of opposition activists, including Khaleda Zia, the leader of the BNP. Others have been executed, in the name of righting the wrongs of Bangladesh's war of independence from Pakistan in 1971. Jamaat-e-Islami, a religious opposition party allied to the BNP, has been banned altogether.

The press has been cowed with a barrage of lawsuits. Critics of the government on social media are hounded. Unco-operative judges have landed in legal trouble. In 2011 the Awami League abolished the system whereby a neutral caretaker government presided over elections—one of the causes of the furious protests at the subsequent ballot. The fact that the opposition has been relatively quiet in the run-up to the coming vote is not a reflection of greater harmony, but of the government's iron grip.

Pick your poison

Even if the opposition were to have a chance in the vote, it would be unlikely to govern better than the Awami League. The army was so appalled by the corruption of the BNP's last stint in government, which ended in 2006, that it briefly seized power in an attempt to weed out crooked politicians before allowing an election to go ahead in 2008. (It tried to shunt aside both Mrs Zia and Sheikh Hasina Wajed, the current prime minister and leader of

the Awami League—to no avail.) In a leaked internal memo, an American diplomat described Tarique Rahman, Mrs Zia's son and now the BNP's acting leader, as "a symbol of kleptocratic government and violent politics" who is "notorious for flagrantly and frequently demanding bribes". (His defenders say wayward hangers-on were responsible for misdeeds blamed on him.)

There is no easy way out of this mess. In an ideal world, Sheikh Hasina would call off politically motivated prosecutions, stop meddling in institutions that are supposed to be independent and reinstate the system of caretaker governments before elections—things she shows no sign of doing. But there is scope for both sides to back away from their maximalist positions.

Sheikh Hasina could appoint a few BNP leaders as ministers in a multi-party government in the lead-up to the vote, giving the opposition some purchase on the process of voting and counting. That would also give the BNP a reason not to boycott the election, as it did last time and threatens to do again. The boycott was self-defeating: it left the BNP with no voice in parliament, and gave the government unfettered power to legislate as it liked. But it also left Sheikh Hasina's government looking illegitimate. There would be advantages to both sides, in other words, in allowing the opposition to function. Bangladesh deserves better politics. That would be the best way of preserving its admirable economic progress. ■

Gene drives

On the extinction of species

Research into gene drives should continue. But the worries they raise must be addressed

EXTINCTIONS ARE seldom cause for celebration. Humans are wiping out species at a frightening rate, whether hunting them into history or, far more threateningly, damaging the habitats on which they depend. But occasionally, the destruction is warranted. Smallpox was officially eradicated in 1980, and no one laments the fate of the virus that caused it; campaigns to save the virus that causes polio are thin on the ground. How, then, to think about a new technology that will make driving a species to extinction far easier?

That technology is known as a gene drive, so called because it uses genetic engineering to drive certain traits through a population. Those characteristics need not be deleterious: they might include greater resilience to disease among crops or, perhaps, greater tolerance to warming waters on the part of corals. But if the desired trait were harmful, gene drives could in theory make a species extinct. And if the species in question were the three types of mosquito responsible for transmitting malaria, proponents reckon it could save close to half a million lives a year, many of them children. The same approach could be used against other vector-borne diseases such as Lyme disease, Zika and dengue fever. Gene drives also offer conservationists a potential weapon against invasive species such as foxes, mice, rabbits and rats, whose proliferation threatens native species in some parts of the world. (Humans are unsuited to gene drives, which work best in species that reproduce quickly, with many offspring.)

Normally genes have a 50:50 chance of being passed on dur-

ing reproduction. Gene drives tilt the evolutionary scales. One area of research focuses on genes that can copy themselves to the second in a pair of chromosomes, ensuring that they will be inherited by all offspring. Biasing inheritance in this way is what makes it possible to push a desired mutation, whether harmful or beneficial, through a population—controlling its level, and potentially wiping it out altogether (see Briefing).

Like many technologies, however, gene drives may lead to bad outcomes as well as good. Opponents think the technology is simply too dangerous to contemplate using. Some worry about

playing God—though discarding an opportunity to save millions of lives in order to defend a principle is itself unethical. Others warn that the technology could entrench the power of big agritech firms. But that is an argument for ensuring competition, not for ending research.

Three other concerns are less easily handled. One is practical: removing a species from the food chain could have unintended consequences, particularly if gene drives can move to a closely related species. Another relates to governance. Genetically modified crops can be kept relatively contained; animals carrying gene drives could be mobile and respect no borders. One country's decision to use gene drives will have consequences for its neighbours. A third worry concerns nefarious uses of the technology, and not only by states. A mosquito, engineered to inject toxins, could be used as a weapon.

Faced with such risks, some want simply to call a halt. An attempt to impose a moratorium on gene drives was rejected by ▶▶





NEW STYLE FOR THE NEW AIRPORT



TURKISH AIRLINES

WIDEN YOUR WORLD

▶ governments in 2016 at a United Nations meeting on biodiversity. Another such meeting, which takes place this month, will debate proposals that could hinder field trials. But putting the brakes on research may impose real costs: not just the annual toll taken by malaria and other killers before an answer is found, but also slower progress towards making gene drives safer. Since the decision in 2016 researchers have made advances on drives that die out over time, for example. That sort of approach could go some way to solving the practical concerns. Given that it will be eight years or so before a gene drive is expected to be ready for field trials, more can be done in the interim to minimise its potential to cause harm.

That will require a more robust approach to governance, too. The ideal would be a set of norms for states and funders to adhere to. These might include rules on the mandatory registration of gene-drive trials; on stringent sequencing of gene-drive tests, as they progress from laboratory environments to field trials; on ways for neighbouring states to monitor standards in any coun-

try that wanted to use gene drives; and on agreed criteria for the approval of any release, such as the existence of an unmodified population in captivity.

Rules or not, rogue states and other malevolent actors may still want to use gene drives for malicious purposes. And, like many new technologies, gene drives do not require big organisations in order to be made to work. Prudent countries ought to plan accordingly. America's government, rightly, justifies some of its gene-drive research as a way to develop better defences against harmful uses. In the future, improved gene-sequencing technologies should make it easier to spot species carrying malevolent drives.

These risks underline why gene drives must be managed carefully. They ought not, however, to obscure the prize on offer if the technology can be made to work well. Humans are already radically and heedlessly reshaping the planet. Gene drives would further enhance humanity's ability to shape nature—but with the potential to do so precisely, efficiently and for the better. ■

Video games

The price of free

The rush to extract money from players risks a regulatory backlash

MORAL PANICS over new media are old hat. The social effects of novels, films, comic books and pop music were condemned by the grumpy reactionaries of the time. In recent years video games have been a popular villain. Exasperated parents and opportunistic politicians have long fretted that they make players lazy and listless, or else unpredictable and violent. Those concerns turned out to be largely misplaced. But new worries about the addictiveness of games, and the danger that poses to children in particular, have more substance to them and are already prompting a regulatory crackdown. The industry would be wise to get ahead of the problem.

China, the world's biggest video-game market, is leading the charge. The government clamped down on the approval of new games earlier this year, and stopped approvals altogether in October. Shares in Tencent, which built its business on video games and is one of the world's largest internet companies, have fallen by 28% since the start of the year (see Business section). China is an authoritarian state prone to overreaction. But it is not the only country that is worried. Japan and South Korea, both liberal democracies, have passed laws designed to regulate a video-gaming industry whose products are increasingly seen as addictive and harmful. And as business models refined in Asia have come to the West, lawmakers in Europe and America are becoming more concerned, too.

Such concerns feel more credible than prior panics, for two reasons. The first is that much gaming now happens online, and generates reams of behavioural data. This allows publishers to monitor exactly how customers are playing games, and fine-tune them to make them as compelling as possible.

The second is the realisation that players will happily pay real money for virtual goods. These can be upgrades, costumes or weapons for their in-game characters, or (more cynically) a lottery-style "loot box" whose contents are unknown in advance,

but might prove valuable enough to resell to other players. Since the marginal cost of creating virtual items is zero, they are very profitable for developers. That has given rise to a "freemium" business model, of which Tencent was a pioneer, whereby games are given away cheaply or free but players are constantly nagged to spend money on in-game items. All this has been supercharged by smartphones, which mean people can keep playing—and paying—at all hours of the day.

The result is an unhealthy loop. Firms strive to keep players hooked, because the more time they spend in a game, the more money they will spend on baubles within it. Whizzy data analytics let developers tweak their products to do just that, using psychological tricks and nudges familiar from social-networking sites and the gambling industry. All this can be extremely lucrative. Sensor Tower, an analysis firm, reckons that "Candy Crush Saga", a popular game in the West, made \$930m last year. The keenest gamers, known as "whales" (a term coined by casinos to describe high-rolling customers), can spend thousands of dollars a year.

Tencent is trying to placate the Chinese government. It is expanding its age-verification scheme and limiting screen time for children. Its counterparts in other countries should take note. This newspaper does not generally believe governments should tell adults how to spend their money. But the industry could do more to protect children and addicts from its increasingly sophisticated products.

It is in its own long-term interests to do so. Video games now rival the film industry for clout. Gaming is thought to be worth around \$140bn annually worldwide, and is growing at 13% a year. But society's attitude towards technology is hardening. In a world of fake news and hyper-targeted advertising, voters and politicians have awoken to the danger that devices and data may be manipulating people in harmful ways. A little voluntary forbearance now could save a lot of regulatory pain later. ■



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The 25th APEC Finance Ministers' Meeting in Port Moresby, on October 17. The meeting issued a joint statement, warning that downside risks for the global economy have risen in the past six months

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At a Crossroads

Global leaders need to work together to meet challenges

By Xu Hongcai

The world economy has enjoyed a cyclical recovery in recent years, and consequently, insufficient growth drivers and imbalanced development followed. At the same time, there is mounting populism, protectionism and unilateralism. Regional hotspots continue to be in turmoil, terrorism is rampant, while globalization has been hampered and the multilateral trade system threatened, especially in peace, development and global governance. The world is at a crossroads, witnessing profound changes.

Common challenges

The U.S. economy is performing well, but it is unsustainable. Its momentum of growth is bound to slow down by next year. Facing different economic situations, European countries and Japan have adopted differentiated policies. As the U.S. Federal Reserve is poised to hike interest rates, the volatility of global capital flow has intensified, while the currencies of some emerging economies have depreciated sharply. The New York Stock Exchange has fallen into a correction and other stock markets have plunged as a result. The fear haunting people is whether there is a new round of international financial crisis around the corner.

With the development of globalization, common challenges, together with the pursuit of common prosperity, have encouraged people from all countries to jointly build a community with a shared future. As Chinese President Xi Jinping said, humankind has reached an age of great progress, great transformation and profound changes from a historical perspective. Still in terms of reality, we find ourselves in a world fraught with challenges.

During the 2018 Asia-Pacific Economic Cooperation (APEC) Economic Leaders' Meeting, to be held in Papua New Guinea in November, leaders need to confront the reality that global growth requires new drivers, development needs to be more inclusive and balanced, and the gap between the rich and the poor needs to be narrowed. Deficits in peace, development and governance pose a daunting challenge.

In addition, world economic growth slowed in the first three quarters of the year, and some emerging economies were trouble-ridden. The international financial market experienced

fluctuations and a negative impact from the U.S. dollar appreciation and China-U.S. trade frictions, bringing more uncertainties to global governance.

Faced with these challenges, the international community is waiting for the leaders of all countries to abandon prejudice and egoism. These major countries must undertake their responsibilities and make contributions to coping with challenges. This is also the reason why the 2018 APEC Economic Leaders' Meeting is themed "Harnessing Inclusive Opportunities, Embracing the Digital Future."

The Asia-Pacific, the most vigorous region in the world economy, possesses an important strategic status. During the meeting, can leaders turn challenges into opportunities in response to the changing world situation? That will greatly influence, and even determine, the future political and economic structure of the world.

Chinese insight

In recent years, as a major developing country, China has participated on the international stage and proposed solutions to the common problems facing the world.

In the field of peace, China calls for building a community with a shared future for mankind and jointly pursuing the Belt and Road Initiative. It is proposing that countries should foster partnerships based on dialogue, non-confrontation and non-alliance. Major countries should respect each other's core interests and main concerns, keep their differences under control, and build a new model of relations featuring non-conflict, non-confrontation, mutual respect and win-win cooperation.

Big countries should treat smaller ones as equals instead of imposing their will on the latter. No country should open a Pandora's box by willfully waging war or undermining the international rule of law. Nuclear weapons should be prohibited and destroyed over time to make the world free of them. Guided by the principles of peace, sovereignty, inclusiveness and shared governance, the world should turn the deep seas, the polar regions, outer space and the Internet into new frontiers for cooperation rather than a wrestling ground.

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In the field of development, China is implementing the UN 2030 Agenda for Sustainable Development, integrating the Sustainable Development Goals into its 13th Five-Year Plan for National Economic and Social Development during 2016-20. It is also pursuing innovative, coordinated, green, open and inclusive development. China will accelerate the construction of a modern economic system to achieve high quality, high efficiency, and inclusive and sustainable development.

China is taking an initiative to participate in the reform of global governance and fulfill its international commitments. At the 2016 G20 Summit in Hangzhou, China, for the first time, systematically expounded its basic concept of global governance, which is equality-based, open, cooperation-driven and sharing. It promoted the G20's transformation from a crisis response mechanism to a long-term cooperation mechanism for economic governance. During the Ninth BRICS Summit in Xiamen in 2017, China expanded its BRICS Plus model for dialogue and cooperation, which has injected new vitality into BRICS cooperation.

China also proposed the Belt and Road Initiative, led the establishment of the Asian Infrastructure Investment Bank, and aimed to provide new public goods to the international community. Based on the principle of consultation, contribution and shared benefits, China has upgraded cooperation models with both developed and developing countries and promoted building a community with a shared future to guide the global governance system, with the UN as its core, to develop in a more just and rational direction.

Regarding the heated debate on World Trade Organization (WTO) reform, China hopes that the reform will address the concerns and reflect the needs of most members. The primary purpose of the WTO should not be changed and its fundamental principle not challenged through gradual reform. At the same time, the reform should strengthen the authoritativeness and leadership of the WTO and consolidate the basic functions and role of the free trade principle and the multilateral trading system to better promote global free trade and economic globalization. The reform should not deviate from the overall direction of trade liberalization and is not meant to reinvent the wheel.

Greater openness

As the world's second largest economy, China's contribution to global economic growth has averaged over 30 percent annually. Its opening up will continue to have positive impact on the global multilateral trading system and global governance.

In the first half of the year, the Chinese Government completed the revision of the negative list on foreign investment. It is also committed to creating a modern market system featuring sound rules, openness, orderly competition, high efficiency, and a stable, fair, transparent and predictable business environment.

In the first three quarters of the year, it can be concluded from the indicators of growth, employment, inflation and balance of payments, that China's national economy maintained a generally steady and sound performance with a good momentum. In an optimized economic structure, new growth drivers emerged along with transformed conventional growth drivers, improved quality and returns. Solid progress was made in high-quality development. The smooth operation of China's economy has made an important contribution to the world as a whole.

Although there are fluctuations in the financial market, the



The International Convention Center in Port Moresby, Papua New Guinea. It is one of the venues for the Asia-Pacific Economic Cooperation (APEC) Economic Leaders' Meeting to be held from November 15-17

overall situation is controllable and financial stability has been maintained. There are many favorable factors for domestic economic growth. For example, China's economy has become increasingly resilient, the domestic market has great potential, and there are many selectable policies. Next, China will deepen reforms and further opening up, which will continue to benefit its people and the world at large.

As a member of APEC, China's stable growth has injected new impetus into regional cooperation in the Asia-Pacific region. China is willing to strengthen bilateral and multilateral cooperation in many fields. It has assumed responsibility for promoting economic development in East Asia, leading regional integration and maintaining regional peace and stability.

China is willing to work with East Asian countries to jointly oppose trade protectionism and accelerate the negotiation process on the China-Japan-South Korea Free Trade Agreement and the Regional Comprehensive Economic Partnership, creating favorable conditions for the Free Trade Area of the Asia Pacific. As for the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, China will adopt a positive attitude as long as it conforms to the WTO's principle of openness, inclusivity and transparency, and is conducive to promoting economic globalization and regional economic integration.

Looking to the future, China will continue to act as a responsible major country and to work with all countries in the world to maintain world peace, stability and common prosperity by keeping its own economy stable. China will also make more efforts to promote world economic integration and contribute to an open world economy.

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The author is deputy chief economist with the China Center for International Economic Exchanges

The gender agenda

I was disappointed by your arguments against the case for gender self-identification, and was particularly baffled why such a staunch defender of classic liberalism would support such a heavy, and vaguely defined, state role in such a personal matter ("Who decides your gender?" October 27th). You are concerned about the potential threat from males self-identifying as females in order to prey on women and children in restrooms and other gender-segregated spaces (the absence of evidence of trans people attacking people in such spaces notwithstanding). However, the law already covers such eventualities; it is already illegal to assault people in those places.

The policies you are pushing essentially criminalise the ability of trans people to use a public bathroom that matches their identity until they jump some state-imposed hurdle. Until then, trans people who seek to work, shop, or basically do anything outside their home face a cruel and dangerous dilemma: break the law, or face ridicule, threats, and violence when using a bathroom that does not match their gender identity.

DIANA MAURER
Alexandria, Virginia

As the parent of a transgender child, I want to offer only a few clarifications. You are quite correct that making gender a matter of pure self-identification, with no processes or guidelines, hinders transgender acceptance. The perception that people just "decide" to change genders is wrong. Establishing medical and legal processes that support and confirm transgender individuals would help them gain validation. Moreover, until we can separate gender stereotypes from gender identity, we will keep pushing people into corners they are ultimately uncomfortable in.

Most of all, however, I have to say that the fears of losing safe spaces for women is the most absurd of all concerns.

This fear can only possibly exist in the complete ignorance of what transgender means, and is often based on confusions with cross-dressing or drag. If anyone has actually met a transgender woman, they would clearly see that forcing them into men's spaces would be awkward for everyone. In fact, many women have probably already shared a safe space with a transgender woman, and not noticed.

CHRIS HOYT
Westfield, Indiana

I am a 70-year-old gay man. In the 1950s I might have been considered gender dysphoric. I cried easily. I asked my parents to buy me a style of shoes worn only by girls, and I preferred cooking to rough-and-tumble play. In my 30s I reacted against many of my early inclinations. I learned martial arts and worked in masculine professions. I recently retired from a career as a therapist where I spent much of my time working with gang members.

If some well-meaning person had convinced me as a child that I was female it would have short-circuited a life-long process of discovery and self-transformation. Early gender identifications are often based on partial information. Basing life-long identities on these early traits is a serious mistake.

JOHN DURY
San Rafael, California

A learning curve in economics

Although New Zealand deserves praise for the way it monitors the financial performance of state assets, it is worth pointing out that this does not automatically lead to sensible decisions ("How to spend it", October 20th). A few more economic principles may need to be incorporated into the toolkit for this to happen.

In particular, the public would benefit from lessons on "opportunity costs". Attempts at asset reallocation inevitably lead to accusations that the government in New Zealand is selling the family silver, with very little thought to the quality of that silver. Not

quantifying what else could be done if assets were managed more effectively limits the impetus for action in this area.

The public may also need reminding that there is no such thing as a free lunch. For example, New Zealand has been reasonably successful in implementing market forces in the electricity industry, but there are complaints that prices are higher than when it was under government ownership. Although it is possible that private electricity-providers are fleecing customers, it is more likely that the industry was previously subsidised through higher taxes or uncounted environmental costs.

It is also worth pointing out that dividends received from state-owned enterprises are essentially a regressive tax.

JUSTIN STEVENSON
Christchurch, New Zealand

The not-so-golden state

There is another factor that accounts for California's alarming poverty rate ("Amid plenty, want", October 27th). Access to affordable housing is impeded by Proposition 13. Passed by the state's voters in 1978, it freezes the property tax at 1%. This has distorted the housing market as the owners of expensive homes pay less tax than they should on their property. An enormous property-, income- and sales-tax burden has been shifted onto the shoulders of new property owners and those who rent. Only 55% of Californians can afford to own a home.

SHRUTI SRIDHAR
Sunnyvale, California

Outside in

Permit a Norwegian to reflect on Britain's Brexit negotiations ("Out of reach", October 20th). No country adheres more faithfully to the EU's many rules and regulations than Norway, despite having an amount of wriggle room in our European Economic Area agreement. That is because the EU might not renew our agreement if we do not behave.

Compare that with Hungary

or Italy. They cannot be kicked out, hence they have more freedom to misbehave. If Britain leaves, it will find itself in a similar position. That is not necessarily bad. We get to implement all these EU rules and regulations, and we save all the costs of making them.

EINAR OVERBYE
Professor in political science
Oslo Metropolitan University

Sour grapes were not staples of *The Economist's* diet before 2016, but have become a common dish since the Brexit referendum went against its wishes. Your sourness has stretched in recent articles to accusing Brexiteers of vanity, rage and being fantasists.

As a recent arrival to Britain, this isn't my observation at all. One encounters far more eye-rolling and grumpiness from Remainers than Leavers.

Attacks on Brexit theories follow a familiar pattern: ignore the more difficult-to-refute arguments and attack only specific statements by the three or four Tory politicians who are most disliked by the Remain masses. Isn't this just another form of the kind of politics that *The Economist* dislikes, namely populism?

NICOLAS GROFFMAN
London

Thought for the day

I suspect there is another reason why BBC Radio 4's "In Our Time" is such a success: its value to frequent flyers (Bagehot, October 13th). It works like this. Either Melvyn Bragg and his guests make you brainier, or they send you to sleep. On a long-haul flight, you win either way. After seven attempts, I still haven't consciously reached the end of the episode on the Pauli Exclusion Principle.

MARK JONES
Hong Kong

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Extinction on demand

The promise and peril of a new genetic-engineering technology

ITHINK I got it," says Alekos Simoni with a grin, returning an electronic fly zapper called "The Executioner" to a nearby metal shelf. With a deft flick of his wrist he has done away with a genetically modified mosquito that was making a bid for freedom. There are many levels of containment to ensure such creatures do not leave this basement laboratory at Imperial College, London. But none, perhaps, quite so satisfying as The Executioner.

The extermination that the creatures in Mr Simoni's lab are designed to take part in is less viscerally gratifying—but far more consequential. The mosquitoes are being fitted with a piece of DNA called a gene drive. Unlike the genes introduced into run-of-the-mill genetically modified organisms, gene drives do not just sit still once inserted into a chromosome. They actively spread themselves, thereby reaching more and more of the population with each generation. If their effect is damaging, they could in principle wipe out whole species.

To engineer an extinction is quite a step. But it is not unprecedented. In 1980 *Variola*, the smallpox virus, was exterminated from

the wild. That marked the eradication of a disease which, from 1900 to 1980, killed around 300m people. If gene drives like those being worked on at Imperial and elsewhere were to condemn to a similar fate the mosquitoes that spread malaria, a second of humankind's great scourges might be consigned to history.

It need not stop with malaria. Gene drives can in principle be used against any creatures which reproduce sexually with short generations and aren't too rooted to a single spot. The insects that spread leishmaniasis, Chagas disease, dengue fever, chikungunya, trypanosomiasis and Zika could all be potential targets. So could creatures which harm only humankind's dominion, not people themselves. Biologists at the University of California, San Diego, have developed a gene-drive system for *Drosophila suzukii*, an Asian fruitfly which, as an invasive species, damages berry and fruit crops in America and Europe. Island Conservation, an international environmental NGO, thinks gene drives could offer a humane and effective way of reversing the damage done by invasive species such

as rats and stoats to native ecosystems in New Zealand and Hawaii.

Needless to say, the enthusiasm is not universal. Other environmental groups worry that it will not prove possible to contain gene drives to a single place, and that species seen as invasive in one place might end up decimated in other places where they are blameless, or even beneficial. If drives are engineered into species that play a pivotal but previously unappreciated ecological role, or if they spread from a species of little ecological consequence to a close relative that matters more, they could have damaging and perhaps irreversible effects on ecosystems.

Such critics fear that the laudable aim of vastly reducing deaths from malaria—which the World Health Organisation puts at 445,000 a year, most of them children—will open the door to the use of gene drives for far less clear-cut benefits in ways that will entrench some interests, such as those of industrial farmers, at the expense of others. They also point to possible military applications: gene drives could in principle make creatures that used not to spread disease more dangerous.

Thinking nothing's wrong

Although allegations of playing God are two a penny in debates about breakthrough technologies, with gene drives they do feel better-founded than usual. The ability to remove species by fiat—in effect, to get them to remove themselves—is, like the prospect of making new species from ►►

► scratch, a power that goes beyond the past ambit of humankind.

Gene drives are, at heart, a particularly selfish sort of gene. Most animals have two copies of most of their genes, one on the set of chromosomes they got from their mother, one on those from their father. But they put only one version of each gene—either the maternal one or the paternal one, at random—into each of their own gametes (sperm or eggs). Some genes, though, seek to subvert this randomising in order to get into more than 50% of the gametes, and thus more than 50% of the next generation.

In 1960 George Craig, an American entomologist, suggested that such subversive genes might be a way of controlling the populations of disease-carrying mosquitoes, for example by making them more likely to have male offspring than female ones. In 2003 Austin Burt, at Imperial College, described how a gene drive that could cut a place for itself in a chromosome and copy itself into the resulting gap could, in the right circumstances, drive a species to extinction.

A fascinating idea, but one hard to put into practice—until, in 2012, a powerful new gene-editing tool called CRISPR-Cas9 became available. Gene drives based on CRISPR-Cas9 could easily be engineered to target specific bits of the chromosome and insert themselves seamlessly into the gap, thus ensuring that every gamete gets a copy (see diagram). By 2016, gene drives had been created in yeast, fruitflies and two species of mosquito. In work published in the journal *Nature Biotechnology* in September, Andrea Crisanti, Mr Burt and colleagues at Imperial showed that one of their gene drives could drive a small, caged population of the mosquito *Anopheles gambiae* to extinction—the first time a gene drive had shown itself capable of doing this. The next step is to try this in a larger caged population.

This drive disrupts a gene called *doublesex* that controls the differentiation of the sexes. Mosquitoes with one copy of the drive pass it on to all of their offspring. Females with two copies—which crop up more and more often as the gene spreads through the population—are sterile. Using sterile insects to control disease is not, in itself, a novel technique. Swamping a population of disease-spreading insects with individuals that cannot reproduce can be an effective way to limit numbers; lots of the fertile wild ones breed fruitlessly with the sterile interlopers. What is new here is that a gene drive can actively spread sterility through a population.

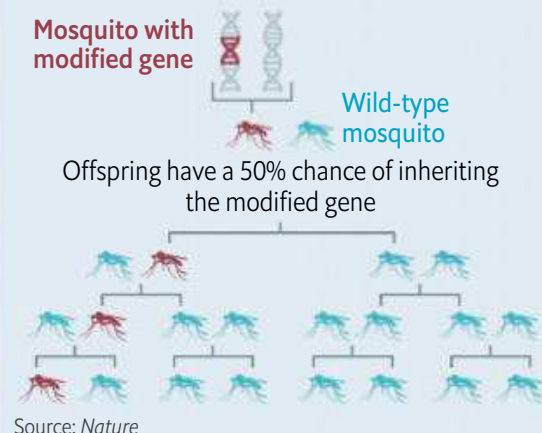
Evolution can be expected to take a dim view of such an affront. Mutants which lack the DNA sequence that the drive targets, and which can thus escape its distorting effects, will be hugely favoured in the population that the drive is attacking. The

Drive-by killing

How gene drives can quickly change whole populations

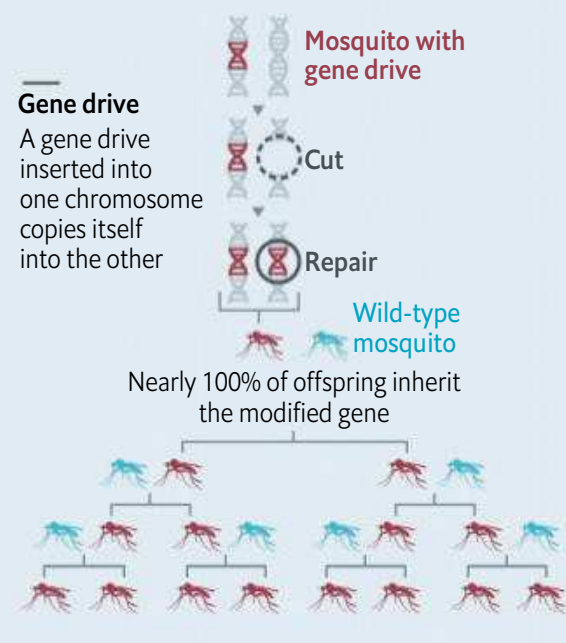
Normal genetic modification

A gene added to only one chromosome gets into half of offspring



Gene drive

A gene drive inserted into one chromosome copies itself into the other



cleverness of the Imperial scheme lies in choosing *doublesex* as its target. Without a functional copy of *doublesex*, mosquitoes cannot reproduce. Mutations which stop the gene drive from targeting it are also likely to stop the gene working properly—it is unusually sensitive to change. So a mosquito in which *doublesex* is sufficiently messed up by random mutation that the gene drive no longer has a target will be unable to reproduce anyway.

The scientists at Imperial are part of Target Malaria, a research alliance supported by the Bill & Melinda Gates Foundation and the Open Philanthropy Project Fund to the tune of around \$5m a year since it started in 2005. Target Malaria is already working in Burkina Faso, Mali and Uganda to prepare the way for a release of a gene drive. It would be introduced on top of a regime that includes bed nets, insecticide sprays and drugs for those infected (which kill the malaria parasites in the blood and thus stop them from hitching a lift in the next mosquito to stop by for a drink). With that amount of back-up, even a gene drive to which resistance evolves could break the cycle of malaria transmission definitively, wiping it out in the trial area. If that worked, the rest of Africa—home to 90% of the world's malaria cases—could soon follow suit.

Pay attention to your dreams

The Imperial team thinks that, scientifically, they might have drives able to make a difference in about three years. But the Gates Foundation is talking about 2026 as a possible date for trials that involve a release in the wild. Margret Engelhard, a bio-safety expert at the German federal agency for nature conservation, points out some of the challenges ahead. These include evaluating the gene drives before release, predicting how the modified mosquitoes will behave in the wild and working out whether there will be knock-on effects on

other species. Tilly Collins at the Centre for Environmental Policy at Imperial says that published ecological studies of *A. gambiae*—one of three mosquito species that carry malaria, and by far the most important vector for the disease in Africa—have turned up nothing that preys on them to the exclusion of other foods. There is a vampire spider that lives around the shores of Lake Victoria that has a fondness for the females when full of human blood, but it will readily eat other mosquito species.

Work is under way to validate these findings in the field, and to discover whether the mosquito's larvae are similarly dispensable. At present, it looks unlikely that removing one or two of over 3,000 mosquito species will have any significant effect on the ecosystems in which they live.

What, though, of the risk that a drive might spread beyond its target species? In theory, because gene drives require their bearers to have offspring if they are to spread, they should stay in a single species; distinct species cannot, in general, reproduce through sex. However in the case of *doublesex* the target gene sequence is found across all 16 species of *Anopheles* analysed so far—this is the flipside of it being so resistant to mutation. And there is a small but measurable rate of hybridisation between some of those species. That probably would not allow a lot of spread: but the possibility needs examining.

The New Partnership for Africa's Development, an organ of the African Union, has recommended that the Union's member states support studies to verify the technology in African settings—including conducting a thorough investigation of the risks and looking for measures that may mitigate any negative impacts. Target Malaria is trying to get locals used to the idea of working with, and releasing, mosquitoes that have been genetically engineered by scientists. The next step will be the release, in Burkina Faso, of male mosquitoes ►►

▶ genetically engineered to be sterile. That will help the scientists understand population dynamics, but with no gene drive to push the sterility into the population it will have no effect on malaria *per se*.

The Target Malaria gene-drive project carries the prospect of huge humanitarian gains. It is carefully designed, supported by deep-pocketed philanthropists and being carried out under a fair level of international scrutiny. It is gaining political support and inspiring a generation of researchers. It is hard to see it grinding to a halt in the absence of massive opposition, a currently unheralded alternative or profound technical failure. As Jim Thomas of the ETC Group, an NGO that opposes gene drives, says, malaria is the “best possible use-case scenario” for the technology.

The worry of the ETC Group and its fellow travellers is that the use of gene drives against malaria will open the door to more troubling, slipshod and exploitative applications. Many may sound good: some of the \$70m that Tata Trusts of Mumbai, a philanthropy group, has given to the University of California, San Diego, is for exploring ways of using gene drives to make crops more resistant to drought. If the technology were predictable, controllable and well-regulated, the potential for raised crop yields in the face of climate change, and perhaps reduced use of pesticides and herbicides, might be huge. But experience shows that few technologies make it into the world in a predictable, controllable and well-regulated form. Mr Thomas sees a raising of the stakes from a world in which businesses modify seeds crop by crop to one where they modify whole populations, indeed all of nature. “It is a pretty audacious switch,” he says.

In a report published in 2016, America’s National Academies of Science highlighted the possibility of drives introduced for agricultural reasons damaging people’s welfare. Excoriated as “pigweed” in the United States, related species of the plant are cultivated for food in Mexico, South America, India and China. American farmers might like a gene drive to eradicate pigweed, which has become resistant to the herbicide glyphosate, which is widely used in conjunction with today’s genetically modified crops. But they would not necessarily bear the risks, or liability, of a release that went on to do damage to food crops in other countries.

There are also worries about how gene drives might be used to create a weapon. Humans are an unlikely target; a weapon that acts over generations seems ill-suited to war or terror, and the idea that future generations will not have their genomes sequenced in a way that shows up such attacks feels far-fetched. But they might conceivably be used to make small and rapidly reproducing insect and rodent species

more objectionable or pathogenic. The need to find ways to guard against such attacks is one of the reasons that the Pentagon’s Defence Advanced Research Projects Agency (DARPA) gives for its work on gene drives. Renee Wegrzyn, programme manager for DARPA’s “Safe Genes” project, says the work is to prevent “technological surprise”, whether in the form of an unintended consequence or nefarious use. One of the academic teams she funds has made progress in developing anti-CRISPR enzyme systems that one day might be able to inhibit a drive’s operation.

Many groups are working on ways of making gene drives more controllable and less risky. One option is to create “immunising” drives that could spread resistance to a drive gone rogue. Another is to limit the drive’s power to spread. Current gene drives are self-driving: the cutting mechanism and the thing that gets spread are one and the same. But that is not the way things have to be. In the “daisy chain” drive designed by Kevin Esvelt of the Massachusetts Institute of Technology, gene drives are linked up in sequence, with the first creating the space for the second to copy itself into, the second creating the space for the third, and so on, until you finally get to the gene that you want to drive through the population. Because the upstream drives do not copy and spread themselves, they drop away, generation by generation, until only the last gene remains.

Think of it like the stages of a rocket launching a satellite—or warhead. Each stage gets the gene of interest further into the population before falling away. But once the last stage has burned out, the payload just goes where gravity takes it, powerless to push itself further. Such a self-limiting system might have a big effect over the short term, but vanish in the long term.



These developments make it easier to imagine gene drives being used with minimal risk. But it is still the case that without care some gene drives might have the potential to trigger irreversible ecological shifts before countermeasures could be deployed. That is clear from decades of work on invasive species that are released either deliberately or accidentally. And because the effects of each drive will be unique, depending on the design of the drive, the gene or genes that it targets, the population it is introduced into and the ecosystem in which that population sits, the technology calls for a sort of joined-up regulation that does not yet exist. In 2014 Kenneth Oye of MIT and his colleagues pointed out in the journal *Science* the many gaps in America’s patchwork of regulatory frameworks relevant to gene drives.

Oversight needs not just to bring together a range of government agencies; it requires co-operation between governments, too. The Cartagena Protocol on Biosafety, which entered into force under the UN Convention on Biological Diversity (CBD) in 2003, provides controls on the transfer of genetically modified organisms. But how it applies to gene drives is unclear—and besides, America has never ratified the convention. An attempt to ban gene-drive research through the CBD, which was backed by the ETC Group and other NGOs, failed at the convention’s biennial meeting in Cancún in 2016.

A less ambitious call for restraint in field tests is likely to suffer the same fate later this month in Egypt. At present there is no consensus on what level and distribution of risk humankind is willing to accept from such technologies, nor what loss of wildness it is willing to accept. Like the re-introduction of vanished species advocated by the rewilding movement, gene-drive technology will provide new arenas for the fight between those who wish to defend nature and those who wish to tame it.

There is still time for such debate. The Gates Foundation does not expect to be ready for field trials for at least eight years. And the debate may be more fruitful if research continues to open up new options for better-designed interventions. If gene-drive research had been banned under the CBD two years ago, various self-limiting exotica currently under development might not have been dreamt up.

For malaria, at least so far, the case for moving towards tests in the field is a strong one. That does not mean that other uses will be as compelling down the line, or that there is no need for vigilance. And none of this will, in practice, be as neat as a swipe with an electronic tennis racquet. But for millions of Africans living with the burden of malaria, the idea of never needing to fear the bite of another mosquito could change the world. ■



Universities' finances

After the boom, the bust

Britain may soon have a bankrupt university. Will the government let it go under?

ENGLISH UNIVERSITIES have long been defined by their architecture, from the dreaming spires of Oxford, to the red-brick universities built after the Industrial Revolution, to the concrete polytechnics that sprouted everywhere after the 1960s. Those who visit a campus today are likely to see another big round of building in progress. This time glass and steel are the main media, sometimes accompanied by cladding in garish colours.

The rush to build reflects a battle to attract students, which is putting a growing strain on universities' finances. Universities receive twice as much money per student as they did two decades ago. But an increase in spending means that they are nonetheless racking up debt. Britain's 130-odd universities owe nearly £12bn (\$16bn), up from less than £5bn in 2012, according to estimates collated by Reuters. In 2016-17, the most recent year for which data are available, 19 universities ran deficits, compared with six the year before. A few are said to be near bankruptcy. Some in better health are considering whether they would take over a neighbour if the option arose.

The competition for students is the intended consequence of a series of reforms introduced by the Tory-Lib Dem coalition

in 2010-15, which aimed to get more people into higher education while pushing universities to pay more attention to teaching. The headline reform was to nearly triple the fees that universities were allowed to charge students, to £9,000 a year. One reason for lifting the cap was to provide income for universities to borrow against. David Willetts, the universities minister at the time, has written that "financiers always used to advise us that university balance sheets were very conservative."

A less noticed but more important change was to remove limits on the number of students that universities could ad-

mit. Since they now rely on students' fees for much of their income, universities are keen to attract them. And since there are no longer restrictions on admissions, the most attractive universities can suck students away from the rest. This explains why borrowing has mostly been spent on sprucing up campuses. On an open day, "how do you judge whether a university is good or bad?" asks one university official. "You can't judge course content, so you use lecture halls or sports facilities as proxies."

Since the financial crisis, bank lending has dried up. So universities have turned to capital markets. The universities of Leeds, Liverpool, Cardiff, Manchester, Cambridge and Oxford have all taken advantage of low interest rates by issuing public bonds, raising £250m-750m each. Less prestigious universities have looked to private investors, such as insurers and pension funds, in deals with shorter maturities.

The lowest-ranked universities struggle to find any lenders. It is also they who are running the biggest deficits (see table on next page). Some institutions acknowledge that conditions are difficult: higher education "has become market-driven and increasingly competitive," says the University of Bradford. Others point to particular circumstances. St Mary's University, for instance, says its deficit "was planned and focused on investment in areas of growth and student experience."

The squeeze is about to tighten. An unexplained fall in the birth rate at the turn of the millennium means that between 2017 and 2020 the number of 18- to 20-year-olds will drop by 150,000, meaning fewer potential customers. The government's efforts to ►►

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► cut migration will make it hard to recruit students from overseas to make up the shortfall. A forthcoming review of higher-education funding may recommend reducing tuition fees. On top of this, universities expect to have to increase their contributions to pension schemes. Some will “reach a point where it is difficult to make more efficiency savings,” says Steven West, vice-chancellor of the University of the West of England. “A shock is about to hit.”

Most universities will ride it out. Jason Rothenburg of MetLife Investment Management, part of an American pension fund, says one attraction of lending to English universities is good government oversight from a new regulator, the Office for Students (OfS). It ought to be aware of any difficulties before they emerge, since it checks on the finances of all institutions that register with it. University boards are also meant to monitor the finances of their institution. But some in the sector admit that small, undistinguished universities may struggle to attract board members of sufficient calibre to do the job.

The assumption among some universities and lenders has been that if a university gets into trouble, the government will bail it out. On November 6th Sir Michael Barber, the chairman of the OfS, said it would not. “This kind of thinking, not unlike the ‘too big to fail’ idea among the banks, will lead to poor decision-making and a lack of financial discipline, is inconsistent with the principle of university autonomy and is not in students’ longer-term interests,” he cautioned. The regulator’s aim will be to protect students, not the university, perhaps by moving them to another institution or by arranging a takeover of their existing one. Sam Gyimah, the universities minister, said this week that it was not the government’s job “to bail uni-

versities out when they make reckless financial decisions.”

He is surely right. But will the government have the stomach to let a university go under? It would face accusations that it had allowed mis-selling to students. Some of the most vulnerable universities are in parts of the country where good jobs are scarce. Nevertheless, one of the requirements imposed by the OfS is that universities make plans for what would happen to their students in the event of the university’s bankruptcy. So far, too many have viewed it as a bureaucratic exercise, says Sir Michael. In fact, he warns, “it is an essential element of the system.” ■

Brexit and electoral law

Arron’s golden calf

Evidence of Leavers’ rule-breaking boosts calls for a second referendum

WITH LESS than five months before Brexit is due, debate over possible deals is hotting up. Revelations of law-breaking by Leave campaigns in 2016 are now adding fuel to the fire. The focus is on Arron Banks, an ebullient insurer who dubs himself the “bad boy of Brexit”. Mr Banks, whose gift of £8m (\$12m) to Leave.EU, an unofficial Brexit campaign, was Britain’s biggest-ever political donation, has been having a busy time with official watchdogs. He has been referred by the Electoral Commission to the police. His insurance firm, Eldon, and Leave.EU have been fined £135,000 by the Information Commissioner’s Office for misuse of personal data. And the Financial Conduct Authority is looking into Eldon’s practices.

Mr Banks denies any wrongdoing. He claims to be a victim of hardcore Remainers bent on overturning the Brexit vote. Yet the evidence is against him. The Electoral Commission declares baldly that it has reason to believe that the source of the £8m was impermissible because it was foreign. Mr Banks says the money came from a British-based firm, Rock Services. But this small service group is owned by Rock Holdings, registered in the foreign jurisdiction of the Isle of Man. And the £8m was recorded in the accounts of Rock Holdings, not Rock Services.

The Electoral Commission has called in the cops partly because it has few resources and no foreign jurisdiction. But it is also because its maximum fine is just £20,000, a trivial amount for potentially criminal offences. The Information Commissioner’s Office also has few resources and insufficient powers to deal with what it calls a dis-

turbing disregard for voters’ personal privacy. Insurance clients and Brexit supporters were bombarded with messages pushing each other’s interests. There are also claims that Eldon employees worked for Leave.EU. Yet Mr Banks’s response to the fines imposed for misuse of data was to tweet “so what?”

This sorry tale raises concerns over electoral laws besides the perennial worry of regulators with too few powers. Social media and targeted campaigns have become newly significant in politics. The illicit harvesting of personal data during the Brexit campaign by the likes of Cambridge Analytica, a defunct data firm that the Information Commissioner’s Office says it may yet prosecute, was huge and sophisticated. Many countries now fear foreign intrusion, especially from Russia. Interviewed on television, Mr Banks oddly denied that Russian money was involved even before being asked. He has a Russian wife and business interests and has admitted to extensive contacts with Russian officials during the referendum.

Remainers are up in arms over what many claim was a stolen vote. But it is hard to assess the effects of careful selection of social-media targets for pro-Brexit propaganda. Vote Leave, not Leave.EU, was the officially designated campaign organisation. Although it too was fined for overspending, the two groups hated each other. The 52%-48% Leave victory in 2016 was narrow but clear-cut. And the government itself spent £9m on a leaflet promoting Remain.

The Banks affair has strengthened those calling for a fresh vote on a Brexit deal. Ironically, Mr Banks himself now says it might have been better to back Remain. This week a Survation poll for Channel 4 found a 54%-46% majority agreeing. Brexit may not be done yet. ■



Prophet of exodus

Finance lessons

England, universities with largest deficits
Academic year ending 2017

University	Deficit as % of income	No. of students	Teaching quality*
St Mary's	8.8	5,535	Silver
East London	8.2	13,215	Bronze
Cumbria	7.3	8,635	Bronze
Kingston	7.1	19,470	Bronze
Plymouth Marjon	5.4	2,415	Silver
Sunderland	4.9	13,020	Silver
London Metropolitan	3.9	12,145	Bronze
Bradford	3.0	10,960	Silver
Buckinghamshire New	2.3	8,870	Silver
Bolton	1.8	6,425	Silver

Sources: HESA; Office for Students; *The Economist*

*Teaching Excellence Framework ranking, 2017

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Military recruitment

Your country needs... someone

The armed forces call on women and foreigners to ease troop shortages

BRITAIN IS AT peace and unemployment is down. Good news for most, but not for its armed forces. They are struggling to attract recruits, owing to fierce competition for workers and a lack of exciting overseas action. Mid-career squaddies are leaving, lured by juicier wages and better prospects for promotion in the private sector, particularly for those with skills in areas like cyber-security or engineering. Salaries in the ranks start at just £15,230 (\$20,030). As a result, the forces are losing troops faster than they can replace them. The Ministry of Defence (MOD) fell 24% short of its recruitment target last year.

To plug this gap, it is widening the pool from which it recruits. Last month all roles were opened to women, who were previously barred from positions involving close combat. This week the MOD said it would start accepting applications from citizens of all 53 countries of the Commonwealth. That decision waived a requirement imposed in 2013 that such recruits must have lived in Britain for five years before they could join up. It is hoped that the Commonwealth will provide 1,350 new troops a year, equivalent to more than 10% of the number currently recruited.

Recruiting foreign folk who have never lived within the country's borders is unusual, says Jack Watling of RUSI, a defence think-tank. Other European countries seeking to bolster their ranks are turning to conscription, which has been reintroduced in Sweden and Lithuania amid heightening tensions with Russia. Some countries recruit foreigners directly from overseas, but they are usually put in segregated units like France's Foreign Legion. In Britain they will join mainstream ones, with squaddies from Scunthorpe fighting alongside farmhands fresh from Fiji.

The idea may yet catch on elsewhere. Facing similar shortages, Germany is weighing up whether to offer citizenship in return for military service to people from elsewhere in the European Union. But it could also arouse post-colonial prickliness. Commonwealth governments may resent their citizens joining a foreign army, especially if they start seeing their best soldiers leave to seek better pay, says Paul Schulte, a former official at the MOD.

Women and foreigners alone are unlikely to fill the recruitment gap. Many specialist roles with shortages are already open to female troops. And once trained,

foreign troops are no less likely to defect to the private sector than the current lot.

The branch facing the worst shortfall is the army. In 2012 it handed its recruitment operation to Capita, an outsourcing firm. By subcontracting tasks such as security vetting, the company has created a bureaucratic tangle, with some recruits waiting 18 months to get onto a training course. Many drop out. Capita insists that the worst kinks are being ironed out, but it is on

Jeremy Heywood, 1961-2018

Whitehall's mover and shaker

The deftest operator of the government machine died on November 4th

JEREMY HEYWOOD was "in the room where it happens", to borrow a phrase from "Hamilton", for the most important decisions of Britain's past quarter-century. He was at the Treasury on Black Wednesday in 1992, when the pound was forced out of the European exchange-rate mechanism, and in Downing Street in 2001 when the aeroplanes hit the twin towers and the decision was taken to invade Iraq. After a spell in banking he returned to the civil service in time to see the global financial system collapse. When he was given a peerage last month he fittingly chose the title of Lord Heywood of Whitehall.

In all his many roles Lord Heywood (whose wife, Suzanne, is on the board of The Economist Group) was a model of calm efficiency. He quelled a panic during the Maastricht negotiations when he found John Major's talking points lost among a stash of papers. He kept lines of communication open between 10 and 11 Downing Street during Tony Blair's premiership, holding secret powwows with Gordon Brown's team in a greasy-spoon café. He helped to form the Tory-Lib Dem coalition in 2010. It is Britain's ill fortune that cancer has deprived the country of his skills in the past year of Brexit talks.

His detractors accused him of crossing the line that divides administration from politics, particularly when he failed to produce sensitive letters on preparations for the Iraq war ("Sir Cover-Up", the *Daily Mail* dubbed him). Some thought his view of his job was summed up when he put on a blue tie when David Cameron became prime minister in 2010. Yet nobody impugned his neutrality. He worked equally ferociously for Tory and Labour prime ministers, implementing the government's agenda rather than insinuating one of his own.

Lord Heywood's adamant commitment to getting things done was not always obvious at first. He was so quietly



Lord Heywood, master servant

spoken that it was difficult to hear him, and so boyish-looking that it was possible to mistake him for an intern. He hovered rather than dominated. But he had a genius for making himself indispensable; one colleague likened him to a drug that people get addicted to quickly. The result was that he kept accumulating jobs, adding the roles of cabinet secretary (2012) and head of the civil service (2014) to his position as chief adviser to the prime minister.

He had a surprisingly raffish side. At Oxford he socialised with anarchists and punk rockers, rather than the Bullingdon set. He formed a radical discussion group called the Apostates. Both as a rising civil servant and an establishment grandee he was a great party-giver, and was extremely charming. Politicians of all persuasions have gone out of their way to praise him. Indeed, the most surprising thing about the tributes is not the admiration, but the affection.

course to meet just 50% of this year's quota. The firm will be responsible for recruiting most of the new Commonwealth troops, who will be harder to vet than locals.

The promise of action is the best recruiting sergeant, says Mr Schulte. Without war, soldiering involves a lot of sitting around in tents. Unless it is forced to spend blood overseas, the government may have to spend treasure on higher pay at home if it wants to keep the numbers up. ■

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OPERATING WORLDWIDE

Care homes

Growing old profitably

HORSHAM

A troubled industry is an unlikely hit with investors

ON NOVEMBER 6TH the Care Quality Commission (CQC), which regulates health and social care, took the unusual step of warning local authorities that a care company was at risk of collapse. Allied Healthcare, which provides services such as washing and meals to 9,300 elderly people in their own homes, insists there is nothing to worry about. Yet councils are preparing for the worst.

Allied's difficulties are a reminder of the pressure on the care sector. A higher minimum wage and tighter regulations have added to care providers' costs. At the same time their main customers, local authorities, are facing funding cuts and are reluctant to pay more for services.

This disjuncture is most evident in care homes, a business worth about £16bn (\$21bn) a year, with over 400,000 residents. The number of people over 85 is expected to increase by 36% by 2025. Yet care homes have been closing, unable to make ends meet. By one estimate England has lost 3,700 beds since 2012.

It hardly looks like a promising market. But one corner of the industry has attracted the attention of investors, including foreign funds, which have been snapping up British care homes. By changing the way such homes operate, and rethinking who their customers are, investors see a way to make a good return. But with this change comes a widening gap between north and south, as well as between rich and poor.

Take Skylark House in Horsham, Sussex. The spotless, two-year-old facility has 82 bedrooms, each with an en-suite wetroom and most with a balcony. It is owned by Care UK, the fourth-largest provider in the country, which has built 40 homes since 2011 and has 33 more in the pipeline.

Care UK's boss, Andrew Knight, argues that the only way to provide this sort of care is to take more residents who pay their own way. Councils in England are obliged to pay for anyone with assets of under £14,250. But often the council's contribution does not cover the full cost. In Care UK's homes, councils pay about £650 a week, whereas "self-funders" pay £900. Care UK used to work mostly for local authorities. Now half its residents are self-funders. Mr Knight says he will no longer provide beds at below cost. That will rule out most local-authority customers, but means the company can operate with margins of about 10%.

The self-funding market has caught the

eye of American investors, primarily real-estate investment trusts (REITs). The biggest in Britain is Welltower, which has 107 care homes with 7,500 beds, worth £2.2bn. Only a few of its homes take council-funded residents, as the firm prefers to "avoid the risks of dealing with the government pay sector," says Justin Skiver, an executive. Other REITs buying homes include Target Healthcare and Impact Healthcare.

The care-homes market is still fragmented, with about 5,500 operators. The five biggest have just 15% of the market between them. Some see scope to grow by acquisition, gaining economies of scale.

The investments will increase capacity and may spur innovation. But the price is a bigger divide between those who can pay and those who cannot. And there may be a hidden cost to the taxpayer. As providers focus on self-funders and council-funded beds dry up, hospitals could find themselves taking up the slack. ■

Violent crime

Capital offences

London's knife-crime spike has hit the headlines, but the big rise is elsewhere

ACROSS THE country, some children are becoming victims, others perpetrators. On November 3rd a 15-year-old was stabbed in the chest in Swindon. Two days later, an 18-year-old was knifed in the leg outside a school in Bedford. On November 6th two teenagers suspected of stabbing a younger boy in Manchester were arrested. The boy was struck several times in front of other children out for Halloween.

But the media has focused on London, where there have been 119 murders this year, about the same as the number killed in the whole of 2017, excluding terrorist attacks. Four in ten victims were 24 or youn-

ger. In the six days from October 31st, there were five fatal stabbings in the capital. The hosts of "Good Morning Britain", a television programme, berated Sadiq Khan, the mayor of London. "Sort it out, Mr Mayor!" one said.

This narrow focus is partly justified. Stabbings are far more common in London than anywhere else in the country, and not only because it is so much bigger: it sees more violence per person than less populous areas. In 2017-18 it accounted for 22% of all murders and 36% of knife crime in England and Wales, though Londoners make up 15% of the population. Attacks in the capital also appear to be more ferocious than those elsewhere. Its murder count has risen more sharply than the country's.

Yet the biggest increases in knife crime have been outside London (see chart). Since 2010-11 it has risen by a tenth in the capital, and by a third in the rest of England and Wales. During the same period, knife crime leapt more sharply than the national average in the patches around Sheffield, Leeds and Liverpool. The number of stabbings began to tick up in North Wales, Norfolk and Essex well before they did in London. Jacqueline Sebire, assistant chief constable of Bedfordshire Police, recently dealt with four stabbings in 24 hours. "It's wrong that people are placing the sole focus on London," she says.

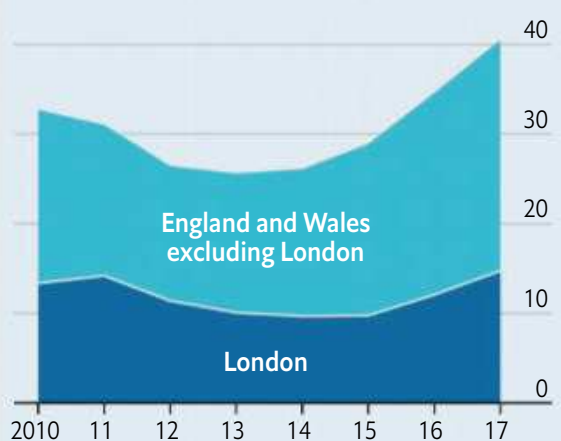
Some think the capital dominates coverage because of its concentration of journalists and politicians. They are "seeing it more visibly than the trends outside London," says Harvey Redgrave of Crest Advisory, a consultancy. Mr Khan and Cressida Dick, commissioner of the Metropolitan Police, are well known and so more likely to be held to account than a provincial police chief or politician. Others suspect politics. Tory-supporting newspapers have been quick to criticise Mr Khan, a Labour mayor who will have to fight an election campaign in a little over a year.

The best explanations for the surge are national. Labour blames spending cuts: the number of policemen has fallen by 15% since 2010. Meanwhile new demands on officers, such as a recent run of accusations of decades-old sex abuse, take up their time. Another plausible explanation is a shift in the drugs market. A boom in the supply of crack cocaine has encouraged city gangsters to expand into towns once dominated by small-time dealers. Competition has sparked violent turf wars.

Misdiagnosing the spread of the problem could frustrate attempts to tackle it. "A lot of police forces just want to deal with problems on their own patch," says Rick Muir of the Police Foundation, a think-tank. "You need to look at it as a national problem." Mr Khan might be feeling the heat, but responsibility ultimately rests with the Home Office. ■

Cutting, rising

Police-recorded crimes involving a knife, '000



Source: ONS

The politics of theft

Full-fat politics

Does offering a “lite” version of an opponent’s policies actually work?

BRITAIN’S POP-GUZZLERS are a surprisingly health-conscious lot. Earlier this year the country became the first where sugar-free versions of Coca-Cola outsold the real thing. Whether Britons follow similar principles when it comes to imbibing their politics will dictate the fortunes of Labour and the Conservatives.

“Diet” policies have become the norm in British politics, with both main parties promising a healthier version of the other’s platform. In last month’s budget the Conservative chancellor, Philip Hammond, announced that austerity was “coming to an end”, in what amounted to a toned-down version of Labour’s promise to open the spending taps. Meanwhile his opposite number, John McDonnell, surprised many in his party by saying that Labour would support the Tories’ plan to give a tax break to the well-off, by raising the threshold at which the higher rate of income tax is levied. The Tories have previously stolen Labour ideas such as a cap on energy prices, while Labour has adopted a law-and-order policy that would fit snugly into the Conservatives’ manifesto, with its call for more police and border guards.

Whether parties benefit from aping their opponents depends on the policy area, argues Margit Tavits of Washington University in St Louis. She examined voters’ behaviour in 23 countries over 40 years. On issues that are seen as pragmatic, such as the economy, voters are happy for a party to change its tune. But when it comes to so-called principled policies, including immigration, voters will punish a party that strays from its beliefs. This is the case even when the party is shifting towards the median voter’s views. Both Labour and the Conservatives lost ground to the UK Independence Party when they mimicked its hard line on immigration, offering stiff rhetoric but few policy changes. This pattern repeated itself across Europe.

But what works on the pages of an academic journal is messier in real life, argues Tim Bale of Queen Mary University of London. Deciding whether a policy area is pragmatic or principled is more art than science. The National Health Service, for example, bestrides both. And nabbing too many of an opponent’s policies may annoy a party’s core supporters, whatever the issues in question. Mr McDonnell faced grumbles from Labour MPs (including those usually well to the right of him) for

“YOU HAVE the most peculiar ideas of relaxation,” Laura Jesson tells her aloof husband in the film “Brief Encounter”, when he suggests that she unwind with a cryptic crossword. Some of the contestants at the annual *Times* Crossword Championship, held on November 3rd, might agree that crosswording can be anything but relaxing. Neil Talbott, a programmer, was among many to fall by misspelling *iguanodon* (the clue: “Old animal droppings gathered by a single lecturer”). “It can be savage,” he says.

Cryptic crosswording was developed in Britain in the 1920s. It has become a staple of British culture, celebrating the messy ambiguities of English with its complex riddles and wordplay. Agatha Christie was a fan. Crosswords were used to recruit codebreakers in the second world war. But some fear for the puzzle’s survival. Newspapers, where most crosswords are printed, are in decline. And a younger audience is put off by the puzzle’s impenetrable rules.

Yet technology is offering solutions to both of these brain-teasers. The crossword has transitioned remarkably well

from paper to digital platforms, says David Parfitt, the *Times*’s puzzles editor. His newspaper has introduced a “quintagram”, tailored to smartphones, which has no grid and just five clues, making it quicker to complete and easier to navigate on a morning commute.

Technology can also help the uninitiated, via “hint” buttons and the option to check answers. (We ran a cryptic crossword in 2016’s Christmas issue, with online explanations of the clues.) Cracking a cryptic puzzle requires awareness of various conventions. For example, the word “regularly” signals using every other letter of the word it accompanies: “Part of foot, regularly stroked” is *toe*.

Though the best competitive crosswords are a greying lot, moving the crossword online gives newcomers a chance. And for the first time since 2008, the *Times* competition has a new champion. Mark Goodliffe, the 11-time victor, was disqualified after a late error, so Roger Crabtree, a former pensions clerk, took the trophy. Congratulating Mr Crabtree, a woman was heard to mutter, “You’ve given us all hope.”

Crosswords

Hip to be square

Technology arrests the decline of a great British pastime



Article, once moist, ruined the newspaper (3, 9)

supporting the Tories’ tax break. Some Conservative MPs complain that Theresa May spends too much time talking about what they see as Labour issues, like NHS funding, and not enough on traditionally Tory concerns, such as lower taxes.

Labour aides are confident that the Tories’ “Diet Corbynism” is no match for the real thing. After all, the government’s mooted plan to reduce tuition fees for

some subjects pales in comparison to Labour’s promise to abolish them (as well as smacking of hypocrisy, since the Tories introduced the higher fees only six years ago). Conservative wonks insist that voters do not care where a policy came from. The next election will depend on whether voters find Labour’s full-fat politics more tempting than the Tories’ offering of Corbynism without calories. ■

Bagehot | Peterloo v Waterloo

British politicians are divided by two very different views of history



THE CENTENARY of the armistice on November 11th is a welcome reminder that historical memories can unite the country. It is an unfortunately rare one. These days history is more commonly used to divide and inflame. The right of the Conservative Party and the left of the Labour Party—the ideologically ascendant factions in their respective worlds—are wedded to sharply contrasting interpretations of British history, which focus on very different events and freight them with very different emotions. Let us call them the Waterloo and the Peterloo interpretations.

Waterloo was one of Britain's greatest victories over the French. In 1815 the Duke of Wellington ended Napoleon's career for good and inaugurated a long period in which Britain could play Europe's leading powers off against each other, to make sure that no new Napoleons could emerge. Peterloo, in 1819, was one of the worst peacetime massacres in British history. Troops charged into 100,000 peaceful protesters, who had gathered to demand more political rights in St Peter's Field, near Manchester. Fifteen people were killed and hundreds injured.

The Labour left is obsessed with Peterloo. Jeremy Corbyn, the party's leader, highlighted the massacre in his speech to Labour's annual conference in September. The demonstrators were killed by "troops sent in by the Tories to suppress the struggle for democratic rights," he noted, adding that Labour's slogan, "For the many not the few", was coined by Percy Shelley in a poem commemorating the massacre. Mike Leigh, one of Britain's leading film directors, has recently released a film about the massacre called "Peterloo". The two-and-a-half-hour epic is not up to the standards of "Life is Sweet" and "Topsy-Turvy". But, partly because it is so caricatured, it provides a good view of the Corbynite historical imagination. The established rich guzzle food and drink, the new rich grind the poor with the help of dark Satanic mills and job-destroying machines, the poor try to improve their dismal lot through peaceful protest, and the establishment responds by crushing them. Maxine Peake, one of the leading actresses, has driven the film's message home by comparing Peterloo to the more recent disasters at Hillsborough stadium and Grenfell Tower.

The Peterloo interpretation sees British history as a story of ruthless exploitation and intermittent resistance. What few rights

the workers enjoy, they have as the result of heroic struggles led by a vanguard of activists who must fight against both the ruling class, who try to suppress them, and class traitors, who don't understand the true meaning of history. Mr Corbyn is much happier talking about history than economics. His favourite historical figure is John Lilburne, a 17th-century Leveller who devoted his life to agitation. ("If the world was emptied of all but John Lilburne, Lilburne would quarrel with John and John with Lilburne," one contemporary said.) He is fond of Marxist historians like Christopher Hill, author of "The World Turned Upside Down", and E.P. Thompson, who wrote "The Making of the English Working Class".

The Waterloo interpretation of history is the opposite. It celebrates our island story rather than lamenting it (and frequently slips into calling that island England). This school reveres the role of great men, particularly great military commanders, rather than agonising about the labouring masses. It also focuses on constitutional innovations rather than economic struggles. For Waterlooists, England's unique achievement was to limit the power of the over-mighty state through constitutional reforms such as Magna Carta, the establishment of Parliament and the common law. These innovations made British history fundamentally different from continental history. Whereas the continent had absolutist rule, the Napoleonic code and endless internecine wars, Britain had peaceful constitutional evolution, protection of individual rights and a globalised economy.

A striking number of the leading Brexiteers are either history graduates or history buffs. Sir William Cash, Jacob Rees-Mogg and Daniel Hannan all read history at Oxford. Mr Rees-Mogg has argued that Britain's vote to leave the European Union is "as worthy for celebration as victory at Waterloo or the Glorious Revolution", and defined Brexit as "a victory of British liberty over Bonapartist autocracy, and for free nations over foreign tyranny". Mr Hannan has written a book called "How We Invented Freedom and Why It Matters". Michael Gove, the environment secretary, is an omnivorous reader of history books who, in an earlier role as education secretary, tried to refocus the history syllabus on teaching facts about British history.

These polarised views leave a lot to be desired on the scholarly front. The Peterloo interpretation ignores the role of judicious reform. The British ruling class did terrible things but it was restrained compared with its continental counterparts. "Only in England do they call that a massacre," sneered one French diplomat. The Waterloo view downplays the role of imperialism and plunder in the making of Britain. (It also downplays the fact that Waterloo was "the nearest-run thing you ever saw in your life", as Wellington put it, and would not have been won without the help of the Prussian army.) Both views ignore the importance of entrepreneurial innovation and free trade in raising living standards. The starvation that Mr Leigh decries in "Peterloo" was eventually alleviated by the repeal of the Corn Laws and the import of grain.

Couldn't escape if they wanted to

The clash of historical visions will remain at the heart of politics for some time. During the Blair-Cameron years, when policymakers all accepted the virtues of market liberalisation and quarrelled about means rather than ends, economics had a good claim to be the queen of the sciences. Today the crown has been passed to history. Economics has lost much of its lustre since the financial crisis. History, by contrast, appeals to people's quest for meaning and identity in a world that too often deprives them of both. ■



NATO

War in a cold climate

OPPDAL

NATO holds its biggest exercises since the cold war

THE SPANISH armoured vehicles were dug into the side of the road into Oppdal, a mountain village some 300km north of Oslo, cannons pointed across the snowy valley. Their task was to defend the local airport from the might of the “North Force”, played mostly by American marines, whose fleet of tanks assembled at a nearby petrol station. Rifle-wielding marines decked in snow camouflage prepared for battle with cups of hot chocolate, the attendant unfazed by the firepower massing on her forecourt. Yellow-jacketed umpires followed the war games, decreeing whether a tank had strayed into a notional minefield or been struck by hypothetical artillery. “It’s pretty much like battleships,” said Second-Lieutenant Larry Boyd.

The mock combat was part of Trident Juncture 2018, NATO’s biggest military exercise since the cold war, lasting from October 25th to November 7th. The alliance is flourishing on the ground, building up forces, transforming its institutions and squaring up to Russia with confidence. The question is whether this progress can be quarantined from the transatlantic squab-

bling between political leaders.

The very premise of the exercise—an invasion of Norway, causing the alliance to invoke its Article 5 mutual-defence clause—was a signal that, after decades of fighting ragtag Balkan armies and Afghan guerrillas, NATO is back in the business of defending its home territory. The exercise, officials coyly insisted, was “not directed against any country”. But Lieutenant Boyd was clear that his marines were preparing to fight a “near peer” adversary. He did not



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have to spell out whom he had in mind.

A second message lay in the exercise’s scope, stretching from Iceland in the west to the airspace of non-NATO Finland in the east. The last big war game was held three years ago in Spain, thousands of kilometres from Russian soil. Norway, by contrast, is not only a front-line ally, sharing a 200km border with Russia, but has also watched nervously as Russia’s Northern Fleet, headquartered across the Barents Sea on the Kola Peninsula, has piled up new ships and increased submarine patrols tenfold. That has forced NATO to reacquire itself with cold-war concepts like the “GIUK gap”, a maritime choke-point between Greenland, Iceland and Britain that is Russia’s principal outlet to the Atlantic. Russia has also reoccupied seven former Soviet bases in the Arctic region and launched its first military icebreaker in 40 years. In turn, America has doubled the number of marines based in Norway, and on October 19th sent an aircraft-carrier into the Arctic Circle for the first time in almost 30 years.

A third distinctive element of Trident Juncture was its size: 65 ships, 250 aircraft, 10,000 vehicles and 50,000 personnel. This was a test of NATO’s ability to pump reinforcements over the oceans, teeming with Russian submarines, and then across the continent. This has proven tricky. Lieutenant-General Ben Hodges, who retired as commander of American forces in Europe in December 2017, recalls his surprise at learning that Europe’s Schengen area, which has abolished border controls, did ►►

▶ not extend to the free movement of arms. Others point to problems with infrastructure, such as incompatible railway gauges and weak bridges.

NATO's response to the new threats has been the biggest overhaul of its command structure in a generation. Two new headquarters, one focused on the Atlantic, based in America, and another on logistics, in Germany, will be established over the next three years, adding 1,200 personnel. Generals are also getting chummy with Eurocrats. EU-NATO relations were once "trench warfare", says Sir Adam Thomson, Britain's envoy to NATO from 2014 to 2016. Now there is "unprecedented practical collaboration". The EU published its own action plan on military mobility in March and sent the head of its military staff on a joint tour of Washington with his NATO counterpart last week.

NATO's renaissance should cheer fans of the beleaguered liberal order. In recent years the alliance has deployed four battle-groups (up to 1,400 troops each) to Poland and the Baltic states as tripwire forces; created a rapid-response brigade (about 5,000-strong) that can mobilise within two days; and committed to having 30 battalions, 30 warships and 30 air squadrons ready to fight at 30 days' notice. America is spending \$6bn a year on its European Deterrence Initiative, lavished on everything from Hungarian air bases to exercises such as Trident Juncture. Russia's spree of invasion, intimidation and assassination has roused the alliance from its slumber.

Yet this military revival is accompanied by political malaise. For one thing, no one these days is quite sure whether the alliance's principal member would actually show up to fight in a crisis. The platoon of Montenegrin infantrymen at Trident Juncture, part of the Spanish battalion defending Oppdal, might reasonably have recalled President Donald Trump's scorn for their "very aggressive" country during this year's NATO summit, and asked how it squared with the transatlantic spirit on display in the Norwegian hills.

On November 6th France's president, Emmanuel Macron, lamented the absence of a "true European army" to "protect ourselves against China, Russia and even the United States". Yet despite the EU's new defence schemes, which cover everything from joint arms production to co-operation on military radios, its ambition is far lower than Mr Macron's language would suggest. Far from supplanting America's military capabilities, Europe's national armies are only just getting around to rebuilding their own, hollowed out after the cold war. The EU's central and eastern European allies, like Poland and Estonia, are horrified by Mr Macron's talk of protection against America. For all its troubles, NATO remains the only game in town. ■

France

Bearing fruit?

PARIS

Tentative signs that Emmanuel Macron's labour reforms are working

WHEN GERHARD SCHRÖDER launched a series of German labour-market reforms in 2003, his country's unemployment rate stood at just under 10%. This was also the rate inherited by Emmanuel Macron, who signed his own labour-market reform into law in September 2017. The French president's version is more modest than the Schröder package, not least because the bits already enacted touch only the labour code and not yet the unemployment-benefit and vocational-training systems. But Mr Macron's hopes to curb unemployment are no less ambitious. A year on, has the French reform had any effect?

At first glance, not much. The number of jobseekers edged up again slightly in the third quarter, by 0.5%, after a tiny rise in the second quarter, according to Pôle Emploi, the unemployment agency. There has been a steep increase, of 8%, in the number of people out of work for between one and two years. France's overall unemployment rate in the second quarter stood at 9.1%, still well above the 7% he has promised to achieve by 2022.

Part of this is unsurprising. Labour reforms obviously take time to feed through into durable job creation. It was not until 2008, five years after its reforms, that Germany's unemployment rate fell to 7%, and a further four years before it reached 5%, thanks in part to the creation of low-wage "mini-jobs", which the French government does not seek to copy. "France will not be a country of low-cost work," declared Muriel Pénicaud, the labour minister, last year.

Moreover, the second element of Mr Macron's three-part labour reform—a re-

vamp of vocational-training schemes on which France spends €32bn (\$37bn, or 1.4% of GDP) a year—has only just gone into effect. This is designed to improve results by handing choice to employees in the form of training credits they can choose how to spend. A further €15bn over five years is going into training for the unemployed. It will take much longer for such measures to improve skills and job prospects.

The third and final part—a reform of social protection—will be unveiled only next year. Whereas Mr Schröder began with benefit reform, Mr Macron has left this until last. During his campaign, he promised to extend unemployment benefit to all (currently it depends on accumulated insurance rights), in order to adapt the French welfare state to a world in which work is less regular and people change jobs more often. Such ambitions may now be scaled back, because of their cost. Plans to clamp down on those who refuse job offers remain on the table.

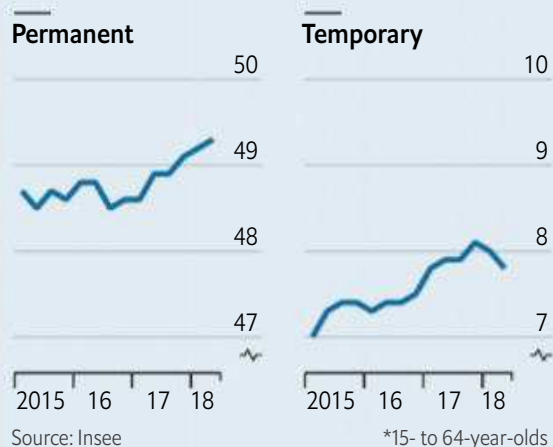
Nonetheless there are some indications that French employers are starting to respond to the labour reforms. One seems to be an improvement in the quality of jobs created. For example, in the third quarter of 2018 the number of firms reporting an intention to hire on permanent (rather than temporary) contracts was 10% higher than a year earlier, according to Acof, the social-security agency. Figures also show a rise in the overall share of those aged 15-64 employed on permanent contracts over the past three quarters and a recent drop in those on short-term contracts (see chart).

Another measure is how many cases for unfair dismissal end up in the labour courts. French courts have until recently been free to award damages without limit, and these varied wildly. Mr Macron's labour law capped such awards, thereby minimising the financial risk of lay-offs (and so of hiring) to firms. In 2017 the number of such cases going to court fell by 15% on the previous year. One director of a services firm, which employs 40 people in its call centre, says that he usually hires around five people each month, and used to put them all on short-term contracts. Now at least two of those will be permanent job offers. "It's better to have motivated employees, but in the past it was a risk," he says. "Now I feel it's a gamble I can take."

Such trends are new, and yet to be confirmed. Much will depend on the economic outlook beyond France. But, says Ludovic Subran, chief economist at Euler Hermes, a French credit insurer, "the trajectory is right, and we should see results by 2020." Mr Macron has urged people to be patient. The trouble, of course, is that politicians who introduce reforms are often not those who benefit from them. Just as his last labour reforms came into force, in 2005, Mr Schröder lost his job, to Angela Merkel. ■

Green shoots

France, % of workforce*
By employment contract type





German politics

Back from the dead

BERLIN

Friedrich Merz stakes out his claim to succeed Angela Merkel

"FRIEDRICH THE great" roared one headline. The hype that attended the surprise declaration by Friedrich Merz, a politician-turned-businessman, that he would run for the leadership of Germany's Christian Democratic Union (CDU) may have been a trifle overdone. But as Angela Merkel's long reign as chancellor draws to a close, Mr Merz's gambit has exposed the party's thirst for political novelty. Mrs Merkel's decision on October 29th to vacate the CDU leadership, a position she has held for 18 years, has unleashed passions that some Germans had forgotten they had. "The CDU lives!" gushed a party vice-chairman.

At first blush, the 62-year-old Mr Merz seems a curious agent of renewal. A long-time CDU man from a small town near Dortmund, in Germany's west, he earned his spurs as a fearsome parliamentarian in the 1990s. But in 2002 he was felled as floor leader of the parliamentary party by Mrs Merkel, whose ambition he had underestimated. He left the Bundestag in 2009 for a lucrative career in law and finance, although he kept one foot in politics, notably as chairman of Atlantic Bridge, a body that fosters links between Europe and America. Over the years, as frustration with Mrs Merkel spread inside the CDU, Mr Merz grew used to batting away questions on his political ambitions.

Yet for many in the party's conservative base, says Ruprecht Polenz, a former CDU general secretary, he remained a "projection screen". Where Mrs Merkel was cautious and consensual, he is spiky and combative. Her gestures to the left won votes from Germany's Social Democrats (SPD) but irritated many in her own camp; Mr Merz

Greece

Licensed anarchy?

ATHENS

A group of troublemakers seem to operate with impunity

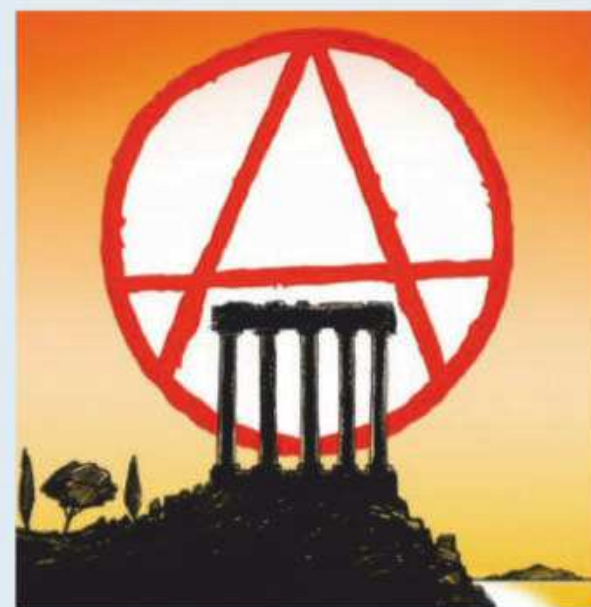
THE DOWN-AT-HEEL neighbourhood of Exarchia in central Athens, known for its lively bars and tavernas, has long been home to a small but disruptive community of self-described anarchists. Violent street battles take place at weekends: extremists throw Molotov cocktails at police, who respond with tear gas. Long-suffering residents say their complaints are routinely ignored by the authorities.

One anarchist group, Rouvikonas (Rubicon), uses more sophisticated tactics to make its presence felt. Based in a cinema-cum-bar close to Exarchia's central square, populated with drug pushers and sellers of bootleg cigarettes, Rouvikonas stages nuisance attacks against embassies, government buildings and the offices of multinational companies. Its members are not usually arrested. Prosecutors dismiss their actions as "too insignificant" to justify full-fledged investigation.

Rouvikonas's victims would disagree. In recent months, its activists have fired paintballs at the Turkish, French and Austrian embassies; destroyed newly installed electronic ticket barriers at Athens metro stations; and smashed glass doors at the offices of Novartis, a Swiss pharmaceuticals firm. Many observers believe the Syriza government of prime minister Alexis Tsipras tolerates Rouvikonas's activities, hoping to reassure left-wing voters that despite carrying out harsh austerity policies prescribed by Greece's international creditors, the party is still at heart a radical movement. When police officers arrested several Rouvikonas members

who broke into parliament last year, Nikos Voutsis, the Speaker, called up the citizens' protection minister and ordered their immediate release on the grounds that "it was a simple act of protest".

Counter-terrorism experts worry, however, that the group is becoming a training school for extremists. Some members of Rouvikonas have connections with the Conspiracy of Fire Cells, a group that in 2010 sent a clutch of letter-bombs addressed to European politicians, among them Angela Merkel, the German chancellor. Its leaders are now serving long jail terms, but another alleged member is awaiting trial on charges of sending a booby-trapped parcel in 2017 to Lucas Papademos, a technocrat who was also briefly prime minister during the euro crisis. Mr Papademos was seriously wounded while opening the package in his car.



once claimed Germany's tax code should be simple enough to fit on a beer mat. His comment, in 2000, that immigrants should adapt to German *Leitkultur* (leading culture), is fondly recalled by conservatives who have not forgiven Mrs Merkel for letting in over 1m migrants in 2015-16. Some of the 1,001 delegates who will gather in Hamburg to elect Mrs Merkel's successor next month may even secretly feel that 18 years of being led by a woman is enough.

Yet for all that, Mr Merz is unlikely to present himself as the candidate of rupture. Despite the sense of torpor under Mrs Merkel, it remains a minority view in the CDU that renewal demands a sharp rightward turn. (Jens Spahn, a young rival to Mr Merz who best represents that camp, has already been written off by many commen-

tators.) At a press conference announcing his candidacy, Mr Merz seemed more interested in attacking the fringes of German politics than in bolstering his conservative bona fides.

Mr Merz also raised eyebrows by suggesting that Germany should have provided a more constructive response to the European reforms proposed by Emmanuel Macron, France's president. That followed his decision to sign an open letter by a group of German dignitaries urging such European reforms as a common army and an unemployment-insurance fund. Some of these ideas may alienate precisely those party members who have supported Mr Merz's candidacy most vocally.

His cv presents a second potential difficulty, notes one CDU deputy. Unlike Mr

► Spahn, who has served in the finance and health ministries, or Annegret Kramp-Karrenbauer, the other leading candidate, who has run one of Germany's states, Mr Merz has no administrative experience to speak of. That counts against him. Few observers believe Mrs Merkel's stated wish to serve out her term as chancellor until 2021 will be granted should Mr Merz become party leader. If she goes early, the fraying coalition could collapse, leaving Mr Merz scrambling to form a new government or holding an early election.

The three leading candidates, plus a smattering of also-rans, will make their case to the CDU rank-and-file at eight regional gatherings over the next month. Plenty could happen in that time. In a country that retains an instinctive streak of suspicion towards finance, Mr Merz's moneymaking past could throw up difficulties, for instance. But he is probably more likely to be concerned with how to lead a party that wants continuity while pretending that it doesn't. ■

Russia

The tenth city: Rostov-on-Don

ROSTOV-ON-DON

The second in an occasional series on Europe's second-tier cities

A PUNGENT ODOUR of dried fish and the cries of merchants fill the cavernous central market, which locals in this southern Russian city still lovingly refer to as "the old bazaar". Commerce is in the blood here. "If a man doesn't want to earn money, then what is he doing on this earth?" guffaws Galya, who hawks pork. Rows of sellers reflect a multicultural history: Armenians, Georgians, Greeks, and even Korean women peddling kimchi. Down the hill from the market, the river Don beckons; on the city's left bank, barges with piles of grain await their departure for foreign shores. "The south is more alive," says Inna, a fishmonger. "It's like the fish: when she swims in clean water, her eyes sparkle."

A city with roots as a trading hub, Rostov-on-Don has preserved its entrepreneurial spirit. "The Russian south is the model of a future Russia," argues Sergei Smirnov, CEO of Center-Invest, the largest regional bank. "We don't have oil, but we do have agriculture, tourism, transport and small business." Although Russia's GDP growth is slow at around 1.5% a year, the Rostov region is humming along at twice that pace, powered by booming farming, retooled manufacturing and an active citizenry. In Rostov-on-Don, the regional capital known simply as "Rostov" (or "Rostov

Papa", a name from its days as a criminal capital), "people bustle about and try to make things happen, which is a very big difference" from other similarly sized cities, says Natalia Zubarevich, an expert on Russia's regions.

The combination of geography, tradition and mild weather makes Rostov among Russia's most entrepreneurial cities. As Yuri Bogdanov, Center-Invest's director of innovation, says: "Cities developed around these southern markets." Even 70 years of Soviet life could not snuff out the instinct: when Mikhail Gorbachev legalised co-operatives as part of *perestroika*, Gloria Jeans, Russia's first producer of blue jeans and one of its largest clothing firms to this day, opened in Rostov. In Rostov, 44% of the workforce is employed in small and medium-sized businesses, compared with a dismal 25% nationally.

The regional governor, Vasily Golubev, also has a business-friendly message. "We're open for investors, including foreigners," he declares, a statement that might seem discordant in an era of sanctions and with a war simmering just across the border in eastern Ukraine. It helps that Rostov's main industries largely lie outside the purview of Western sanctions, which have focused on energy, finance and the arms trade. A further boost comes from a gleaming new international airport and a network of refurbished roads, built ahead of last summer's World Cup, when Rostov was one of 11 host cities.

Rostov's pitch includes a mix of old and new. Rather than dying, some Soviet giants here retooled. Industrial production in the region was up by 7% last year. Ms Zubarevich calls it "a new post-Soviet re-industrialisation". Take Rostselmash, a hulking agricultural-equipment producer founded by the Bolsheviks in the 1920s. On the brink of failure in the 1990s, these days Rostselmash has been enjoying a revival. Agriculture is one of the rare bright spots in the

Russian economy, helped along by government subsidies and counter-sanctions that banned food imports from the West. In 2016 Russia became the world's largest wheat exporter. Rostselmash now sells to more than 35 countries and opened its first office in Germany last year. When Vladimir Putin gathered his advisers for a meeting on the development of regional industry earlier this year, they met at Rostselmash.

Beyond the old industry, a younger post-Soviet generation hopes to reorient Rostov. The c52 creative cluster, an abandoned factory transformed into a hip multi-use space, offers a glimpse of the vision. Now streetwear shops and a yoga studio fill the first-floor retail space. A central hall for events and film screenings features a "third-wave brew bar", where a dreadlocked barista pontificates on the particularities of Ethiopian and Guatemalan coffee blends. Young programmers and designers sit hunched over laptops in the upper-floor offices. Alexander Kuleshov, c52's owner, has been shifting towards IT and design firms with global client bases: following the devaluation of the Russian rouble in 2014, such outsourcing became good business. Like many of his tenants, Mr Kuleshov is determined to stick around town. "I'm proud that I'm not leaving, that I'm doing something here," he says.

Ultimately Rostov remains subject to the same challenges that plague Russia at large. Overzealous inspectors squeeze business. Mr Kuleshov laments a fine he received for painting his residents' logos on a wall facing the street, which the police claimed was illegal graffiti. Exporters gripe about the chilling effect of sanctions on business relationships. At the central market, Galya grumbles about rising petrol prices. Inna rues that in recent years her customers have been buying fewer crayfish, the local delicacy. "Times are tough and people are in debt," she says. "In the end we all live in one country." ■



Old habits die hard

Charlemagne | Between the tracks

No continent, even one as old as Europe, can truly master its history



SHORTLY AFTER 2am on November 11th 1918 a train came to a halt in a wood in Compiègne, near Paris. A second train pulled up on a nearby track. After four years of fighting, delegates of the German government sought an armistice from Ferdinand Foch, the commander of the French forces. Rare photos of the scene, hazy as a memory, show engine smoke twisting between the twiggy trees, makeshift boardwalks across the leaf-strewn ground and clusters of soldiers by the rails. At 5.15am the Germans signed the peace in the light of brass lamps in a teak-lined dining car. At 11am the guns fell silent along the 400km (250 mile) front, their thunder replaced by the pealing of church bells.

This peace ended a collective nightmare of hitherto unrivalled intensity and volume. The first world war was not just a grand tragedy. For the 67m who fought, it was a sordid hellscape. Few of the 10m killed in combat died from a “bullet, straight to the heart”, as pro forma telegrams to relatives put it. Many more bled to death in no-man’s land, their wails lingering for days like “moist fingers being dragged down an enormous windowpane”, as a British lieutenant wrote of the Battle of the Somme. Traumatized survivors sometimes slept in open sewers, and begged for their mothers as superiors ordered them over the top.

They guarded what slivers of humanity and dignity they could. At Compiègne today visitors can view silver rings from the trenches bearing initials (LV, MJ, SH or G) or four-leaf clovers; pipes with marks worn where teeth once clenched; a tube of insect-bite cream; letter-openers fashioned from shell casings, the names of yearned-for correspondents etched into their blades (“Marguerite”, “Mlle Rose-Marie”). A certain stoic humour also played its part. “I was hit. I looked round and saw that my leg had shot out and hit the fellow behind me (who got rather annoyed about [it])” wrote Charlemagne’s great-grandfather in his diary in 1915, just outside Ypres.

The memorial at Compiègne focuses on the leaders, the “switchmen of history” as Geert Mak, a Dutch historian, calls them. A replica carriage is the star artefact, name cards marking where the German and French delegates sat. Outside, a statue of Foch keeps vigil over the clearing. On November 10th Emmanuel Macron and Angela Merkel will visit the site. As they enter the

room where the carriage stands they will pass under a quote by Winston Churchill: “Those who do not learn from history are condemned to repeat it.”

Pondering the exhibits, that apophthegm seems at once true and yet hopelessly hubristic. The first world war happened because a generation of Victorian leaders took for granted the stable order that had prevailed in most of Europe for decades. They should have read their history books. Yet the war was also a tale of forces beyond the power of any leader, however well-read; of nations and continents not as trains on history’s railway lines, run by drivers and switchmen, but as rafts tossed about on history’s ocean, dipping at most an occasional oar into the waves. Fate was the real *grand homme* of the “Great War”. The assassination of Archduke Franz Ferdinand in 1914 would not have happened had his driver not taken a wrong turning in Sarajevo. The German army’s initial advance was halted at Nieuwpoort by a Belgian lock-keeper who flooded the surrounding marshlands. Political twists in Berlin, not crushing defeat on the battlefield, pushed Germany to sue for peace in 1918.

The raftsmen also lacked maps. Across the continent, the armistice was greeted with relief. Newspapers announced it with a retrospectively stomach-churning sense of finality. “The war is over” cried Londoners as ceremonial gunfire broke the news. The nightmare seemed to have passed, but it had not. The armistice and the peace treaties that followed in 1919 and 1920 reshaped the maps of Europe and the Middle East, and imposed vengeance on the defeated, seeding future conflicts. Millions returned from the front angry, traumatised, wounded, resentful or all four. *Gueules cassées* (broken faces) the French called them. One such, an Austrian-born lance-corporal, would take Germany to war again two decades later, and in 1940 would have the French sign their own surrender in the same railway carriage at Compiègne.

The power of nightmares

Memories are everywhere. Two plaques in Compiègne’s station list the 23 locals killed in the first world war and the 20 killed in the second. Engraved brass cobblestones glint from German streets marking the addresses where Holocaust victims once lived. Recollections live on in diaries or passed through families orally. The past summer’s hot weather exposed shells and bullets in dried-up rivers. Other artefacts remain hidden: the original French version of the Treaty of Versailles went missing and probably rests, forgotten, in some German attic or cellar. “Europe is a continent in which one can easily travel back and forth through time,” writes Mr Mak. The EU, forged from the rubble of the two wars, knits the continent together in the spirit of lessons learned: peace, fraternity, unity in diversity. The pedagogical value of the past is to today’s European establishment what the uninhibited pursuit of freedom is to the American one, a foundational story, an essence.

Long may that learning continue. Yet modesty is also due, about forces greater than the wits and power of even historically aware societies are able to contain. National chauvinisms live on despite the Somme. Anti-Semitism lives on despite the Holocaust. Societies’ capacity to imagine collapse and barbarism in visceral terms fades with time. All Europeans can do is be vigilant and humble before these forces, dip their oars into the waves of history when possible, hold tight to their humanity and be grateful that their continent’s past and present are now broadly in harmony, the former educating and civilising the latter, for now at least. Like train lines running together in a wood. ■



The House of Representatives

Long division

COLUMBUS, OHIO AND WASHINGTON, DC

With a strong showing in the suburbs, Democrats end unified Republican government and will provide a check on the president

TUCKED AWAY on a side street, in a strip mall between a barber and a couple of empty storefronts, Panadería Oaxaqueña, a modest bakery that smells of yeast and cinnamon, is a hub for Columbus's growing Latino population. For 20 years, the Cruz-Santos family has been baking *conchas*, *bolillos*, and *pan de yema*; some of their customers, says Alfa Cruz-Santos, the 22-year-old daughter of the owners, stop in twice a day, every day. But after the 2016 election, their customers began calling them to ask if they would deliver bread instead. "People were asking if it was safe to go out," says Ms Cruz-Santos. Over the course of those anxious conversations, the Cruz-Santos family began encouraging their customers, many of them first-generation Americans, to do something that they had not previously done: vote. Precise turnout figures will not be known for weeks, but the *New York Times* estimates that more than 114m people cast ballots—fewer than the 138m people who voted in the 2016 presidential elec-

tion, but well over the 83m who turned out for the last mid-terms, in 2014.

In some House districts, turnout approached presidential-year levels. The Democratic Party did especially well in swing districts. Twenty such places backed Barack Obama in 2012 and Donald Trump in 2016; the Democrats won 13 of these. Thirteen districts went from backing Mitt Romney, Mr Obama's opponent in 2012, to Hillary Clinton in 2016. The Democrats won ten. They flipped 17 of the 24 districts that

backed Mrs Clinton in 2016 but also voted for a Republican congressman. Most of these were in wealthy, suburban areas where Mr Trump has grown unpopular. Barbara Comstock, a two-term Republican representative in a suburban Virginia district abutting Washington, was thwacked by her Democratic challenger by 12 points.

Compared with the previous mid-terms in 2014, Democrats gained most votes in whiter areas that had backed Mr Trump—perhaps because they campaigned primarily on health care. They now hold three of Iowa's four congressional seats. Steve King, a white nationalist, fended off a tough challenge in the state's rural west. Depending on the outcome in Maine, where the introduction of ranked-choice voting makes results slow to count, Bruce Poliquin could wind up as the sole Republican congressman from New England.

Among the new entrants in January will be the first Muslim women to serve in Congress—Rashida Tlaib from Michigan and Ilhan Omar from Minnesota—and the first Native American women: Sharice Davids from Kansas and Deb Haaland from New Mexico. A majority of voters were women. At least 100 will serve in the next House of Representatives, exceeding the previous record of 84.

How will this change the way the federal government operates? Democrats are unlikely to obstruct everything. Nancy Pelosi, ►►

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who will probably return as Speaker, has expressed interest in co-operating with Mr Trump in three areas: infrastructure, reducing the price of prescription drugs and cleaning up Washington. "It was Candidate Trump's plan to address all three of these things, but he's failed to deliver on them," says Cheri Bustos, a congresswoman from Illinois who co-chairs the House Democratic Policy and Communications Committee, which refines the party's message.

Infrastructure seems the likeliest to come to something. The White House and Senate Democrats have already released competing infrastructure proposals. Mr Trump likes putting his name on big things, and his base is less doctrinaire about bridges than about birthright citizenship. Yet the scale of the Republican reversal in the House may make this approach harder. The Republican congressmen who lost were mainly moderates from swing districts who might have backed bipartisan legislation.

And though Mr Trump may have entered office as a dealmaker, as president he has shown little interest in working with the other side. He considers base-rallying more important. House Democrats could try to match him. They believe health care, more than any other issue, won them a majority. They might propose bills shoring up the Affordable Care Act, and challenge Mr Trump to block them. They could revive the DREAM Act, a broadly popular measure to protect illegal immigrants brought to America as children from deportation, again forcing Republicans to respond in a way that is unpopular with their base or a majority of the public. Legislation to protect voting rights or raise the federal minimum wage might be tempting.

But the real prize of a majority is controlling congressional committees and the investigatory and subpoena powers that go with it. Republicans have shown little interest in overseeing the administration. Democrats will launch a salvo of probes.

The House Ways and Means Committee will want to see the president's tax returns. Democrats hope this may shed light on aspects of the president's murky affairs relevant to national security. It might also reveal potentially embarrassing things—such as whether Mr Trump is as rich as he claims to be. If so, they would soon leak.

Three other committees will play a more conventional oversight role: the House oversight and government reform, judiciary, and intelligence committees. Elijah Cummings, prospective chairman of the oversight committee, says he wants to investigate weighty issues, such as the suppression of minority voting rights and high cost of prescription drugs. He will also look at scandal-plagued Trump officials, such as Ryan Zinke, secretary of the interior.

The judiciary committee's likely chair-

man, Jerry Nadler, a New Yorker who has crossed swords with Mr Trump over real-estate disputes, will also be assertive. He and fellow Democratic committee-members have shown an interest in probing controversial policies such as the separating of migrant families.

How hard Adam Schiff, next chairman of the intelligence committee, presses the administration on Russian election-hacking and the Trump campaign team's alleged co-operation with it, may depend on what happens to Robert Mueller. If the special counsel's grander investigation into Mr Trump's dealings with Russia is curtailed, as the president's decision on November 7th to force out his attorney-general, Jeff Sessions, suggests it could be, Mr Schiff will play a more important role. He might become the last hope that the truth of Mr Trump and Russia will emerge.

The election also revealed much about the state of politics. Far more voters cast ballots for Democrats than for Mr Trump's party. Yet Democrats saw a reversal in the Senate, and captured only a narrow majority in the House. Mr Trump rallied his troops by sowing fear of a few thousand bedraggled Central Americans hundreds of miles from America's border. That rally did not extend much beyond his existing supporters. But arguably it did not need to. The odds of the Republicans holding the Senate in 2020 have now shortened considerably.

"You can't win a country by being prejudiced," said Cassandra Thomas, voting at a Columbus precinct a few miles from Panadería Oaxaqueña. "You can't keep people down who helped build the country." That is one reading of the mid-term results. Another is that fear and loathing are powerful campaign tools. ■

The Senate

Where the wave breaks

COLUMBUS AND YOUNGSTOWN, OHIO

Republicans grow even stronger in rural states

SHERROD BROWN stood before a lectern in downtown Columbus, as gravelly-voiced and rumpled as ever, and celebrated. He had just handily dispatched his opponent, the perpetually befuddled Jim Renacci, to win a third term representing Ohio in the Senate. "You showed the country", he told the cheering crowd, "that progressives can win, and win decisively in the heartland...We carried a state that Donald Trump won by almost double digits."

Mr Brown's victory was one of the few clouds amid generally sunny news for Republicans in the upper chamber. On November 6th Republicans flipped at least three seats, expanding their Senate major-

ity and highlighting Democratic weaknesses in rural America.

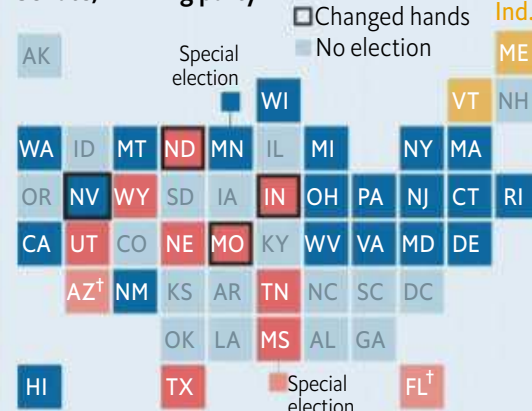
In their defence, Democrats faced a difficult map this year. They had to defend 24 seats, including ten in states that Mr Trump won. And their candidate in Texas, Beto O'Rourke, came closer to winning a Senate seat than any Democrat in decades. He waged a tireless, positive campaign that could become a model for Democrats running in Republican states. But he still lost, against a candidate many Texan Republicans regard as weak.

On January 3rd 2019 Senate Democrats will go to work in a chamber controlled, once again, by Mitch McConnell of Ken- ▶▶

How it went down

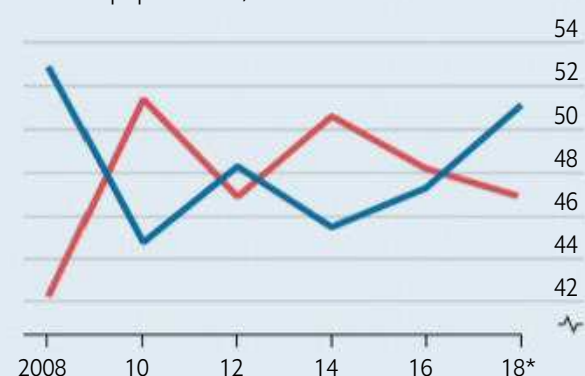
Mid-term elections results, 2018* Democrats Republicans

Senate, winning party



House of Representatives

Share of popular vote, %



Sources: Brookings Institution; Press reports

*At November 8th, 0900 GMT †Republicans lead

► tucky, in which they will hold a deficit of at least six seats. That will leave them unable to block Mr Trump's appointees. The president will also be able to continue, unimpeded, his transformation of the federal judiciary. He has already appointed more federal appellate judges than any other president in his first two years, as well as two Supreme Court judges. He may further transform the bench: two of the court's liberal justices are in their 80s. Republican gains in the Senate will insulate the party against losses in 2020, a presidential election year in which the map will be favourable to Democrats.

Some of the seats that Democrats lost were held by near-perfect candidates for those states. Heidi Heitkamp was so popular in North Dakota that her opponent, Kevin Cramer, admitted in his final campaign ad, "We all like Heidi." Claire McCaskill is a moderate pragmatist who won tough statewide races in 2006 and 2012. But during her 12 years in the Senate, Missouri grew steadily more Republican. So did Indiana, where Joe Donnelly, a rare pro-gun, anti-abortion Democrat, lost to Mike Braun, a hard-edged Trumpist who stoked fear of illegal immigrants in his campaign ads. The Republican candidate, Martha McSally, won a seat in Arizona that the Democrats thought was there for the taking. And in Florida, Rick Scott looks to have edged out the Democratic incumbent.

It was not all gloom and doom for Democrats. They flipped a seat in Nevada. Pennsylvania, which Mr Trump won, offered perhaps the purest contest of Trumpism versus a standard Democrat: Lou Barletta, an ur-Trump anti-immigration hardliner, faced off against Bob Casey, a competent but unremarkable incumbent Democrat. Mr Casey won easily. And Democrats showed renewed strength across the Midwest. Not only did they hold Ohio, but Minnesota and Wisconsin re-elected their Democratic senators, one of whom, Tammy Baldwin from Wisconsin, is as progressive as Mr Brown.

The difference between these states and Indiana, North Dakota and Missouri, where Republicans did even better than expected, may be the existence of strong traditions of organised labour. Mr Trump did anomalously well, for a Republican candidate, among union households. Strong showings from Senate candidates have left Democrats convinced they can win back some of these Trump voters in 2020.

Rocco DiGennaro, who heads the Labourers International Union Local 125 in Youngstown, Ohio, says that many of his members who voted for Mr Trump also voted for Mr Brown. "Everyone knows Sherrod Brown," he explains. "Everyone knows he's a fighter." But they supported Mr Trump in 2016 because they saw him as a fighter, too—and they could do so again. ■



Ballot initiatives

Referenda-rama

WASHINGTON, DC

When representative democracy flops, there is always the direct kind

"DEMOCRACY IS THE art of running the circus from the monkey cage," the American satirist H.L. Mencken once quipped. Usually this is done by delegating responsibility, but occasionally the frustrated monkeys decide matters for themselves. In this mid-term election, they opted for electoral reform, expanded medical programmes and once again reached for the marijuana.

Start with the election tweaking. In Michigan 61% of voters chose to end partisan gerrymandering. Instead—in a touching show of everyman populism—the lines will have to be approved by a 13-member commission of randomly selected voters. Citizens in Utah, Missouri and Colorado also decided to divest elected officials of the power to draw their own election lines—moves that will be hard to undo in the future. Michigan and Maryland also approved same-day registration for voters (rather than requiring it weeks ahead of time), which will remove one barrier to voting, and Nevada opted to register voters automatically when they turn 18. Conservative voters in Arkansas and North Carolina went in the other direction—approving ballot measures that would require photo identification before votes could be cast. Because actual incidents of voter imper-

sonation and fraud are so rare, Democrats see the laws as thinly-veiled attempts to suppress their voters.

Voting rights of a different sort were on the ballot in Florida. There, 65% of voters approved a ballot initiative automatically restoring voting rights for felons once they have served their sentences, provided they were not convicted of murder or sex crimes. Though Andrew Gillum, a progressive darling running for governor, narrowly fell short, the move could benefit Democratic candidates in future. Nearly 9% of Floridians and a remarkable 18% of black voters have been disenfranchised because of past felony convictions. Campaigners aiming to restore rights to "returning citizens" emphasised Christian ideals of redemption and the notion that punishment should not continue after a person had served his or her time. The message appears to have worked.

Perhaps the most astonishing ballot results came from the heart of Trump country, where three deeply conservative states, Idaho, Utah and Nebraska, all voted to expand Medicaid, the government health-insurance programme for the very poor. This was surprising because Medicaid expansion is a pillar of Obamacare, which is not the most highly regarded law in any of these states. A Supreme Court decision left the decision on expansion to the states, and half of Republican-governed states declined, leading to higher shares of residents without health insurance. In Idaho, where voters went for Donald Trump by 32 percentage points in 2016, voters overwhelmingly approved the measure. For Democrats, the success is a sign that health care, more than any other issue, wins votes in white, rural America.

For the second time in two years, citizens in Washington state rejected a tax on carbon dioxide emissions by a decisive margin. The measure would have been the first of its kind for a state (though nearby California may now take that up as a challenge). By 2023, the tax would have raised \$1bn annually. For that reason, it attracted the deep-pocketed opposition of the oil industry, which spent a record \$31m opposing the referendum. Even in boom economic times and in a fairly Democratic state, concerted opposition and the unpopularity of energy taxes make carbon taxation a tough sell.

Instead, voters opted to go green in another way: by decriminalising marijuana use in three states. That now makes 33 states where the stuff is legal to some degree, and ten where devotees can go the whole hog. Utah and Missouri approved the drug for medicinal use. Michiganders opted to go fully recreational. Which could result in some interesting map-making from the 13 regular Joes who will be drafted to scrutinise the state's election lines. ■

Governors' races

Waking up behind the wheel

CHICAGO

Democrats gain several governorships, perhaps shaping future elections

FUNKY MUSIC blared as balloons and silver ticker-tape tumbled over a ballroom of gyrating Democrats. J.B. Pritzker, Illinois's new governor, declined to strut as he greeted members of a noisy crowd. He had the air of a jovial, portly uncle presiding over a family gathering. Had his party outdone expectations? "We've had an excellent night," he said. "I'm happy."

He toppled an unpopular, one-term Republican governor, Bruce Rauner, thanks, in part, to dropping over \$170m of his own money on the race. That is a remarkable (and record) sum even for an heir to the Hyatt hotel fortune whose assets exceed \$3bn. Mr Pritzker's largesse helped Democrats reach beyond urban strongholds to commuter suburbs such as Naperville, an hour's drive from Chicago. Democrats won a super-majority in the Illinois legislature.

His efforts are emblematic of a wider, and belated, push by Democrats. For much of the past decade the party neglected races for state legislatures and governors' mansions (see charts). "We were asleep at the wheel," concedes an activist. In contrast, Republicans grasped the strategic importance of state legislatures, which in many places have the power to gerrymander. Republican candidates ground out state-level victories in Wisconsin, Ohio and Michigan that prefigured Republican national gains in such places in 2016.

The Democrats' neglect is over, judging by spending on state-level races this year. Local parties reportedly devoted over \$2.2bn to such races, not far off the \$2.4bn for congressional campaigns. Democrats won solid returns: seven new governor-

ships, for a total of 23 states.

That matters for three reasons. First, because governors shape policy. Some new ones will now roll out expanded Medicaid, adding to the 33 states that already took extra federal money under the Affordable Care Act (aka Obamacare). Tony Evers, who squeaked to victory in Wisconsin, Janet Mills in Maine, and Laura Kelly, who delivered a shock win in usually Republican Kansas, have all vowed to do so.

The effects of this will be far-reaching. Figures from the Kaiser Family Foundation suggest that in these three states, plus Idaho, Nebraska and Utah (where voters backed referendums on expanding health care) an extra 424,000 people will become eligible for insurance. If all were to sign up, the average (non-elderly) adult population without insurance would fall in those states to just 6.5%, from over 11% today. Democrat-run states are also likely to rethink prison policies and boost education spending, not least where new governors like Mr Evers, or Tim Walz in Minnesota, are ex-teachers.

Second, the governors' races point to which figures might prosper in future, national elections. Rich, moderate and female candidates did well for Democrats. In Colorado, Jared Polis became the first openly gay governor. Andrew Gillum, the African-American mayor of Tallahassee, ran a strong, left-leaning campaign in Florida focused on young, urban and minority voters. But he lost to Ron DeSantis, who called him a radical socialist. The Republican's crude comments, such as warning that his opponent would "monkey this up",

did not backfire. Many voters, in Florida at least, warm to a conservative.

Last, the new crop of governors will influence how future elections are run. In Georgia, Kansas, North Dakota and elsewhere, state governments were accused of trying to suppress minority votes. That should now be less likely, at least in Kansas. And after the census in 2020 state legislatures will draw up plans for redrawing congressional districts. Governors, who have veto powers, in theory could insist on fairer voting. More probably they will prove partisan, making Florida redder and Illinois more resolutely blue. ■

The rule of law

Magoo to a goose

WASHINGTON, DC

The president removes his attorney-general

BEFORE DONALD TRUMP became president, Democrats would have struggled to name a Republican they disliked more than Jeff Sessions. The then senator from Alabama is an ultra-restrictionist on immigration and opposes changes to sentencing that would lock fewer people up. As Mr Trump's attorney-general, he championed separating migrant children from their parents, among other terrible ideas. Yet his removal on November 7th, after the president demanded his resignation, has caused a rare spasm of bipartisan concern.

That is because Mr Sessions, despite his flaws, believes in the rule of law. He was also willing to defy Mr Trump to defend it. His decision to recuse himself from the Justice Department's probe into allegations of collusion between the Trump campaign and Russian election-hackers was forced upon him by his own lying about Russian contacts. But after Mr Trump turned on Mr Sessions, apparently in fear of the investigation under Robert Mueller that his recusal unleashed, he stood firm.

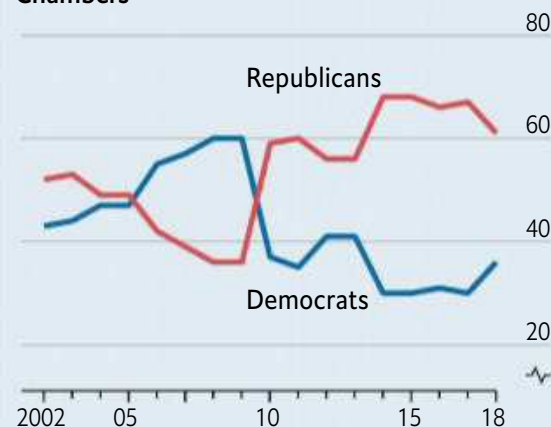
Mr Trump calls Mr Mueller's investigation, which has so far indicted or secured convictions against four members of his campaign team and 26 Russians, a "witch-hunt". He blames it on Mr Sessions, and often demanded he close it down. He also urged him to launch diversionary probes into his political rivals, including Hillary Clinton. Mr Sessions refused to be "improperly influenced by political considerations." That was more spine than other senior Republicans have shown Mr Trump.

The charitable view of his removal—the day after the mid-terms, apparently because Mr Trump feared it might have cost him votes—is that the president wanted a ►►

State of the states

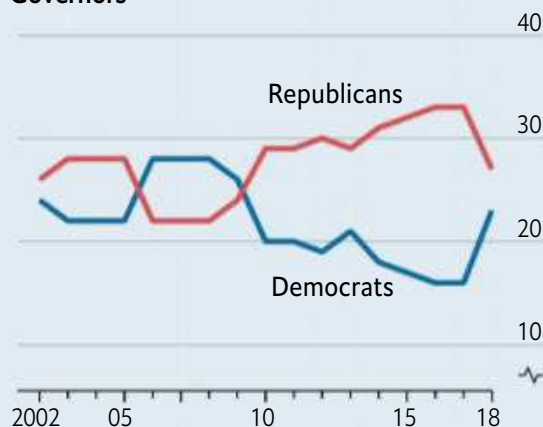
United States, party control of governorships and state legislative chambers post-2018 election

Chambers



Source: National Conference of State Legislatures

Governors





Sessions, rule-of-lawman

► more pliant attorney-general. He simply refuses to accept that, as the boss of law enforcement agencies such as the FBI that operate at a remove from the executive, the attorney-general is more than the president's legal fixer. His model for the job, according to a former Trump confidant, is Roy Cohn, the late mob lawyer who advised him in his early real-estate days. His appointee to replace Mr Sessions on an acting basis, Matt Whitaker, the former attorney-general's chief of staff, should please him.

He is a highly partisan Republican who has insisted that judges take a "biblical view of justice". His own view appears mainly to track Mr Trump's. Mr Whitaker has attacked the FBI for failing to indict Mrs Clinton. He has been a fierce public critic of Mr Mueller's investigation, which he seems to think is a "lynch mob". He has said, falsely, that the former FBI director has no mandate to investigate Mr Trump's business interests—something the president had described, with no authority, as a "red line". Mr Whitaker has also suggested the investigation could be killed by cutting its budget. He is now in charge of it.

A darker view of Mr Sessions' removal is that it is a means of bringing about what Mr Trump and Mr Whitaker both want, the end of the Mueller investigation. This would represent by far the biggest rule-of-law crisis of Mr Trump's presidency—perhaps since Watergate. A sitting president would have shut down a counter-espionage investigation into a hostile state's attack, because it threatened to implicate himself or his children. Would he get away with it?

The incoming Democratic leaders of the House of Representatives were swift to denounce Mr Sessions' removal. Nancy Pe-

THE UNSUNG hero of election night may have been a two-word website: polls.pizza. As the name suggests, it sends pizzas to polling places with long queues. On November 6th it dispatched 10,000 pizzas to 576 polling places in 43 states. And queues were indeed long. In New York people waited more than two hours; in metropolitan Atlanta the average voter waited around three. If the first reaction to such news is gratitude for the generosity of strangers, the second should be bafflement. Why, in one of the world's richest, oldest democracies, should it take that long to vote?

One reason, says Lawrence Norden, a voting-technology expert at the Brennan Centre at New York University Law School, is that most states are using voting machines at least a decade old. "These are computers," explains Mr Norden, "and after ten years, you should be looking to get new machines." Forty-three states are using machines so old that spare parts are no longer made.

Across the country, equipment malfunctioned. Scanners failed. Alarming, some electronic voting machines

changed people's votes. Precincts ran out of ballots and were unprepared for the relatively high turnout. In Phoenix one polling place was foreclosed on the night before the vote, leaving ballots and voting machines locked inside.

Some see a dark purpose behind the chaos. In Georgia the Republican nominee for governor was also secretary of state, charged with overseeing elections, in which capacity he faced multiple lawsuits and allegations of attempted voter suppression. On election night the longest queues were said to be in the part of the state friendliest to his opponent. Voter suppression need not entail, as it once did in the South, naked intimidation. Capricious enforcement of otherwise pointless rules leading up to a chaotic election day can do the trick, too.

Attempted voter suppression can also backfire. North Dakota passed a law requiring voters to present a street address, which many of the state's many Native Americans do not have. Critics said it was intended to keep them from the polls. On November 6th they turned out in record numbers.

Voting

Stand and eventually deliver

Some states are really bad at running elections



A ruff day

losi, the likely next Speaker, called it "another blatant attempt" by Mr Trump to end the Mueller probe. Democratic-led committees would investigate him if he did. But there is a limit to what they could do without fulsome backup from Republicans, and there is little sign of that.

Republican Senate leaders have refused to vote on a bill to protect Mr Mueller. Only a few expressed concern at Mr Sessions' re-

moval. Last year Senator Lindsey Graham of South Carolina, once known as a principled conservative, said there would be "holy hell to pay" if Mr Trump sacked his former Senate colleague. Shortly after he in effect did so, Mr Graham tweeted that he looked "forward to working with President [Trump] to find a confirmable, worthy successor so that we can start a new chapter at the Department of Justice." ■

Lexington | The artifice of immigration

Donald Trump sees immigration as a campaign issue, not a policy. Democrats should view it similarly



WHEN OPPOSING political parties both think they are winning, one of them is usually wrong. This is the quandary America finds itself in, after the Democrats won the House of Representatives in the suburbs, while the Republicans tightened their grip on the Senate in the sticks. It also describes the attitudes of both parties towards the most divisive issue of the Trump era: immigration. Whipped up by a frenzied nativist intervention by President Donald Trump, including a closing TV ad so racist that even Fox News would not air it, most Republicans ran on the issue in the mid-terms. Democrats mostly tried to ignore it. Who was right?

The picture, again, looks mixed. The most virulent nativists lost, including a trio of Trump wannabes, Lou Barletta and Corey Stewart, Senate candidates in Pennsylvania and Virginia, and Kris Kobach, the Republican running for governor in Kansas. So did prominent Democrats who took the opposite tack—including Andrew Gillum and Beto O'Rourke, liberal darlings in Florida and Texas, both of whom wanted to rearrange the Immigration and Customs Enforcement (ICE) agency. But all had tough races. The broader conclusion from the mid-terms is that, on immigration and otherwise, both parties turned out their voters, extending their territory a bit, without taking from the other. It is tempting to see this as a validation of both their immigration strategies.

Exit polls, which suggested about half of voters liked Mr Trump's immigration policies or wanted tougher ones, also support that. So do interviews with Democratic strategists. None thought Mr Trump's late onslaught, which also included dispatching a small army to defend America against a weary column of Honduran asylum-seekers, had hurt their party. Several noted that his immigration policies, including his putative border wall, caging of migrant children and threat to deport 800,000 immigrants, known as DREAMERS, who were brought to America illegally as children, are all unpopular. Such complacency, on the issue that fuelled Mr Trump's rise, on which Democrats remain most vulnerable to him and, for that matter, on which liberals are falling across the Western world, feels like a death-wish.

It ignores how asymmetrically the two parties are affected by partisanship, in which attitudes towards immigration, the most polarising issue, play a big part. The bumper representation given

to small states in the Senate means Democrats need to win more conservative places than Republicans need to win progressive ones. And they cannot win there on scrapping ICE. The harder line taken by Democratic senators running in such states illustrated that. In Indiana Joe Donnelly declared himself a fan of the wall; in Missouri Claire McCaskill said she liked the sound of "Operation Faithful Patriot", as Mr Trump's fatuous troop deployment was called. Yet both lost, because in the end voters reckoned they were Democrats—the party, according to Mr Trump, of open borders.

It is not possible to say this was the reason for their defeat. But it is likely, because of another sort of immigration-related asymmetry. Only a handful of voters understand the details of immigration policy. Why otherwise do voters in West Virginia, where immigrants are rarer than millionaires, worry about them so much? Rather, as that example suggests, the issue is a repository for broader anxieties and allegiances. Even conservatives who think Mr Trump's promised wall is nuts are keen on the sense of security, nationalism and contempt for liberal feelings it is meant to impart. Democratic opposition to Mr Trump's draconian measures, which conservatives hear as the bleating of a party weak on security and captured by Hispanic activists, makes them even more appealing. In the hands of a skilled opportunist like Mr Trump, immigration is scarcely a policy problem at all. It is a means to rally nativist sentiment to win power.

Republicans maintain that, to the contrary, it is the Democrats who have commandeered the issue for political purposes. They are right to a degree. As the Democrats have become more dependent on Hispanic voters, they have become much keener to discuss migrant rights than border enforcement. Hillary Clinton barely mentioned it in 2016. And the fact that few Democratic mid-term candidates would say how many Hondurans should be allowed, or denied, entry revealed the same failing. Yet the conspiracy theory this has fuelled on the right—that Democrats are trying to boost illegal immigration to swell their electorate—is a fantasy.

Recent Democratic administrations have built as much border fortification as Republican ones. Barack Obama, the symbol of his party's non-white coalition, deported more illegal immigrants than his predecessors. Last year Chuck Schumer, the Democratic leader in the Senate, offered to secure \$25bn for Mr Trump's border wall in return for protection for the DREAMERS. The Democrats' main error on immigration is not to have been too political about it, but the opposite. They have primarily viewed immigration as a policy problem, to be unpicked through bipartisan compromise. Mr Trump's response to Mr Schumer, which was to demand more draconian restrictions, including a cut in legal immigration and no more "shithole" Africans, should have disabused them of that. The president does not want a big bipartisan deal on immigration. He wants to keep it as a campaign issue.

Sandbagged by unreality

By ignoring immigration, the Democrats will let him have it—and when his name is on the ballot, in 2020, the onslaught will be fiercer. They need to redefine the issue, to draw some of its poison. That should start with a realisation that a party unwilling to speak of immigration as a security issue, as well as a humanitarian one, is unacceptable in much of America. A statement of zero tolerance for illegal immigration and a willingness to accelerate the processing of asylum claims could help relay that. Democrats need to take the politics of immigration more seriously. Mr Trump has sandbagged them with it once—and could easily do so again. ■

SEVEN THINGS WE CAN DO TO JUMPSTART AI

In 1956, a group of the world's leading scientists, mathematicians, and visionaries in computer science met to explore the potential of simulating human intelligence with machines. They had no idea what they were getting into.

The meeting turned into a two-month brainstorming session that led the group to create a new field of study called artificial intelligence.

For more than six decades, AI was confined to the classroom and the lab. Society's expectations of the technology consistently outstripped our engineering capacity, so while brilliant technologists produced a lot of great ideas, society couldn't turn them into practical applications.

Today, all of that has changed. After 60 years of nonstop development in the information and communications industry, we now have what it takes to make AI a practical reality. We just have to close a few gaps first.

INSPIRING GAPS

In a very short time, we have seen incredible progress in AI and its peripheral technologies. In 2017 alone, researchers published 20,000 papers on machine learning, while more than 1,100 new AI startups popped up around the globe.

That same year, the value of AI mergers and acquisitions reached US\$24 billion. Companies around the world began to recognize AI's potential to cut production costs, optimise processes, and automate routine tasks.

Yet while there is growing and widespread interest in AI, its real-world adoption remains lukewarm. Only 4% of enterprises have invested in or deployed AI; among retailers, only 2% have begun exploring its potential.

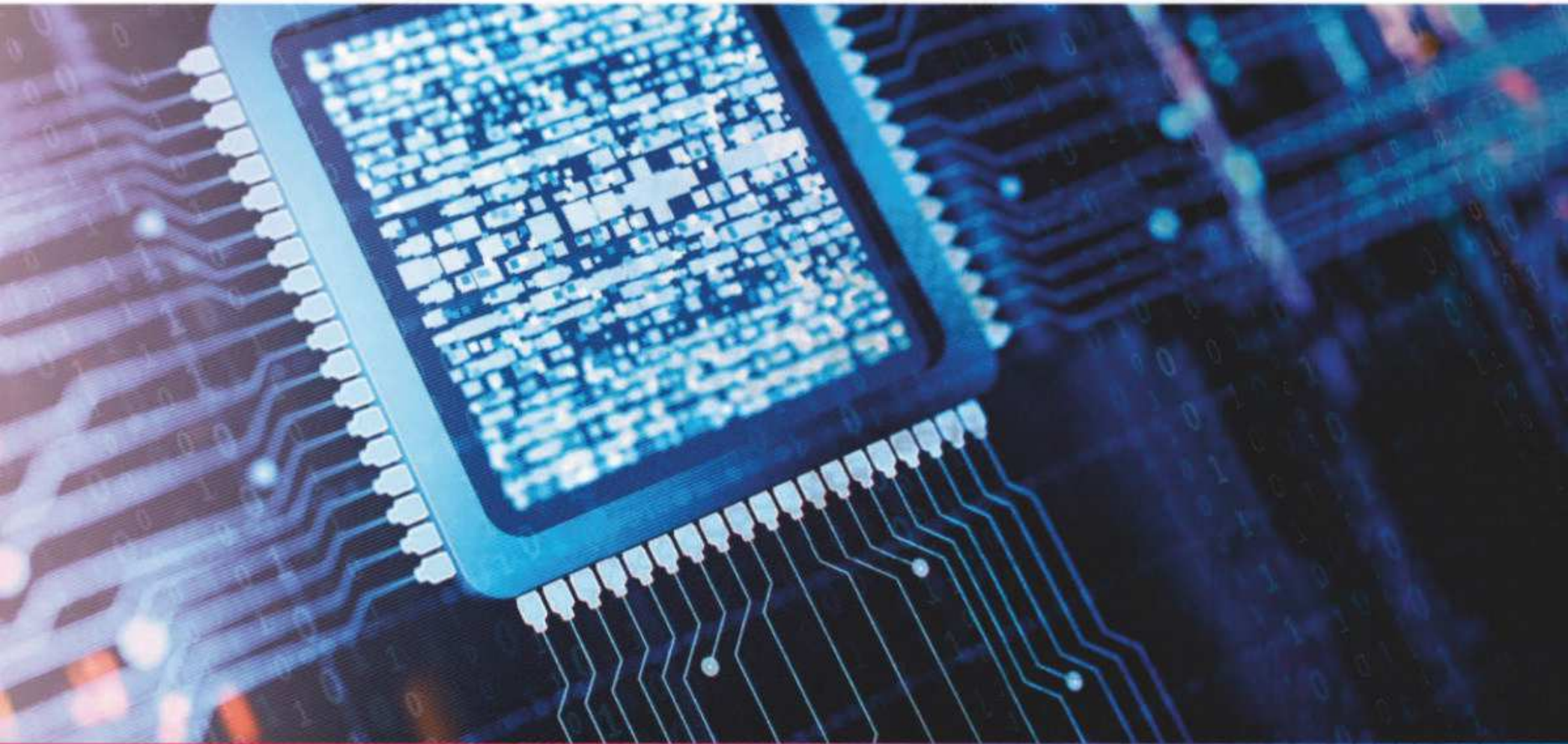
This makes sense: only about 1% of the existing workforce has the engineering skills and experience to meet demand for AI applications. That's a tiny drop in what needs to be a massive bucket of global talent.

But there are actions we can take – seven, in fact – to drive broader social and industrial adoption of AI.

ACTION ONE: SPEED UP MODEL TRAINING

Model training is the process we use to “teach” machine learning algorithms. Right now it takes days to train a new model, sometimes even months. A lot can go wrong during that time.

We need to speed this process up, shrinking it to minutes, if not seconds. Without faster cycles of training



and iteration, we won't see the cornucopia of cool and convenient AI applications we've all been promised – at least not in this century.

ACTION TWO: MAKE COMPUTING POWER CHEAPER AND MORE WIDELY AVAILABLE

AI needs Schwarzenegger-levels of computational muscle to handle the tons of data on which it feeds. Yet computing power remains costly and scarce.

Advanced AI systems like AlphaGo Zero, the latest iteration of DeepMind's renowned Go-playing software, need about US\$25 million of hardware in order to run. If we want our factories to be smart and our smartphones smarter, we need to lower the barriers to entry by reducing the cost of computing power.

ACTION THREE: EMBED AI CAPABILITIES IN EVERYTHING

Right now, AI is typically available through enterprise cloud services. We see very few AI installations in edge environments – the locations where devices meet the cloud.

If we want to derive practical, industrial value from AI, it needs to be pervasive and more thoroughly integrated into actual production environments. That will require AI hardware and software that are adaptable to all scenarios, right out of the box.

ACTION FOUR: UP OUR ALGORITHM GAME

Right now AI algorithms are expensive. Not only are they costly to develop, but they are neither data- nor energy-efficient. We must reach a point where we can deliver the same results

while using less data, computing power, and energy.

Many of the basic AI algorithms we use today were developed before the 1980s. Just like classic cars, these algorithms consume resources with abandon. Sooner or later, this inefficiency will hinder industry progress.

ACTION FIVE: AUTOMATE, AUTOMATE, AUTOMATE

We usually think of AI as the technology that helps us automate everything. But we also need to automate the process of developing and training AI systems. This includes data labelling, data collection, and model design.

At present these processes are far too labour-intensive, requiring loads of manual work from hard-to-find technical specialists. Hiring these folks is like paying top dollar for someone to clean your dishes before you run them through the dishwasher. It works, but there are better ways to get rid of baked-on spaghetti.

A BRIEF INTERLUDE: WHY DO WE WANT TO DO ALL THIS STUFF ANYWAY?

That's the \$23-trillion-dollar question – literally. According to Huawei's latest Global Connectivity Index, by using AI to boost connectivity and industrial processes, we can expect to see US\$23 trillion in new growth across all sectors of the economy by 2025.

Beyond the money, we will soon enter an intelligent world where everything and everyone is connected. All things will collect data to feed AI systems. As a society, we need to make sure that the benefits of all this machine-crunched

insight are available to as many people as possible.

That means building a more accessible, more inclusive AI ecosystem – which leads to our last two action points.

ACTION SIX: DESIGN AI TO REFLECT THE REAL WORLD

Most AI models and algorithms perform far better in tests than in real-world environments. It's exciting when we see solid numbers in the lab, but those numbers need to be translated into real-world applications.

Also, current AI models don't evolve with their work environments in real time. Instead, we update them with manual input at fixed intervals. Models need to keep up to evolve in real time, and to reflect the environments in which they're designed to operate.

ACTION SEVEN: MAKE AI PLAY NICE WITH ITS FRIENDS

To maximise the value of AI technologies across all sectors, we need to design them in a way that boosts the innate capabilities of other technologies, such as blockchain, the Internet of Things (IoT), and traditional manufacturing systems. Intelligent industry is a team sport.

AI systems need to play nice with people, too. At the moment, only highly skilled experts have the know-how to develop AI applications.

We need more mature, stable, and simplified platforms to enable broad-scale development. Think of one-stop,

drag-and-drop website design platforms like Wix and Squarespace, but for creating niche forms of intelligence.

ENABLING AN INTELLIGENT WORLD

These technical challenges, along with talent scarcity and a fledgling ecosystem, have inspired Huawei's approach to developing accessible and inclusive AI.

We are investing heavily in AI research, developing the capabilities for more efficient, secure, and automated machine learning solutions. We are also working closely with academia, industries, and partners to create a more open and productive AI ecosystem.

With our Ascend family of AI chips (announced in October), we will power a full range of AI scenarios. These will provide AI capabilities for public and private clouds, industrial IoT, consumer devices like smartphones and wearables, and the edge environments that bring everything together.

These chips are part of a full-stack portfolio that includes an automated development toolkit, a unified training framework, and a set of application enablement tools for developers around the globe. Our goal is give companies and developers the resources they need to develop AI applications for practically any situation imaginable.

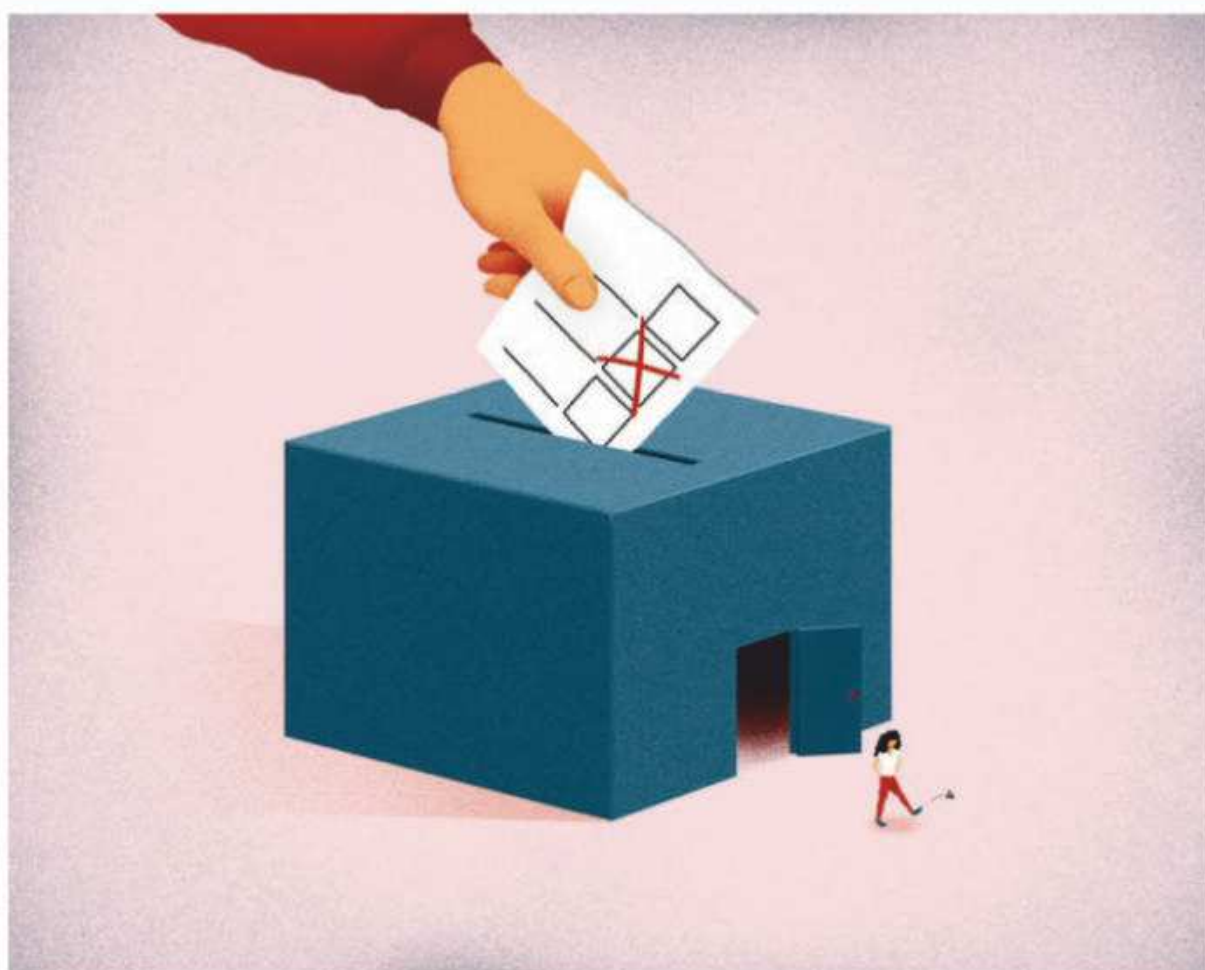
The future of AI is a shared future. Together, we can make it happen, and Huawei is rising to the challenge.



A beacon under the night sky in Australia

Exploration lights the way forward





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The Latinobarómetro survey

Dejected about democracy

Latin Americans are increasingly dissatisfied with politics in their countries. That is cause for worry

DEMOCRACY IN LATIN AMERICA is in trouble. That is the message of this year's survey of opinion in 18 countries by Latinobarómetro, a pollster based in Santiago, Chile. The proportion of people who are dissatisfied with how democracy works has jumped from 51% in 2009 to 71%. The share that is content has dropped from 44% to 24%, its lowest level since the survey began more than two decades ago (see chart 1 and chart 2 on next page).

That does not mean most Latin Americans are ready to dump democracy, which has become the norm across the region only since the 1980s. More than half say that it is better than any other system, though that has dropped by 13 percentage points over the past eight years. Disillusioned democrats lean towards indifference. The share who are neutral has risen from 16% in 2010 to 28%, while support for authoritarian government is steady, at about 15%. "People don't like the democracy they are experiencing," says Marta Lagos, the head of Latinobarómetro.

In Latin America's two biggest countries, Brazil and Mexico, that sentiment has resulted in the election of presidents this year who until recently would have been

widely considered too radical to lead their countries. If disillusionment deepens, future elections could bring presidents who test the region's democratic norms.

Since last November nine countries have either re-elected presidents or chosen new ones. Most of these elections were free and fair but there were notable exceptions. Venezuela's president, Nicolás Maduro, had his term in office extended in a rigged vote in May. Juan Orlando Hernández's re-

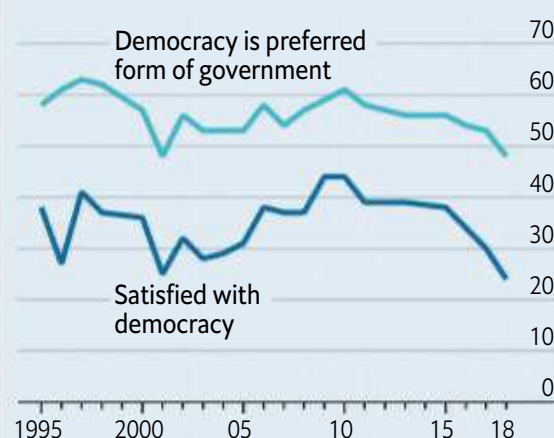
election in Honduras last November was widely seen as flawed. Cuba simply transferred power from one dictator to another in April. Most Latin Americans, though, live in countries where their votes are counted accurately. That does not mean they are happy, as Latinobarómetro's 20,000 interviews, conducted from mid-June to early August this year, make clear.

Voters have many reasons to grumble. Growth in GDP per person has dropped sharply since the global financial crisis in 2009. Venezuela's economy has imploded and Brazil's suffered its worst-ever recession from 2014 to 2016. The perception that income is distributed justly has plunged from 25% in 2013 to 16%. That belief may be wrong; the Gini coefficient, a measure of inequality, has been dropping in the biggest countries. But, at an individual level, a person's perception of inequality is among the strongest predictors of his or her dissatisfaction with democracy.

Economic worries are at the top of citizens' concerns in most countries. Only in Venezuela do more than half the people say they do not have enough to eat. The regional average, though, is a still startling 27%. Crime is the second main gripe, leading the list of worries even in some relatively safe countries, such as Chile and Uruguay. Corruption is another big complaint. Eighteen former presidents and vice-presidents have been implicated in corruption scandals, including in Argentina, Brazil, Ecuador and Peru. The share of Latin Americans who think their countries are going in the wrong direction exceeds the proportion who think they are progressing by eight ►►

Broken promise

Latin America, share of respondents agreeing, %



Source: Latinobarómetro

You can't always get what you want

Share of respondents agreeing, 2018, %



Source: Latinobarómetro

► points, the largest negative gap since 1995.

This has battered the credibility of institutions. Only the armed forces and the church, powerful institutions before the advent of mass democracy, retain much respect (see chart 3). Half of Latin Americans believe that all or almost all presidents and legislators are involved in corruption. The share of people who think the elites govern for their own benefit has risen steadily over the past decade; nowhere does it fall below 60%. Increasingly, voters are disengaged from politics. For the third year running, the number who say they will vote for no political party is bigger than the number who say they will vote for one.

Poor people are more alienated than the rich and middle class. People who are badly off lag behind prosperous folk by more than ten percentage points in their level of support for democracy. The young are

more sceptical than the old, which bodes ill for democracy's future. Some 200m Latin Americans with low levels of education, about 30% of the total, are the voters most prone to lash out at established politicians and parties, and to choose leaders who promise to solve problems with a "magic wand", writes Latinobarómetro in an analytical note accompanying the results. The survey, which has a margin of error of 3% per country, is published exclusively by *The Economist*.

In Brazil, where satisfaction with democracy is lowest among the 18 countries, disillusionment opened the way for Jair Bolsonaro, a former paratrooper who extols the dictatorship of 1964-85, to win the presidency last month. He had strong support from well-educated Brazilians.

In July Mexico elected Andrés Manuel López Obrador, a populist of the left whose Morena party fought its first election in 2015. No fan of dictatorship, he proposes to change the way democracy works by handing more decisions to voters through referendums. Ms Lagos worries that democracy in Argentina is vulnerable. Its economy is heading into recession and the share of people who call themselves middle class dropped by 14 points from 2013 to 2018, the biggest such decline in the region.

In countries whose leaders are dismantling democracy, citizens appreciate it more. Although just 12% of Venezuelans are happy with how their "democracy" functions, 75% prefer democracy to any other system. In Nicaragua, where the increasingly dictatorial regime of Daniel Ortega has been repressing protests since April, satisfaction with democracy plunged from 52% last year to 20%, but more than half of the people still support the system. Encouragingly, good governance also bolsters support for democracy. Prosperous Uruguay, Costa Rica and Chile, where the rule of law is relatively well established, are the countries most satisfied with how democracy works.

The best hope for shoring it up rests with leaders who do not claim to possess

magic wands. Several have recently taken office. They include Lenín Moreno in Ecuador and Martín Vizcarra in Peru, who have embarked on campaigns against corruption. Sebastián Piñera, Chile's centre-right president since March, is trying to reform the economy and social programmes. The centre-left president of Costa Rica, Carlos Alvarado, defeated a fundamentalist Christian and is trying to fix the tax system. Iván Duque, Colombia's conservative president, is just getting started. If they are successful, they will boost democracy's approval ratings as well as their own. ■

Messing with mezcal

The worm turns

EJUTLA, OAXACA

The world's fastest-growing spirit risks losing its mystique

ONE'S EYES are drawn to the agave plant towering over the man who grew it, Juan Pacheco, but the secret to its flavour is in the ground. For eight years the plant has absorbed minerals from the soil of Oaxaca, a mountainous state in southern Mexico. Mr Pacheco alternates agaves with maize to enhance the taste that the soil imparts to them. His father taught him how to make mezcal, the smoky spirit made from agaves, a type of succulent. Mr Pacheco's grandfather and great-grandfather were *mezcaleros*, too. But his children are thousands of miles away, studying medicine in the United States. Mezcal's growing global popularity helps him pay for that.

Such prosperity is new for practitioners of a painstaking craft. *Mezcaleros* toss mature agave hearts weighing 50kg (110 pounds) apiece into pits of fire, where they burn for days. A donkey then walks around in a circle, pulling a large stone wheel that crushes the burnt plant, readying it for fermentation, which takes ten days.

These artisanal techniques have brought glamour to a drink once sold in plastic bottles, sometimes containing a worm-like moth larva. Now bartenders from Los Angeles to Berlin expound on the terroir of the nine mezcal-producing states in Mexico and the subtleties of flavour that come from various types of agave. In 2017 some 5m litres of mezcal were sold in Mexico and abroad, a fivefold rise from 2011.

With popularity comes anxiety. In August the Mexican Institute of Industrial Property, a government body, expanded mezcal's "denomination of origin", the area in which makers of a product are allowed to give it a certain name, which was already the world's largest. It now includes ►►

In God they trust

Latin America

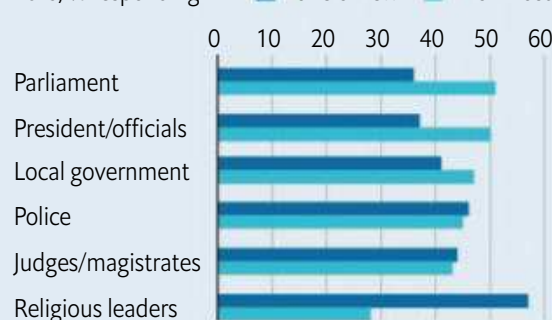
"How much confidence do you have in your country's institutions?", % responding "a lot" or "some"



Source: Latinobarómetro

"How many members of the following groups do you think are involved in acts of corruption?"

2018, % responding



▶ three more states: Morelos, Aguascalientes and the State of Mexico. Alejandro Murat, the governor of Oaxaca, where 87% of mezcal is made, joined protests by *mezcaleros* in Mexico City. His government says that “poor-quality” mezcal from “distant places, devoid of tradition” could sully the drink’s handcrafted image.

Connoisseurs fret about the “tequilisation” of mezcal. Mexico produces 50 times more tequila, a type of mezcal made only from blue agaves, than it does mezcal, which can use any kind of agave. In Jalisco, the source of 90% of tequila, mak-

ing the spirit is an industrial process. Drones hover above agave fields, checking which plants are ripe. Agave hearts roll on conveyor belts into electric ovens. Chemicals speed up fermentation.

The origins of this factory approach are in the mid-19th century, when a few rich families acquired vast estates in Jalisco, on which they grew agave. In Oaxaca, by contrast, land ownership is mainly communal and individuals work small plots. Today there are thought to be 57 makers of mezcal for every tequila distillery.

The mezcal boom is already changing

the production process. A third of the mezcal sold in Mexico is no longer deemed “artisanal” by the Mezcal Regulatory Council. The price of espadín agave, the most common source of mezcal, has quadrupled because of rising demand. Some makers have resorted to plucking wild agaves, which are not then replaced, from Oaxaca’s yellow hills. The growth of supply is slowing, even as demand for mezcal continues to increase. The squeeze will last for a while. Agaves planted today will ripen by the end of 2026. That may protect mezcal’s mystique for a little while longer. ■

Bello Battles in and out of court

Blurring the line between judges and politics

FROM THE viewpoint of Jair Bolsonaro, Brazil’s president-elect, it was an inspired appointment. On November 1st he announced that Sérgio Moro, the most prominent judge in the long-running corruption investigation known as Lava Jato (Car Wash), had agreed to serve as his justice and security minister. “His anti-corruption, anti-organised-crime agenda, as well as his respect for the constitution and the laws, will set our course,” Mr Bolsonaro tweeted. But there is a snag in Mr Moro’s appointment. It appears to confirm the claims of the left-wing Workers’ Party (PT) that the judge’s motive earlier this year for jailing its leader and putative presidential candidate, Luiz Inácio Lula da Silva, was more political than judicial.

Whether or not that is true, Mr Moro’s new job (which he will take up on January 1st) is only the most dramatic example of an increasingly activist judiciary playing a more political role in Latin America. In Peru on October 31st, Judge Richard Concepción sent Keiko Fujimori, the leader of the opposition, to jail for three years without charge while he investigates claims that she received \$1m for her presidential campaign in 2011 from Odebrecht, a Brazilian construction company. Her supporters say the judge is in cahoots with the government.

Many see such cases as an overdue clean-up of Latin American political life by newly emboldened judges and prosecutors. The powerful, be they politicians or businessmen, historically had little to fear from a biddable judiciary. Citizens now know much more about corruption and are much less tolerant of it. Anger at the PT and its attempt to game the political system through graft was a big factor in the unlikely victory of Mr Bolsonaro, a far-right former army captain. Tarred in

the minds of many Peruvians because her father ruled as an autocrat, Ms Fujimori has played a destructive role in the country’s politics, organising the censure by congress of competent ministers.

Yet there are risks. José Domingo Pérez, the prosecutor in Ms Fujimori’s case, claims that she headed a “criminal organisation” within Popular Force (FP), her party, which “laundered” the Odebrecht money by registering fake donations. If true, this was a breach of political financing rules. But was it a crime? There is no evidence that Ms Fujimori, who lost in 2011 and 2016, offered padded contracts to Odebrecht. Mr Pérez claimed that if free she might destroy evidence (though she had not done so previously).

When Miguel Torres, an FP congressman, complained that “they have taken away [Ms Fujimori’s] right to an impartial judge, due process and the presumption of innocence”, he had a point. Happiest about all this will be Alejandro Toledo, a former Peruvian president, who is accused of taking \$20m in bribes (which he denies). His lawyers have new arguments to resist

his extradition from the United States.

As for Mr Moro, some of his judicial acts now look questionable. Lula was leading the opinion polls when he was jailed. The sentence—of more than nine years for receiving a flat worth \$600,000—looked disproportionate. Days before the election, Mr Moro released plea-bargaining testimony from Antonio Palocci, a former PT minister, which incriminated the party. It now transpires that Mr Moro was already talking to Mr Bolsonaro’s people. All this undermines trust.

Mr Moro said his appointment “means consolidating the progress against crime and corruption of recent years and preventing risks of backsliding”. That is possible. He may also restrain Mr Bolsonaro in his policy of egging on police to shoot criminals.

But Mr Moro had insisted that he would never enter politics. How his breaking of that pledge comes to be viewed depends not just on how successful he is in his new role, but also on whether judges and prosecutors pursue wrongdoers in parties allied with the government as vigorously as he did Lula.

Whereas corruption remains largely unpunished in places like Mexico and Argentina, Brazil and Peru have gone furthest in investigating the sprawling Odebrecht scandal. There are some safeguards in both countries. Lula’s conviction was upheld by an appeal court (which increased his sentence), and his case will reach the supreme court. Peru’s constitutional tribunal this year freed Ollanta Humala, yet another former president, and his wife from what it said were “arbitrary detentions” without charge by Mr Concepción. Holding the powerful to account is a step forward, but justice must be seen to be fair.





The politics of urbanisation

Vexed in the city

HARARE AND KAMPALA

Africa's growing cities are inspiring protest and opposition parties

"FREE BOBI WINE!" say the graffiti outside his recording studio in Kamwokya, a poor district of Kampala, Uganda's capital. On August 13th the pop star-turned-politician (pictured above) was arrested and, he says, beaten and tortured by soldiers. Though he was released after two weeks, treason charges still hang over him.

His real crime is being popular. Born Robert Kyagulanyi, Mr Wine speaks for many of Kampala's roughly 1.5m slum dwellers. "If parliament cannot come to the ghetto," he said after his election as an MP, "the ghetto will come to the parliament."

Mr Wine is part of a broader trend in which upstart politicians with support among the urban poor are rattling governments. They include Kenya's main opposition leader, Raila Odinga, and Nelson Chamisa of Zimbabwe's Movement for Democratic Change (MDC). In South Africa Julius Malema of the Economic Freedom Fighters has been gaining ground by promising to seize white-owned land.

The past few years have also seen wide-

spread protests by city folk. Witness the "Black Friday" demonstrations in Lusaka (Zambia's capital) in 2013 and "Red Friday" marches in Accra (Ghana's) in 2014, or the post-election riots in Kenya last year.

The rise of urban discontent and young opposition leaders partly reflects a youth bulge. The median age in Africa is 19.5, whereas its leaders' average age is 62. It also arises from Africa's idiosyncratic urbanisation, whereby cities are growing fast but opportunities in them are not.

In 1960, 15% of Africans lived in cities, about the same as in Europe in the 1600s.

Today the share is 38%. By 2030 it will surpass 50%. Africa's urban population is expanding at a rate of 4% per year, twice the global average. Yet urbanisation is not bringing Africa the prosperity it brought to other continents. In Europe and East Asia the growth of cities was driven by migration from the countryside, as workers swapped fields for factories. African urbanisation is mostly a result of natural population growth. For example, in Maputo, Mozambique's capital, just 12% of the population rise is accounted for by migration from rural areas. Since there are few manufacturing jobs, most of the growing urban labour force is absorbed by the informal economy. That is one reason why urbanisation in Africa does not reduce poverty as much as it does in other continents.

Another reason is the woeful way cities are organised. More than 50% of urbanites live in slums. Fully 40% lack flushing toilets. Many capitals still rely on out-of-date planning laws, leading to haphazard building and needlessly expensive rent.

The neglect, paradoxically, is rooted in democracy. From the end of colonial rule until 1991 no incumbent government was replaced via a peaceful election. Policy-making had an "urban bias". Since the greatest threat to autocrats was a coup, and most coups started in cities, leaders tried to buy off urbanites. This meant, for example, favouring (urban) consumers of food over (rural) producers by keeping prices low. ►

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► Much changed as democracy flowered in the 1990s, and rulers switched to winning support in the populous countryside. In a study of 27 countries, Robin Harding of the University of Oxford found that the advent of democratic elections is associated with increased access to primary school and healthier children, but only in rural areas. Other studies show skewed spending on rural roads and on farm subsidies.

Urbanites have many reasons for being less likely than rural voters to back those in power. They have better access to news and can be organised more easily by activists. Using polls taken in 28 countries Mr Harding has found that city dwellers are on average five percentage points more likely to oppose the government than rural voters are. This is true even after controlling for age, gender, education and whether voters share the ethnicity of the country's leader.

Politicians mindful of urban unhappiness perhaps stand a better chance of success. Mr Wine's music evokes slum life. In one song he protests against the heavy-handed arrest of street traders. In another he sings about *kikomando*, a humble snack of chapati and beans eaten by the poor. He slips naturally into Luyaaye, a street slang. By contrast, Yoweri Museveni, the 74-year-old Ugandan president who won just 31% of the vote in Kampala in 2016, sprinkles his speech with rustic idioms. Young urbanites call him "Bosco", after a character in an advert, a country bumpkin who comes to the city and stumbles down escalators with his bicycle.

Such politicians hope to emulate Michael Sata, perhaps the most successful African populist. Sata, who was Zambia's president from 2011 until his death in 2014, coupled an appeal to his ethnic Bemba group in the countryside with a pro-poor message in cities. During electioneering he spoke in the vernacular. He launched campaigns from informal markets, not plush hotels. One of the first things he did in office was to order town clerks to stop harassing street vendors.

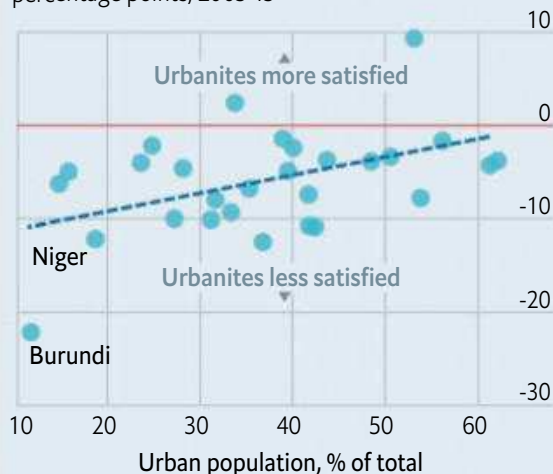
Elsewhere vendors have been less lucky. Some of the most violent incidents have taken place in Zimbabwe, where thousands of street traders in MDC strongholds have been arrested in operations co-ordinated by the ruling party, Zanu-PF.

Incumbents are also trying more subtle ways to quell urban unrest. In Mozambique cities run by opposition parties are starved of public funds. In Botswana the ruling party has appointed extra unelected councillors to cities where the opposition has polled well. In Uganda Mr Museveni has transferred many powers from the opposition-led city council to his appointees.

Yet at some point the size of the urban voting bloc will become too big to ignore. In countries where more than half the people live in cities, urbanites are only a little

Slickers in a twist

Likelihood that urban residents are more satisfied with democracy than rural residents
Sub-Saharan Africa, selected countries,
percentage points, 2005-15



Source: "Rural democracy: Elections and development in Africa", by Robin Harding

less satisfied with democracy than rural voters are (see chart), suggesting that politicians do eventually take more notice of city dwellers' interests. But for now, in countries such as Uganda, where three-quarters of people still live in rural areas, politicians will make mainly half-hearted attempts to please those in cities.

In October Mr Museveni toured downtown Kampala, promising to shower traders' associations with cash. Mechanics at Kisekka market, an unruly hub for spare parts, waved dutifully. "He's the best president in the world," gushed one man in a ruling-party T-shirt. Then he leaned closer, whispering: "Actually we hate Museveni. We love Bobi Wine." ■

Repression in Tanzania

The big squeeze

DAR ES SALAAM

Under John Magufuli fear is enveloping the country

PAUL MAKONDA seems a lot more like a flailing moral crusader than the regional commissioner of Dar es Salaam, Tanzania's commercial capital. The 36-year-old has come up with a variety of schemes to catch the eye of his patron, President John Magufuli. One is clamping down on supposed vices such as smoking shisha and sleeping in past 8am. His latest pledge, to set up a homophobic "surveillance squad" to track down those guilty of homosexuality, which is illegal, is by far his nastiest.

It has also alarmed the West. On November 5th, the EU recalled its ambassador, citing a deterioration in human rights and the rule of law. The rot began soon after Mr Magufuli was elected in 2015 and has re-

cently worsened. Today Tanzania is on the descent from patchy democracy towards slapdash dictatorship.

Barely a week passes without brazen displays of arbitrary power. On November 1st Mr Magufuli appeared at what was billed as a "public debate" on his record after three years in office. It was no such thing. The president sat on a stately chair in the audience at the University of Dar es Salaam while sycophantic academics praised his tenure. Conveniently for Mr Magufuli, an opposition MP, Zitto Kabwe Ruyagwa, was arrested the night before and charged with sedition, so could not attend.

Other foes have met similar fates. Opposition members of parliament who refuse to accept bribes (the going rate is 60m shillings, or \$26,200) to cross the aisle and join Chama Cha Mapinduzi (CCM), the ruling party, are arrested. According to a lawyer who has represented opponents of the regime, every opposition MP who has rejected a bung has a charge against them. Last year Tundu Lissu, an MP, was shot and injured outside his home. This makes people scared to hold the president to account.

So too does legislation that outlaws the dissemination of any "statistical information" that may "invalidate, distort, or discredit official statistics". The change follows the publication of an annual survey into political attitudes by Twaweza, a local research group. In 2016 it found that 96% of Tanzanians approved of Mr Magufuli. In 2017 the share was 71%; in July it was 55%. That is a poor showing in a country where CCM has never lost an election. Aidan Eya-kuze, the group's director, has yet to get back his passport, which was confiscated days after publication of the survey.

Another reason for the law concerns economic data. Tanzania's GDP grew on average by about 6.5% per year over the past decade. But under Mr Magufuli the private sector has been subject to relentless shake-downs by tax collectors. Several prominent businessmen have been arrested on trumped-up charges of money-laundering, which is ineligible for bail. Though the government insists the economy is still expanding at its former pace, other economic data, such as slowing credit growth and rising bad debts, suggest otherwise.

Some worry that a slowing economy may lead to further repression and obfuscation of data, causing yet more economic harm. Though the EU has raised an alarm, other international institutions, such as the World Bank, are staying quiet. Tanzania, the third-largest aid recipient in sub-Saharan Africa, has been a darling of donors since the 1990s, when it seemed to be consolidating its democracy and also reducing poverty. Now, after a decade or so during which freedoms began to flourish, Tanzanians are facing both economic hardship and repression. ■

Elections in Madagascar

Many candidates,
little choice

MORONDAVA

Voters hoping for a fresh start may be sorely disappointed

IF THE HEALTH of a democracy were measured only by the number of candidates contesting a presidential election, Madagascar's would be flourishing: a total of 36 were on the island state's ballot on November 7th. Yet politics in Madagascar, beset by corruption, is far from healthy. Voters hoping for a change from the old elite may be sorely disappointed by the outcome of a race that has been completely dominated by two former presidents.

The most visible contender is Andry Rajoelina, who led a coup in 2009 and ruled until 2014. Morondava, a big city in south-west Madagascar, is a sea of posters and T-shirts emblazoned with Mr Rajoelina's face and sporting his signature bright orange colours. Lorries blaring out his campaign messages are ubiquitous.

Even with such a well-funded campaign, Mr Rajoelina faces stiff competition from Marc Ravalomanana, the president he overthrew in 2009 and who is fondly remembered for a tenure marked by eco-

**Ravalomanana, a safe pair of hands?**

nomie growth and investment. The years that followed the coup, by contrast, were catastrophic: the economy dived and poverty shot up. About three-quarters of the population live on less than \$1.90 a day.

The results of the first round will not be announced until later this month. But Messrs Rajoelina and Ravalomanana seem likely to face each other in a run-off on December 19th. Hery Rajaonarimampianina, the incumbent, does not worry them. He

lacks the popular appeal of his rivals and has been criticised for failing to revive the economy since he took elected office in 2014. Almost all the other candidates, nicknamed *les zéros virgule*, or "nought point", after the results they are likely to get, ran with no prospect of winning. They hoped instead to negotiate plum positions in the next administration.

The outcome of the second round is harder to predict. Mr Rajoelina, who is 44 and once worked as a disc jockey, is popular with the young and with women. "I'm going to vote for Rajoelina because he is handsome, cute and young," says an enthusiastic female voter. But many urbanites deride his madcap schemes, complete with glossy artists' impressions, to rebuild the country. One proposes making Tamatave, the second-largest city, a new "Miami".

Mr Ravalomanana may lack some of the appeal of his main rival, not to mention his lavish campaign budget, but he is seen as a safer pair of hands. One voter from Tsima-fana, a village north of Morondava plagued by cattle rustlers and illegal deforestation, says he will vote for "Dada" (Mr Ravalomanana's affectionate nickname) because the country felt safer during his term in office.

Yet few will feel safe until the run-off is over and the count is done. Madagascar has rarely enjoyed a smooth political transition. Many of its people fear that trouble is once again around the corner. ■

Needling Africans

La Clinique Chinoise

DAKAR

Chinese medicine is on the rise in Africa

IN A HOUSE in central Dakar three Chinese men stand behind a glass screen. The wall is stacked high with pills, teas and powders covered with Chinese symbols and pictures of healthy models. There is something for everyone. Teas for kidney problems, creams for aches, pills for infertility and four claiming to help men with impotence.

"It's a revolution," proclaims Aliou Ndiaye, who started working at the Chinese medicine shop three years ago. It now has four branches in Dakar. Senegal's capital also has several smaller outlets and practitioners. "Many people are curious but I'm still sceptical," says Ibrahim Sy, a taxi driver, who says his mother was cured of leg pain with tea.

Senegal's experience is part of a wider trend of traditional Chinese health centres opening across Africa. Clusters can be found in Nairobi and Dar es Salaam. Others have opened in Uganda, Ivory Coast and Congo.

Their spread underlines China's

growing soft power in Africa. In 2000 when China held its first-ever Forum on China-Africa Co-operation, a summit held every three years, traditional remedies were on the agenda. Two years later it hosted a conference in Beijing to discuss the topic. Many of China's 48 Confucius Institutes in Africa teach courses in traditional medicine.

Moreover, as many as 50,000 young Africans are studying in China, many on scholarships provided by the host government. Although only a small share are at medical school, many students return with a taste for acupuncture and herbs. Demand is also buoyed by China's large diaspora in Africa, which some reckon has grown to 1m people.

One practitioner, Mame Awa Diop, studied traditional medicine in China before the Confucius Institute in Dakar asked her to set up a clinic. Business started slowly, she says. But outside her room several people sit in an orderly queue. "Oh, they're coming," she says.

Libya's peace process

Too many cooks

CAIRO

Italy's conference on Libya is mostly about France

FOR ONCE Italy's populist government will be pleased to see a group of Africans cross the Mediterranean. On November 12th the leaders of Libya's warring factions will gather in Palermo, the capital of Sicily, for a two-day peace conference.

Italy has an interest in bringing order to its former colony. Libya is an important source of fossil fuels. Its Greenstream pipeline carries gas from western Libya to Sicily. Less welcome are the 647,000 migrants who are thought to have crossed the Mediterranean to Italy since 2014. Most set off from Libya. Their numbers have recently plummeted—just 22,000 arrived in the first ten months of this year, an 80% drop from last year. But they still rile Matteo Salvini, Italy's de facto leader.

Mr Salvini will have his work cut out. The situation in Libya is bleak, with the country split between rival militias and UN-led peace talks bogged down. One of ►►

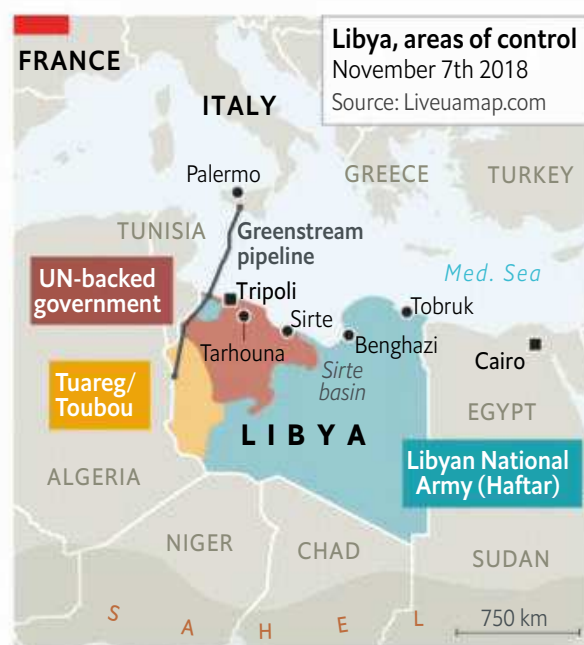
► the dignitaries in Palermo will be Fayez al-Serraj, head of the UN-backed government. Despite his lofty title, in practice he is little more than the mayor of Tripoli, the capital, which he controls only with the help of allied militias. One of them, from the nearby town of Tarhouna, attacked Tripoli in August over an economic dispute. More than 100 people were killed before the UN negotiated a ceasefire.

Things are little better in the east, ruled by a general-turned-warlord called Khalifa Haftar. Islamist militants still carry out car-bombings and assassinations, while General Haftar undermines state institutions in Tripoli. He controls the strip of coast near Sirte, where Libya's main oil terminals are located (see map). They are meant to be operated by the Tripoli-based National Oil Corporation. In June, however, the general's men seized them and announced that revenues would be sent to a rival oil corporation in the east. They withdrew only after America threatened to impose sanctions. In the south, meanwhile, ethnic Tuareg and Toubou militias are battling for control, and criminal gangs from neighbouring Chad prey on civilians.

So, to put it mildly, things in Libya are not conducive to a peace conference—but Italy is more concerned with the situation in France. Both countries are jockeying for influence. Italy's interests lie in western Libya, where both the gas pipeline and the migrant boats enter the Mediterranean. It sees Mr Serraj as an ally and has reportedly paid western warlords to stop migrant boats from setting sail. France is happier to work with General Haftar, whom it sees as more likely to stabilise the country. The French army has deployed thousands of its troops to fight jihadists in five former colonies in the adjacent Sahel region.

In May France's president, Emmanuel Macron, hosted the Libyan rivals for his own summit. They agreed to hold elections by December 10th. That deadline was always delusional—even ignoring the violence, Libya lacks an electoral law. It also undermined the UN envoy, Ghassan Salamé, who wants Libyans to hold a national conference and draft a new constitution before holding elections.

Both Italy and France have commercial motives as well. Libyan oil is cheap to extract and easy to export to Europe. Eni and Total, the Italian and French energy giants, have long competed to produce it. Eni is the largest foreign producer in Libya, but Total is starting to catch up. In March it acquired a 16% stake in the Waha concession in the Sirte basin. If the deal goes through, it could produce 400,000 barrels per day in two or three years. Eni's CEO, Claudio Descalzi, says he welcomes the "healthy" competition. "[Libya] benefits from this," he says. The Italian government is less sanguine. It resents French involvement in a



country that it sees as in its sphere of influence. Italian politicians accuse Mr Macron of helping General Haftar for Total's sake.

Other foreign powers are pushing their interests in Libya, too. Egypt and the United Arab Emirates have given military support to General Haftar, whom they view as an ally in their fight against political Islam. Russia, eager to expand its influence, has hosted the general in Moscow, treating him like a head of state. Now Mr Macron and Mr Salvini are using Libya as part of their own competition for leadership in Europe. The UN-led process has been agonisingly slow. But it remains the closest thing Libya has to a way forward. ■



Serraj and Haftar do Paris

Tunisia

Radical film-making

TUNIS

A cinematic look at jihadism

TUNISIA IS PERHAPS best known as the lone Arab-spring success story, a democracy in a region full of autocrats. But it is also one of the world's biggest exporters of jihadists. Some 6,000 Tunisians are thought to have joined Islamic State at its height. Hundreds of these men are now coming home.

"I wanted to look at the emotional consequences of that," says Meryam Joobeur, the director of a short film called "Brotherhood". She is not alone. This year's Carthage Film Festival, which runs from November 3rd to November 10th in Tunis, features several Tunisian films that tackle radicalisation. In "Brotherhood", a young Tunisian man returns from Syria to his parents' farm with a fully veiled Syrian wife. His mother is happy to see him, but his father is suspicious. After a few days he reports his son to the police (though he later regrets his decision).

The Tunisian government's policy is to arrest returning jihadists immediately. "There is no rehabilitation at all," says Messaoud Romdhani of the Tunisian Forum for Economic and Social Rights, an NGO. More than 1,500 Tunisians have been jailed on terrorism charges, according to his group. "Prison is a very good place to become more radicalised," he says.

But so is the neighbourhood. Another film, "Fatwa", follows a father's efforts to figure out how his recently deceased son fell in with radical Islamists. He discovers that the area of Tunis where his son lived has been transformed by Salafism, a puritanical version of Islam. The old imam, a devotee of Sufi mysticism, has been replaced by a more conservative preacher; the cinema has closed. "It's the type of conversation we've been having in private for years," says Zakia Hamda, an activist and filmgoer from Tunis. "Our traditional values were snatched away by fundamentalists. It was traumatic."

On October 29th a woman, who may have been radicalised online, blew herself up not far from cinemas taking part in the festival. That did not scare away audiences. At a screening of "Fatwa" cheers rang out when the father pinned an extremist against the wall. "We work for Allah to promote virtue and eliminate vice," says the radical. "Go get yourself a job and Allah will look after himself," says the father.



Politics in Bangladesh

Eddy or current?

DHAKA

The ruling party appears to be easing up ahead of an impending election

LIKE THE great, restless rivers that snake across Bangladesh, the country's democracy seems to change shape with every season. Its people have voted in ten national elections since independence in 1971, but on each occasion the political landscape has looked radically different. There have been times of single-party dominance, of army rule, of fiery protest and boycott, and also times when, after millions of voters have peacefully cast their ballots, parties have politely alternated in power.

One constant, since the 1990s, has been the bitter rivalry between two powerful women, Sheikh Hasina Wajed, the leader of the Awami League and current prime minister, and Khaleda Zia, a two-time former prime minister and head of the Bangladesh Nationalist Party (BNP), who is now in prison. Another constant is that when the electoral game has appeared to be fair, voter turnout has been strong. When it has looked tilted, voters have stayed at home.

Only weeks ago it seemed a safe bet that the 11th election to the 350-seat parliament, which is due to be held some time in the next three months, would be of the low-turnout, low-credibility sort. The Awami

League, which came in on a landslide in 2008 but has grown fat and bossy after so long in power, seemed determined to secure a third consecutive five-year term by hook or by crook. All of a sudden, however, the mood has changed. The country's 165m people might just get a competitive—although certainly not fair—election.

Changing tide

October brought not one, but two big surprises. In mid-month the BNP, which had appeared to be on the ropes, dropped its long-standing alliance with far-right Islamists and instead joined a coalition of smaller, secular parties to form a broad opposition group. Known as the Jatiya Oikya Front, its figurehead is 82-year-old Kamal Hossain, a widely respected constitutional lawyer. More surprising still was that the increasingly authoritarian Awami League, which has relentlessly hounded the BNP, turned suddenly sweet. The police (who, like the country's army and courts, are beholden to the government) took a pause from arresting BNP activists by the vanload, and instead granted permission for Oikya rallies, even in the capital, Dhaka. As

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Awami League thugs stopped ripping down every rival election poster, Sheikh Hasina herself invited the new front's leaders for talks, promising to consider their demands for guaranteeing fair elections.

With both big parties scrambling to lure smaller players, and the contest shaping into a rivalry between big coalitions, two rounds of these talks have been held, the most recent on November 7th. Although signalling graciousness, Sheikh Hasina shows little inclination to meet Oikya's demands. These include ending the trials and imprisonment of her political opponents, among them Ms Zia (pictured), who was jailed in February and is serving a ten-year sentence on charges of embezzling from an orphanage; dissolving parliament and forming a neutral caretaker government during the election period; and ensuring security for and oversight of the voting.

The Awami League has suggested that it may consider releasing prisoners and that it intends to shrink its own government to an election-period skeleton administration. But it says it will not bend the constitution to suit opposition demands—despite the fact that, from 1996 until 2011, when the Awami League itself changed the rules, the constitution required caretaker governments to oversee elections.

The Oikya Front has hinted that it may call for street protests if there is no accommodation, yet it is clearly also hesitant to provoke a clampdown or declare a boycott. The BNP still has a strong grass-roots following, and by all accounts the relentless persecution of recent months has stirred a ►►

► surge of sympathy for it. Moreover, aggressive tactics backfired on it in the election of 2014 when, angered by the Awami League's rule changes, it first sponsored violent street protests, then boycotted the polls.

The experience of being excluded from parliament has been a bitter one for Ms Zia and her followers. Their absence allowed the Awami League not just to extend tentacles of influence throughout the state and to threaten the business interests of wealthy BNP loyalists, but also to clobber the BNP rank and file. By the BNP's count, the Awami League has instigated no fewer

than 90,000 lawsuits against it, entangling some 2.5m party workers in endless litigation. During the month of September alone, the party reckons that more than 4,500 of its members were arrested on trumped-up charges. Ms Zia herself is fighting 34 separate cases; her son Tarique, the party's acting chairman, lives in exile in London. He is sentenced to life imprisonment at home.

But for all Sheikh Hasina's polite talk, the Awami League may be less inclined to compromise than the BNP. Like the BNP leader, who is the widow of a murdered for-

mer president, the Awami League's boss is a survivor of tragedy. Her father, Sheikh Mujibur Rahman, who led the country to independence from Pakistan, was murdered along with most of his family in 1975. In power, Sheikh Hasina has appeared increasingly vindictive not just towards political rivals, but towards a growing range of perceived enemies. "She has lost her moral compass," whispers a middle-aged writer in a noisy café, reflecting fears felt broadly across Bangladeshi society.

Four decades after Bangladesh's liberation war, the Awami League pushed ►

Banyan Part-time spine

Is the Pakistani state capable of standing up to blackmail?

WHEN A PANEL of three judges on Pakistan's Supreme Court overturned a poor Christian woman's conviction for blasphemy, which carries a mandatory death sentence, it was, as one commentator, Zahid Hussain, put it, as if they had at last broken the country's "ring of fear". Nine years ago in the fields, Asia Bibi, a mother of five, had taken a sip of water before passing the jug on to fellow (Muslim) fruit-pickers. They said they could not share a drinking vessel with an "unclean" Christian, and demanded she convert to Islam. She refused, and soon a mob was accusing her of insulting the Prophet Muhammad.

Pakistan's main blasphemy law is breathtakingly sweeping. Anyone who defiles Muhammad's name, even if "by imputation, innuendo or insinuation", faces death. Since its introduction in 1986, several hundred people have been charged, with a disproportionate number either non-Muslims or Ahmadis, a persecuted sect who revere both Muhammad and a 19th-century prophet—something many other Muslims consider abominable. No one has yet been executed. But more than 50 people accused of blasphemy have been murdered. Two politicians were assassinated just for speaking up for Ms Asia. One of them, Salman Taseer, the governor of Punjab province, was shot by his bodyguard.

So the judges' decision was brave. The charges against Ms Asia, they said, were "concoction incarnate". The reaction of hard-core Islamists, meanwhile, was predictable. Muhammad Afzal Qadri, a founder of Tehreek-e-Labbaik Pakistan (TLP), a fast-expanding political party formed in response to the hanging of Mr Taseer's bodyguard, called for the three judges to be killed. Supporters poured onto the streets, bringing cities to a halt

with blockades of burning tyres and shutting down the motorway between Islamabad, the capital, and Lahore, the country's second-biggest city.

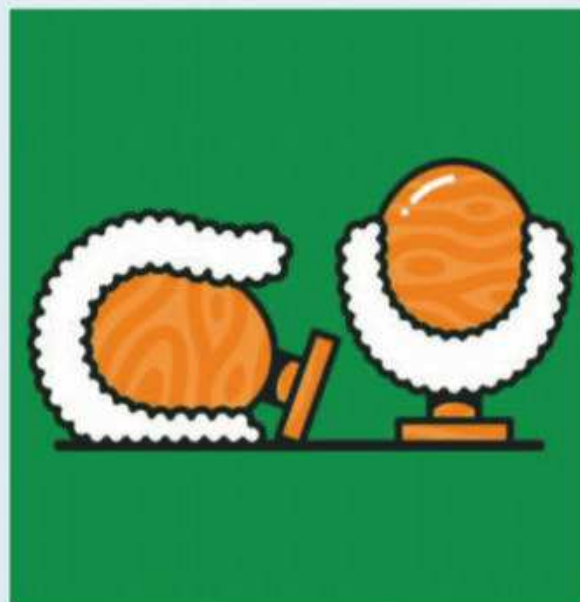
It was enough for Ms Asia's defence lawyer to flee the country. Yet the judges' courage, for one gripping moment, was backed up in an unlikely quarter—by the prime minister himself. Campaigning before the election in July that brought him to power, Imran Khan and his party, Pakistan Tehreek-e-Insaf, had voiced support for the blasphemy laws. Yet on state television, Mr Khan, while on a begging trip to China, warned the protesters that "the government will not stand aside and see property and livelihoods being destroyed. Do not force us to take action." It was assumed that Mr Khan, whose rise to power came with the army's support, had the generals' backing to take on groups that hold the country hostage.

Alas, the resolve seemed to disappear almost as soon as it was broadcast. To get the TLP off the streets, the government promised to put Ms Asia on the list of people forbidden to leave the country

while a review of the judges' ruling takes place. It said arrested TLP agitators would be freed. And it conspicuously refused to criticise Mr Qadri and his toxic fellow-leader, Khadim Hussain Rizvi, a preacher. Ms Asia, meanwhile, remained in prison. As well as the judges' murder, the TLP has called for the army to mutiny. Yet for the umpteenth time, the state was appeasing extremists, supposedly in the name of avoiding bloodshed.

The capitulation won not just Mr Khan but the army, under General Qamar Javed Bajwa, a barrage of brickbats. The failure to prevent mayhem made them look weak. Back in 2014 the army at last turned on armed extremists whom it had once fostered as a useful tool foreign-policy tool, after a horrific attack by the Pakistani Taliban on an army school. But the army has been reluctant to confront the (unarmed) TLP. Its roots are in the Barelvi movement of Islam, which the generals cultivate as a counterbalance to the even more doctrinaire Deobandis of the Pakistani Taliban. Besides, General Bajwa is on the defensive after Mr Qadri accused him of being a closet Ahmadi.

Apparently stung by the criticism, the authorities may now be acting. As *The Economist* went to press, Ms Asia had been freed. Her whereabouts are unknown, although the government insisted she was still in the country. Meanwhile, the authorities warned the TLP's leaders that they would be put under house arrest if they called out the mob. For now, Mullah Rizvi has merely said he will "consult" his followers on what next. Most Pakistanis are fed up with zealots blocking roads and burning cars. Even an inexperienced government appears to realise this. If the state is at last finding some backbone, it will be a triumph of hope over experience.



► through constitutional changes allowing for the trial and execution of old men who had fought against Sheikh Hasina's father. Since May police have been licensed to shoot suspected drug dealers on sight. The tally of extra-judicial killings so far stands at 264. When students in Dhaka protested in August against lawless driving, the party sent club-wielding thugs to quell them. When a prominent photojournalist documented the attacks live on Facebook he was dragged from his house by an anti-terror squad. Now in prison, he was derided by Sheikh Hasina in an interview as "mentally sick". Besides, she noted, his great-uncle had been a pro-Pakistan minister. "Sometimes blood speaks, you understand that," she said, as if in explanation.

But the Awami League does not have to rely on ruthlessness. Under its rule the economy has enjoyed unprecedented growth. Last year GDP expanded by 7.3%, faster than India or Pakistan. Opinion polls show broad satisfaction with the government. A decade of assiduous pampering of police and army officers has bought loyalty, and put paid to fears of coups. The country's most powerful neighbour, India, tends to support the Awami League. And despite her 71 years Sheikh Hasina is clearly capable of change: ignoring her party's staunchly secular roots, she has lately outflanked the BNP by winning over the Hefajat-e-Islam, an organisation of arch-conservative clerics. Will these advantages persuade her to let democracy run its natural course, or will she instead keep trying to tame the current? ■

Automation in Japan

Human endurance

TOKYO

A country obsessed with robots is also oddly resistant to them

HOTEL RECEPTIONISTS are rarely this intimidating. Yellow eyes glare as the room number is snarled through razor-sharp teeth. The mechanical T-Rex behind the counter is one of nine types of robot whirring and clicking through the building, from the silicon fish that swim around a tank in the lobby to the egg-shaped concierge that controls the lights and heating in each of the 100 rooms. There is not a human in sight.

Machines already do much of the dangerous and repetitive work in Japanese factories, which have one of the highest densities of industrial robots in the world: 303 per 10,000 employees. As the population declines, Japan's vast service industry will also automate, predicts Hiroshi Ishiguro, a



Jurassic clerk

roboticist at Osaka University. Robots will look after the elderly, teach children and read the evening news. Television anchors resemble androids anyway, he jokes.

Yet the future has been slow to arrive. Japanese hotels and banks are, by global standards, heavily overstaffed despite the country's demographic crunch. Most supermarkets have not embraced the automated checkouts common elsewhere, nor airlines self-service check-ins. The offices of Japan's small and medium-sized enterprises are among the most inefficient in the developed world, chides McKinsey, a management consultancy.

Japan has an elaborate service culture, which machines struggle to replicate. Japanese customers, especially the elderly, strongly prefer people to machines, says Yoko Takeda of Mitsubishi Research Institute, a think-tank. Employment practices make it difficult to replace workers. And while gimmicky robots abound, Japan struggles to develop the software and artificial intelligence needed to enable them to perform useful tasks, says a report by the Ministry of Economy, Trade and Industry (METI), the cockpit of Japan's post-war miracle. So while the reception at the robot hotel is automated, seven human employees lurk out of sight to watch over customers and avoid glitches. Robots still cannot make beds, cook breakfast or deal with a drunken guest who will not pay his bill.

Ever fretful about declining competitiveness, METI is calling for ideas for robots to help run "department stores, beauty salons, hotels and restaurants." There is some urgency. At 2.3%, the unemployment rate is at its lowest since 1993; in some industries there are seven vacant jobs for every applicant. Shinzo Abe, the prime minister, wants to admit 500,000 guest workers by 2025. But it is a hard sell. Conservative newspapers rail against the prospect of a Chinese immigrant on every street; a recent TV show about police hunting down il-

legal immigrants was a hit.

The shortage of workers, local and foreign, may at last force companies to automate, says Ken Ogata, president of Koureisha, a dispatch company whose employees are all over 60. Insurance firms have begun replacing clerks with software. A driverless taxi service is planned for Tokyo in time for the Olympics in 2020. Last year Japan's three biggest banks announced that they will close hundreds of branches and eliminate 32,000 jobs in the coming decade. A report published in 2015 by Nomura Research Institute, another think-tank, says half of Japan's workers could be replaced by robots within 20 years. The most vulnerable professions, it says, are those dominated by systematic, repetitive tasks, such as train drivers and security guards.

By 2030, as robots and AI eliminate such jobs, Ms Takeda forecasts, Japan will have a surplus of lowlier workers. She still believes immigrants will be needed, but only in certain skilled professions. Hotel receptionists, a colleague predicts, will have gone the way of the dinosaur. ■

China and New Zealand

Party to party

Hints that the Chinese government is meddling in politics cause a stir

"WE ARE FREE from political interference," protests New Zealand's prime minister, Jacinda Ardern. A scandal in the National Party, the main opposition, suggests otherwise. Last month an embittered National MP, Jami-Lee Ross, accused the party's leader, Simon Bridges, of breaking campaign-finance laws. He claims Mr Bridges deliberately disguised a donation of NZ\$100,000 (\$67,000) orchestrated by a businessman with links to the Chinese government. In a phone conversation that Mr Ross taped of him and Mr Bridges discussing the donation, neither makes any explicit reference to concealment. Mr Bridges calls Mr Ross's allegations "baseless". But whether the law was broken or not, the saga has stoked concerns about Chinese meddling.

Zhang Yikun, the man behind the donation, is a resident of New Zealand, but has held positions in several official Chinese organisations, according to Chen Weijian, a dissident journalist from China who also lives in New Zealand. Mr Ross's recording suggests the money was divided into smaller parcels, which meant it did not have to be declared. (Donations of less than NZ\$15,000 can be kept anonymous, pro- ►

vided the benefactor lives in the country.) But on the call Mr Ross also presented the donation as an amalgam of smaller gifts from associates of Mr Zhang. Police are investigating whether the donation was properly disclosed. Mr Ross, meanwhile, has been expelled from his party. Whatever the outcome, the row suggests munificence can win influence. In the call, Mr Ross and Mr Bridges discuss whether the party should respond by adding a business associate of Mr Zhang's to the list of MPs appointed by the party under New Zealand's system of proportional representation.

This is not the first controversy surrounding Chinese interference. Last year it emerged that another conservative politician, Jian Yang, had worked for 15 years in Chinese military academies and been a member of the Communist Party before emigrating to New Zealand. He did not disclose this on his residency application, but denies being a spy and remains a member of parliament. China-born MPs belonging to the governing Labour Party and the right-wing ACT have also been linked to organisations peddling China's agenda.

It is impossible to work out how many donations come with Chinese strings attached, because so many are made anonymously. Simon Chapple of Victoria University of Wellington calculates that the National Party received handouts worth NZ\$4.5m in 2017. Three-quarters came from unnamed sources. At a fundraising auction in 2016 for Labour's Phil Goff, now the mayor of Auckland, New Zealand's biggest city, an anonymous bidder in China paid NZ\$150,000 for a book written and signed by Xi Jinping, China's president.

Several former politicians have taken jobs with Chinese firms. The Chinese government keeps tabs on Chinese students at local universities and has co-opted most Chinese-language media. Last year Anne-Marie Brady of the University of Canterbury alleged that a Chinese-owned dairy had been used to launch a scientific device that could help China develop long-range missiles. A report published recently by Canada's intelligence agency complains that New Zealand is a "soft underbelly" through which China might gain access to intelligence shared by America, Australia, Britain and Canada.

In Australia, similar scandals have prompted the passage of new laws aimed at crimping foreign influence. The Greens, part of New Zealand's ruling coalition, want to lower the threshold for anonymous donations to NZ\$1,000 and outlaw gifts from foreigners. A petition calling for an inquiry on foreign influence has been lodged in parliament. Publicly, Ms Ardern maintains that New Zealand's laws are fine as they are. But her government does seem to be considering how to respond—without jeopardising trade with China. ■

Human rights in Uzbekistan

Boll and chain

A reforming government tries to end forced labour in the cotton fields

IN SOME WAYS, there is nothing surprising about the videos that have been doing the rounds on social media in Uzbekistan. In one, farmers and local officials in a district near Tashkent, the capital, were made to stand in a watery ditch, heads bowed, to show contrition for failing to irrigate wheat fields properly. In another, officials were made to heave heavy clods of clay into the air repeatedly as punishment for allowing such impediments to farming to accumulate on land they are in charge of. Such ritual humiliation is rife in Uzbekistan, where nearly three decades of dictatorship under Islam Karimov, the strongman who died in 2016, bred a culture of bullying and subservience.

What was unusual was the government's response to these abuses. Shavkat Mirziyoyev, Mr Karimov's reforming successor, fired Zoyir Mirzayev, the deputy prime minister responsible for both incidents. Upholding the rule of law and protecting human rights are Mr Mirziyoyev's priorities, his office huffed, as a criminal investigation was opened.

Under Mr Karimov, netizens would have faced reprisals for discussing such a sensitive topic. But in the current, more forgiving climate they rushed to post photos of themselves in soggy locations striking the same poses the farmers were forced to adopt—at the beach, in the bath and so on. A wag quipped that the sacked official would soon get another job, as coach of the national synchronised-swimming team.

The scandal broke at an awkward time for Mr Mirziyoyev, who wants to shed Uzbekistan's pariah status. Central to his "Uzbek spring" is a campaign to eliminate forced labour. Under Mr Karimov the government required many adults (and some children) to help harvest cotton. The state enjoys a monopoly over the crop, which is so lucrative that Uzbeks dub it "white gold". But some big Western retailers are boycotting cotton from Uzbekistan because of the government's taste for slave labour.

The authorities do seem to have succeeded in stamping out child labour. As a result, America has removed Uzbekistan from a blacklist it keeps on the subject. Last year the government recalled students, teachers, doctors and nurses from the cotton fields. This year it hopes to go further. Wages paid to pickers have risen by a third or more to encourage voluntary workers to replace forced labourers.

The government has invited both the International Labour Organisation and local activists—who used to be arrested for documenting misdeeds in the cotton fields—to monitor the harvest, alongside 300 of its inspectors. It has also set up telephone hotlines and social-media channels for reporting abuses. These have received 1,700 complaints; 120 punishments, from fines to dismissal, have been meted out.

Some observers argue that it will be impossible to root out coercion without abolishing the state's monopoly on cotton and doing away with production quotas on which officials are judged. All parties agree that forced labour will not disappear overnight. Last year some 336,000 of the 2.6m people involved in the harvest, in a country of 33m, were involuntary workers, the ILO estimates. Mr Mirziyoyev is clearly hoping to reduce that number this year. But if things do not improve, he will presumably resist the urge to punish those responsible by forcing them to stand in a ditch. ■



Cotton shift



The demography of Vietnam

Destitute dotage

HANOI

The country is ill-prepared to look after its rapidly greying population

AS DAWN BREAKS in Hanoi the botanical gardens start to fill up. Hundreds of old people come every morning to exercise before the tropical heat makes sport unbearable. Groups of fitness enthusiasts proliferate. Elderly ladies in floral silks do tai chi in a courtyard. In the shade of a tall tree, dozens of ballroom dancers sway to samba music. Others work up a sweat on an outdoor exercise-machine. Tho, an 83-year-old with a neat white moustache, says he comes to walk round the lake every day, rain or shine.

In the next few decades the gardens will become busier still. Vietnam has a median age of only 26. But it is greying fast. Over-60s make up 12% of the population, a share that is forecast to jump to 21% by 2040, one of the quickest increases in the world (see chart). That is partly because life expectancy has increased from 60 years in 1970 to 76 today, thanks to rising incomes. Growing prosperity has also helped bring down the fertility rate in the same period from about seven children per woman to less than two. In the 1980s the ruling Communist Party started to enforce a one-child policy. Though less strict than China's, it has hastened the decline.

Demography is changing in similar ways in many Asian countries. But in Vietnam it is happening while the country is still poor. When the share of the population of working age climbed to its highest in South Korea and Japan, annual GDP per person (in real terms, adjusted for purchasing power) stood at \$32,585 and \$31,718 re-

spectively. Even China managed to reach \$9,526. In Vietnam, which hit the same peak in 2013, incomes averaged a mere \$5,024. Indonesia and the Philippines are expected to reach the turning-point in the next few decades, with an income level several times higher than Vietnam's.

This shift brings headaches. First, will the government be able to support millions more Vietnamese in old age? Only the extremely poor and people over 80 (together around 30% of the elderly) get a state pension, which can be as little as a few dollars a week. The most recent survey of the old, in 2011, found that 90% of them had no savings worth the name. Debt was common. Supporting them will become ever more expensive. The IMF predicts that pension costs, at the present rate, could raise gov-

ernment spending as a share of GDP by eight percentage points by 2050. That is faster than in any of the other 12 Asian countries it examined.

The problem is worse in the countryside, where most old folk live. Previously the young cared for their parents in old age. Today they tend to abandon village life to seek their fortune in the city. Surveys suggest that the share of old people living alone is rising, especially in villages. Many work until they die. Around 40% of rural men are still toiling at 75, twice the rate of city-dwellers. In Britain that figure is 3%. Often they do gruelling manual jobs, such as rice farming or fishing.

Providing health care for millions more old people is another worry. Alzheimer's, heart disease and age-related disability are growing. In the botanical garden Toau, a 78-year-old in a white sports T-shirt, says he is there on doctor's orders, before taking a pill for his bad heart and joining an exercise group. About a third of over-60s do not have health insurance, which is costly. Many provinces still have no proper geriatric departments in hospitals. Informal health-insurance groups have popped up to fill the gaps. For a fee, members get exercise classes and free check-ups. But few doctors are trained or equipped to treat more serious conditions.

The government is starting to implement policies to reduce the fiscal burden and improve the lot of the elderly. Last year it relaxed the one-child policy. In May it said it would increase the retirement age from 55 to 60 for men and 60 to 62 for women, and reform the pension scheme to provide wider coverage. Next year it plans to begin revamping the health-insurance and social-assistance systems.

But none of that will change the structure of the economy. Usually as countries climb the income ladder they shift from farming to more productive sectors, like services. By this yardstick, Vietnam is lagging behind its neighbours. When the working-age population peaked in 2013, agriculture accounted for 18% of the economy. At the same juncture in China, agriculture was just 10% of GDP. Worse, farmers' output tends to decline with age, unlike, say, that of managers. This over-reliance on agriculture partly explains why three-quarters of Vietnam's workers are in jobs where they become less productive as they get older. In Malaysia that is the case for only about half the labour force.

Boosting productivity will be tricky. The government is still wedded to statism. State-owned enterprises dominate many industries. Most university students, meanwhile, waste at least a year learning Marxist and Leninist theory. Many countries in Asia are ageing fast. But growing old before it becomes rich makes Vietnam's problems all the greater. ■

Old before its time

Old-age dependency ratio, forecast
People over 64 per 100 people aged 15-64



Source: UN Population Division



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Ideology

Mind-boggling

BEIJING

The Communist Party is trying to explain Xi Jinping Thought

THE INSTITUTE of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era occupies several rooms in the Marxism department of Renmin University in north Beijing. Qin Xuan, the institute's director, says it is one of ten similar centres for the study of the philosophy that is attributed to China's president. The institute has only a small administrative staff but about 70 affiliated academics. It produces research, offers advice to policymakers and organises seminars.

Mr Qin says that part of his team's job is to explain Xi Thought to journalists, foreign diplomats and Chinese youngsters. In October he and researchers at other such institutes, all founded in the past year, appeared as judges and commentators on a youth-targeted game-show called "Studying the New Era". It involved students who stood on the bridge of a starship and answered questions, posed by an animated robot, about Mr Xi's speeches and biography. The show was part of an unusually lively series of programmes about ideology called "Socialism is Kind of Cool", produced by a provincial television station.

A year has passed since Mr Xi, at a five-yearly Communist Party congress, declared that China had entered a "new era"

and outlined how the party should manage this. The congress gave its rubber-stamp approval and revised the party's charter to enshrine Mr Xi's thinking on the topic as one of its guiding ideologies (he and Mao are the only ones named in the document as having Thought with a capital T—a mere Theory is ascribed to Deng Xiaoping).

Since Mr Xi took power six years ago, his aim has been fairly clear: to boost the party's control over China's fast-changing society while enhancing the country's influence globally. But his Thought is woolly: a hodgepodge of Dengist and Maoist terminology combined with mostly vague ideas on topics ranging from the environment (making China "beautiful") to building a "world-class" army.

Cartographic contortions

Xi Thought is now being "hammered home harder" than any set of ideas since Deng launched his "reform and opening" policy nearly 40 years ago, says Kerry Brown of King's College, London. Most universities have incorporated lectures on the topic into the basic-level ideology courses which all Chinese students are required to take. Some have created additional elective courses for undergraduates. This academic

year high schools have been supplied with new materials to help them teach it, too.

The indoctrination effort extends well beyond academia. In May the party's propaganda department published a 355-page, 30-chapter book which it said provided an "in-depth" understanding of Xi Thought. It said every party cell must study the work. Last month the party's mouthpiece, the *People's Daily*, published on social media a labyrinthine mind-map based on the book (see next page). It is so packed with ideas and quotations that much image-expanding effort, as users complained, is required to make it legible. The map's complexity conveys the ordeal that those trying to master the Thought are facing.

To help them, some big firms have set up Xi Thought "study rooms". So too have libraries and community centres. In July *Global Times*, a tabloid owned by the *People's Daily*, crowed that the Thought was being "studied in all corners of society, from local governments to media outlets, from university students to street cleaners".

One purpose appears to be to enhance Mr Xi's stature as a leader comparable in power to Mao. Deng Theory is less often mentioned these days. Last month Mr Xi made his first publicised trip in six years to Guangdong, the southern province where many of Deng's reforms first took hold. During his tour Mr Xi did not even mention the architect of those reforms—a striking omission given that next month China will mark the 40th anniversary of their launch.

In April *Qian Xian*, a party journal, said there had been continual debate over the meaning of "socialism with Chinese characteristics", the concept at the heart of ►►

► **Deng Theory.** In an apparent dig at a weakness of the Theory, the article said “some people” thought the phrase was another way of saying “capitalism with Chinese characteristics”. This, it said, had created “theoretical chaos”. Mr Xi stresses that socialism with Chinese characteristics is in fact about “socialism and not any other kind of -ism” (point two, subsection three on the mind-map).

Deep understanding is not required. The party has a long history of requiring people to mouth leaders’ slogans as a way of showing loyalty. Research on Xi Thought is mostly banal. Kevin Carrico of Macquarie University in Australia studied the Thought through a distance-learning course run by Tsinghua, one of China’s best universities. He wrote in *Foreign Policy* that the video lectures repeated platitudes that would be “familiar to anyone who has spent time in Beijing in the last 40 years”. They offered, he said, “an unprecedented opportunity to observe the poverty of China’s state-enforced ideology”.

Xi Thought is formally described as a summary of the “collective wisdom” of the party, and to some degree it is. In addition to borrowing from his predecessors, it is likely that Mr Xi relied heavily on the work of Wang Huning, a former academic who has played an important behind-the-scenes role in devising party-think since early this century, including Mr Xi’s notion of a “Chinese dream” (number three on the mind-map, with numerous subordinate points). Last year Mr Wang joined the seven-member Politburo Standing Committee, the pinnacle of party power.

Yet promoting Mr Xi as China’s thinker-in-chief could put him at risk. The more he



A slogan, but it's the thought that counts

is linked to China’s “new era” the harder it will be for him to deflect criticism for anything that goes wrong. A speech late last month by Deng Pufang, one of Deng’s sons, gave a hint of dissent within the elite. In it Mr Deng appeared to criticise Mr Xi’s assertive foreign policy. China, he said, should “keep a sober mind and know our own place”. That idea is not on the map. ■

.....
For a high-resolution image of this map, see economist.com/xismind

number of students taking courses in it at Instituto Português do Oriente, a Macau-based cultural centre backed by the Portuguese government, was around 5,000 last year, more than double the figure in 2012. Many are officials who want to “reach the top” of Macau’s government, says Joaquim Ramos, the centre’s director. In its economic plan for 2016-20, Macau’s government pledged to “give priority to guaranteeing employment” for “talented people who are bilingual in Chinese and Portuguese”. It promised to boost subsidies for those studying Portuguese at university.

At present most civil servants can speak good English, but few have even passable Portuguese. That is partly because Portuguese was never a compulsory subject in most schools. So why the growth of interest in it? The answer lies in China’s burgeoning trade with the Lusophone world, about three-quarters of which is with Brazil. In 2003 the central government founded an organisation called Forum Macau to boost such commerce. Every three or four years government ministers from member countries gather in the eponymous city, which like nearby Hong Kong—a former British colony—is now a “special administrative region” of China. Last year China traded goods worth \$118bn with the forum’s foreign participants (eight of them, since the African state of São Tomé and Príncipe joined in 2017, having severed its ties with Taiwan). This amount was still relatively small—only 3% of China’s total trade in goods. But it was nearly 30% higher than in the previous year.

A young native of Macau who prefers to be identified by his surname, Ho, says he wants to be an interpreter for a Chinese company with interests in Portugal or Lusophone Africa, such as Mozambique or Angola. Perhaps anticipating the needs of people like him, the University of Macau recently opened, to much fanfare, a “bilingual teaching and training centre”. It offers Portuguese-language workshops tailored for professionals.

For Mr Ho, the decision to take up Portuguese is also a personal matter. The language is “part of Macau’s identity”, he notes. Since around 2011 residents have rated their identity as citizens of Macau as being stronger than their Chinese identity, according to annual surveys by the University of Hong Kong (the year 2015 was an exception). Native-born youngsters, who have no memory of Portuguese rule, are especially proud of Macau’s Portuguese heritage, Mr Ho says. A similar kind of “localism”, as it is often described, is also on the rise in Hong Kong. There, however, it is intermingled with demands for greater democracy or even outright secession from China. Happily for the government in Beijing, the people of Macau show little interest in pushing the case for either. ■

Identity in Macau

The other official language

MACAU

In the former Portuguese enclave, the colonial tongue is back in vogue

THESE DAYS Manuel Machado has a spring in his step. The school of which he is headmaster, Escola Portuguesa de Macau, is the only one in the southern Chinese city that still follows the curriculum taught in Portugal, which until 1999 had held sway in Macau, more or less, for nearly four-and-a-half centuries. What gives Mr Machado cheer is that enrolment has been rising for the past three years. The school now has more than 600 pupils. He predicts the trend will continue.

There is certainly plenty of room for catch-up growth. When the school was founded in 1998, a year before Portugal

handed Macau back to China, it had nearly twice as many students (and there were at least three other such schools through much of the 1990s). The vast majority of pupils were children of Portuguese expatriates, who then dominated the senior ranks of Macau’s public sector. Today the school’s fastest-growing ethnic group is Chinese.

Only 2.3% of the city’s 660,000 people claim fluency in Portuguese (about 1.8% of them are wholly or partly ethnic Portuguese). But the language is still in official use, along with Chinese, of which the local spoken form is Cantonese. In recent years interest in Portuguese has surged. The

Chaguan | Respecting their elders

Japan's expertise in old-age care becomes a source of soft power in China



AMID THE stress and sadness of choosing an old-age home for her husband, it took Li Wangke, a retired academic, a while to realise why one facility was so good at reawakening his playful, chatty side. She had visited other homes that had fine food and lavish amenities, reflecting the affluence of the couple's southern Chinese home town, Guangzhou. But one newly opened home stood out for easing—at least somewhat—the symptoms of the disease ravaging his brain. Rather than pampering her 83-year-old husband, its staff assessed his rare neuro-degenerative illness, then with warmth and firmness pushed him to do as much for himself as possible. They cajoled him to talk, exercise and even play ping-pong. He seems a “different person”, says Ms Li.

After several visits she discovered that the home's methods had been imported from Japan, a former wartime foe that older Chinese are commonly thought to detest. Her husband, also a retired academic, moved in full-time in late October. “It's from here that I learned that Japan takes really good care of its elderly,” she says.

The home is a joint venture between a Chinese state-owned investor and Medical Care Service (MCS), Japan's largest operator of dementia-care homes. MCS opened its first Chinese facility in Nantong, a city near Shanghai, in 2014. A third opened in the northern port of Tianjin last month. It has plans for more in Beijing, Xi'an and even in Nanjing, the site of a Japanese wartime massacre, memories of which plague the relationship to this day.

China's needs are vast. Degenerative brain diseases are too often confused with mental illness. Sufferers are shut away in family homes with unskilled helpers, typically migrant women from the countryside. Some families share guilty tales of sending relatives to psychiatric wards, where they are strapped to beds and fed pills. More than 10m Chinese are estimated to have some form of dementia. “That is a big, almost frightening number,” says Akira Wate, the general manager of MCS's home in Guangzhou.

By 2030 China is projected to have 23m dementia sufferers—almost the population of Australia. During a visit to China last month by Shinzo Abe, Japan's prime minister, the two governments named old-age care as an area for co-operation. China and Japan are trying to edge closer in these stormy, Trumpian times. One bond involves demographics. With almost one in nine citi-

zens over 65, China is at the point on the ageing curve that Japan hit in 1987. It has a lot to learn from its Asian rival's experience.

Chinese old folk and Japanese care-home operators have discovered revealing things about each other. MCS was full of confidence when it opened its 106-bed home in Nantong. Half a year later, just six beds were filled. For Asian neighbours that revere the old, China and Japan turn out to differ—a lot. Notably, China is an exceptionally low-trust society. But bonds of family duty are stronger than in Japan, say MCS's bosses, noting the frequency of visits and the solicitude of residents' children.

In orderly Japan, entering a home is straightforward, says Mr Wate. An older person shows signs of dementia, facilities are recommended, their child might visit one, admission follows. In China, suspicion is the starting-point, with the domestic news full of stories of fatal fires or bullying at nursing homes. Unprompted, Ms Li relates how her daughter, a banker, warned her against taking private firms' promises at face value.

Chinese customers worry constantly about being ripped off. When it entered China, MCS set its prices high and built single-bed rooms to Japanese standards, offering the privacy and calm that pensioners in Japan demand. But Chinese clients wanted company and the lively din known as *renao*, relates Grace Meng, MCS's boss in China. They questioned the emphasis on doing things for themselves, grumbling that, “I paid money, so you have to do everything for me,” Ms Meng says. Her firm changed its model, building shared rooms, lowering prices and offering day rates to demonstrate its methods. The home in Nantong is now profitable.

Historical distrust of Japan has not been a big problem. MCS neither boasts of nor hides its origins. As well as a Chinese scholar's study and mahjong tables, its home in Guangzhou has a Japanese roof garden with benches, stone lanterns and an artfully trained pine. A few residents refuse to speak to visiting Japanese executives, admits Mr Wate, who is of mixed Chinese and Japanese ancestry. Most are pragmatic, associating Japan with good service.

Family dynamics cause more headaches than nationalism. In Japan, generous government insurance covers most care-home costs, giving old folk much autonomy. In China many in need of care must either sell property or ask children for help. Average monthly fees at MCS's home in Guangzhou are 14,000 yuan (\$2,224)—more than a typical pension. That makes entering a home a collective decision by as many as four or five family members. The elderly also need convincing. Many want to preserve their savings to help the young. Because trying to stay at home is the norm, the average age of MCS's residents in China is 85, about a decade older than at its dementia-related facilities in Japan.

The best sort of technology transfer

Still, China is quicker to embrace change than outsiders might suppose. Ms Li recalls the traditional line: “Raise children to care for you when you get old.” But her children have demanding jobs, and she hates asking them to take too much time off. Nor are hired helpers the solution. When her husband loses control of his bowels, no hired helper will clean him, she says matter-of-factly. Such helpers are “very impatient”. The Chinese once believed that only bad children send their parents to care homes, she concedes. “We don't think that way anymore.”

Rather few Chinese will ever be able to afford Japanese-style homes, it is true. That does not make their expertise irrelevant. If China's old enemy can raise the profile of kindly, attentive dementia care, that alone would be a historic, neighbourly act. ■



The Catholic church

A pope on the ropes

VATICAN CITY

Launched in optimism, Francis's papacy is bogged down in infighting and clerical sexual-abuse scandals

AS AN FBI agent for 29 years, Philip Scala led the operation that jailed John Gotti of Cosa Nostra and raided an al-Qaeda bomb factory. Mr Scala, now a private investigator, took on Hells Angels, rioting prisoners and Russian mobsters. Next on his list? The cardinals of the Roman Catholic church.

A new lay group, Better Church Governance (BCG), has hired Mr Scala to probe the lives of the 224 men who advise Pope Francis (including their sex lives, if any). His particular focus will be the 124 who, were the pontiff to die tomorrow, would elect his successor. Mr Scala's team of up to ten investigators will publish their findings on a website, alongside carefully screened information from the public. Philip Nielsen, BCG's executive director, hopes the website, dubbed the Red Hat Report after the scarlet *zucchetti* (skullcaps) worn by cardinals, will be online within a month.

Though apparently well funded, the BCG is a tiny fragment of Christianity's biggest church. Catholicism claims 1.3bn followers and wields vast, global influence. Its report would have seemed unthinkable—almost sacrilegious—even

a year ago. But in the Catholic world much that was once inconceivable is now transpiring. The Red Hat Report is a sign of how much many Catholics have come to mistrust their leaders and how far some will go to hold them accountable.

The loss of confidence stems from an enduring scandal over the molestation, and sometimes rape, of children by priests. It is unstoppable, since most of the revelations concern wrongdoing years or even decades ago. And it is seemingly inexorable: after the first disclosures in Ireland in the 1990s, the scandal spread through western Europe and North America; it has since reached South America and eastern Europe to assail erstwhile bastions of the faith such as Poland and Chile. In the ten years to 2010, the Vatican sifted through around 3,000 cases dating back to the middle of the previous century. Increasingly, however, attention has shifted to the role of bishops in covering up for clerics, often by posting them to other dioceses where they continued to abuse minors.

The BCG's founding was inspired by the publication in August of a document in which Archbishop Carlo Viganò, a former

papal *nuncio* (ambassador) in America, accused some of the church's most powerful men of ignoring repeated warnings that Theodore McCarrick, a former cardinal, was a serial seducer of seminarians when he was archbishop of Newark.

Archbishop Viganò said the previous pope, Benedict XVI, had imposed restrictions on Cardinal McCarrick, but that Pope Francis, despite knowing of the cardinal's behaviour, eased them and made him a trusted adviser. He implied this was because the cardinal had helped Francis become pope in 2013. In an appeal unprecedented in modern times, he called on the pope, whom Catholics believe is chosen with God's aid and whose pronouncements on some issues are infallible, to quit.

Betrayal of the innocents

Also in August, a grand jury in Pennsylvania accused some 300 priests of molesting more than 1,000 children over seven decades. "Priests were raping little boys and girls, and the men of God who were responsible for them not only did nothing; they hid it all," the grand jury wrote.

In September the archbishop of San Francisco, Salvatore Cordileone, told an Italian newspaper, *La Verità*, there was "almost a sense of panic" in the American church. A Pew Research poll in September found that 62% of American Catholics disapproved of the pope's handling of the crisis, up from just 46% in January. American Catholics make up a bit more than 5% of the global total. But their church, the fourth-biggest, matters far more than its ►►

► size suggests. The Vatican needs its dollars, and its media-savvy cardinals often lead Catholic debate and innovation.

After initially refusing to comment on Archbishop Viganò's claims, Francis has since agreed to convene a global meeting of bishops in February to discuss clerical sex abuse. The Argentine pontiff, who had endeared himself to Catholics and non-Catholics alike with his benign informality and ascetic lifestyle, is on the defensive. "It's about as serious as it can get," says Austen Ivereigh, one of Francis's biographers.

Archbishop Viganò was a controversial figure even before his *J'accuse* appeared. The so-called Vatileaks scandal in 2012 centred on letters he wrote to Pope Benedict complaining of financial corruption, when he was a high-ranking official in the Vatican City's government. Theologically conservative, he spectacularly wrong-footed Francis on his visit to America in 2015 by getting him to meet Kim Davis, a clerk in Kentucky jailed for refusing to issue marriage licences to gay couples.

A two-pronged attack

Vatican officials say the archbishop was called to Rome and rebuked for that. Critics depict him as a man with a grudge because he was not made a cardinal. But his document poses a unique threat to the pope. It embodies the concerns of two groups alarmed at his stewardship: traditionalists of various stripes who resent his reformist agenda; and Catholics dismayed by his handling of clerical sex abuse.

First, the traditionalists. Some of the laity, notably in America, are appalled by Francis's economic and political ideas, set out in 2013 in his apostolic exhortation, *Evangelii Gaudium*. After the papacy's long years of hostility to communism, many forgot that Catholic social doctrine opposes capitalism too. They were left aghast by a pope who could write that "an economy of exclusion and inequality...kills".

In many (but not all) cases Francis's neo-conservative foes line up with his doctrinal critics, whose wrath was kindled by another papal document, *Amoris Laetitia*, from 2016. In it Francis tackled the hotly debated issue of a ban preventing divorced Catholics from receiving communion. His critics were incensed not just that he relaxed a ban they thought central to the church's teaching on marriage, but that he did so in what seemed an underhand way, in a footnote. In the first open sign of mutinous sentiments in parts of the hierarchy, four cardinals put their names to a list of *dubia* or doubts, challenging Francis to deny that he was twisting settled doctrine.

The affair highlighted a fundamental division among Catholics, which centres on the buzzwords "clarity" and "accompaniment". Many, particularly in eastern Europe, where believers suffered for their

faith under communism, and in Africa, where they are nose-to-nose with fundamentalist Islam, crave clarity—a religion offering straightforward, immutable guidance on what is right and wrong. In western Europe and Latin America, priests and bishops are instead contending with growing secularism. They are more ready to accept accompaniment, ie, compromise with the realities of the 21st century. This means accepting that many Catholics live with their partners before marrying, use artificial contraception, form same-sex relationships and get divorced.

Francis has never responded to the *dubia*. For his conservative detractors, that proves he cannot give plausible answers. For Francis's supporters, it is a way of reminding the traditionalists that, however vociferous, they remain a minority. That is probably also still true of the second group of his critics: those appalled by his inept response to clerical sex abuse. But this group is growing fast. Again, there is a geographical division. Few allegations of Catholic priests abusing the young have surfaced in Africa or Asia (though history suggests it is only a matter of time before they do).

Francis's shortcomings were exposed when he visited Chile in January. A local bishop, Juan Barros, had been accused of covering up for a predatory priest in the 1980s. The pope called the claims slanderous. After Cardinal Sean O'Malley, the head of his own commission for the protection of minors, publicly disagreed, the pope apologised. But on his flight home he repeated the charge of slander. In April, after a Vatican investigation into Bishop Barros, the pope admitted he had made "grave errors". But rather than have the bishop tried in an ecclesiastical court, he allowed him to resign. He has since accepted the resignation of seven more Chilean bishops and defrocked a number of priests.



Pondering the cardinal sins

Has Francis finally got it? Cardinal Blase Cupich, the archbishop of Chicago, says he believes so, and that the turning-point for the pope was an encounter in the Vatican in April with three Chilean victims. "When you sit across from a victim you can't help but be affected unless you have a heart of stone," says the cardinal.

On the defensive

Not everyone is so confident that Francis has turned a corner. Anne Barrett Doyle of BishopAccountability.org, a campaigning website, notes the pope "still spends a lot of time talking about calumny". She points to a homily in September, describing Satan as the Great Accuser, who "has been unchained and is attacking bishops". It was the latest of many instances when Francis has taken the side of his fellow prelates. That may be because he finds it hard to believe them capable of covering up for priests who preyed on the young. Or perhaps he feels a duty to afford his bishops the presumption of innocence. Or it may reflect unease over his own record: a documentary by a French filmmaker, Martin Boudot, claims that as archbishop of Buenos Aires, Francis defended a priest who was later imprisoned for 15 years for sexually abusing children.

The meeting in February is expected to discuss possible reforms. Much could be done. Francis could overturn a veto on a planned Vatican tribunal to try bishops accused of shielding predatory priests. He could set up an inquiry into the use of the "pontifical secret". A decree issued in 1922 still obliges bishops not to report certain offences, including child sex abuse, to the civil authorities unless they are in jurisdictions where reporting is mandatory.

Particularly among conservatives, however, there is a growing feeling that Catholicism most needs, in the words of John Meyer of the Napa Institute, a lay group, "a renewal of holiness". Mr Meyer argues that it is not only the priests and bishops who must examine their consciences, but lay believers who have grown used to flouting the church's teaching on, for example, artificial contraception. "We have fallen into the traps of the sexual revolution," he says. "We need to take seriously our sins and realise our faults rather than just be angry at our bishops."

Such talk, however, is anathema to liberal Catholics disgusted by the clergy's record, but with no sympathy for the conservatives' wider agenda. Cardinal Cupich, from the church's liberal wing, argues that the clergy's abuse of its power is more serious. He sees a parallel with the #MeToo movement. If, he says, the unending scandal "frees victims of abuse of all kinds to come forward, then I think we should be willing to pay the price. Maybe it is in God's own providence for us to suffer." ■



Tencent at 20 WeFlat

SHANGHAI

A Chinese internet titan shakes things up after a singularly bruising year

“WHO IS KILLING Tencent?” was the headline of an article on a Chinese business news site this autumn. Those sharing the link on WeChat, a social-media and payments service that is the crown jewel of the Chinese technology giant, see something else: “This title contains exaggerated and misleading information”. The swap is ostensibly the result of a move by Tencent in April to sanitise content, after a crackdown on popular online platforms by government regulators, but is also self-serving. Scoffing WeChat users circulated the article just to highlight the switch.

It would be no surprise if Tencent were feeling touchy as it approaches its 20th anniversary on November 11th. Its shares, traded in Hong Kong since 2004, have fallen by 28% in 2018 (see chart). This time last year it was the first Asian company to be worth half-a-trillion dollars, hitting a record valuation in January of \$573bn. It has since shed \$218bn, roughly equivalent in value to losing Boeing or Intel. Other Chinese internet stocks have fared worse than Tencent, among them NetEase, a gaming rival, and JD.com, an e-commerce firm. But even so, the drop stands out.

The company posted its first quarterly profit decline for nearly 13 years in the three-month period ending in June. A regulatory hold-up that was blocking it from

charging for new video games was the chief culprit, it explained. Although it has sprawled into all sorts of areas, from online lending (WeBank) and insurance (WeSure) to offline medical clinics (Tencent Doctorwork), the company still derives over two-fifths of its revenue from gaming. Its latest big bet in mobile games, “PlayerUnknown’s Battlegrounds”, has accrued a huge audience of some 50m Chinese gamers who play daily, but because of the monetisation freeze, Tencent cannot cash in.

The government suspension, which began in March without explanation, had

Not so happy returns

Share prices, January 1st 2018=100, \$ terms



Source: Datastream from Refinitiv

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been expected to ease in the autumn. Analysts now assume that Tencent will need to tough it out until the second half of 2019. Even once game approvals start up again, the government has said that their number will be limited. To allay Communist Party concerns about the mental and physical health of young gamers, Tencent is also having to curb gaming time and set up a system of user-identity checks.

Capricious regulators may not be wholly to blame for the slowdown in online games, says Steve Chow of Agricultural Bank of China International (ABCI), a Chinese investment bank. Users may simply be spending less time on Tencent’s online entertainment, as other players eat into its market share. For its flagship game, “Honour of Kings”, for example, the average number of daily active users has dropped by a fifth in the past year or so, to 54m in September.

For skittish investors, all this has concentrated minds on whether the giant can maintain its momentum as it enters its third decade. Most agree that gaming will remain an important part of the company, but not its chief driver of revenue growth.

Two concerns are particularly acute. Because its games have done so well, Tencent has been lackadaisical in monetising other parts of its business. It has rightly been nervous about expanding advertising within WeChat, though the service sees unrivalled Chinese mobile traffic of over 1bn monthly active users. Last year Tencent took about one-tenth of total third-party spending on digital ads in China. But Baidu, China’s leading search engine, took 19% and Alibaba, a giant in e-commerce, drew in almost a third.

A second worry is that crimped profits ►►

will make it harder for the firm to keep investing heavily in areas outside its core business. Tencent has been backing promising startups in a race with Alibaba to find new users and sources of growth, battling indirectly in areas as varied as food delivery and online education. In some, such as cloud computing, the pair compete directly. Although Tencent's investors are supportive of this approach, Jerry Liu of UBS, a bank, says the wider tech sell-off stems from a recognition that China's maturing internet sector is becoming "a zero-sum game": dominant platforms are having to invest more to stay ahead and so their margins are shrinking.

Tencent's first internal-restructuring plan since 2012, announced in September, offers a clue to the company's thinking. In it Tencent set out a long-term shift away from the consumer internet towards business services, marking "a new beginning for the company's next 20 years". It has set up a new unit for cloud and "smart" industries, combining all its on-demand software and online services for firms that seek to go digital. Pony Ma, Tencent's boss, said the "main battlefield" for mobile internet is moving from consumers to companies.

Alibaba, born to bring businesses online through its virtual emporia, has a strong lead in this arena. Last year it took 45% of China's fledgling cloud-computing market, worth 69bn yuan (\$10bn), compared with 10% for Tencent, according to IDC, a research firm. Still, Tencent doubled revenue in cloud services in the second quarter compared with the same period last year. Earnings from "other businesses" (ie, payments and cloud) overtook those from its social networks for the first time.

Mr Chow reckons that Alibaba and Tencent can both create large businesses in cloud computing since the market has lots of room to grow. And Tencent boasts powerful assets. WeChat is on over four in every five Chinese smartphones, so offers a massive market for firms. Last year it introduced a cloud-based platform that allows companies to offer services to users in WeChat via "mini programs" (ie, tiny apps). There are more than 1m mini programs, used by over 200m people every day.

For now, however, its revenue from such mini programs and other built-in services is still "close to zero", notes David Dai of Sanford C. Bernstein, a research firm. Meanwhile rivals have introduced their own offerings of mini programs. Among them is Bytedance, a newish giant that has young Chinese hooked on its flawlessly addictive video and news offerings, curated with artificial-intelligence technology. It is a thorn in Tencent's side.

In particular, the way in which Bytedance is capturing very young users, as well as young talent, makes Tencent look increasingly grizzled. To increase its ap-

peal to youngsters, Tencent in April revived a short-video app it had shut down, called Weishi, and made it a near-copy of Bytedance's wildly popular Douyin app.

Pan Luan, a former tech journalist who published a widely-read essay in May contending that Tencent had "no dream", says the giant looks lumbering at times because "its whole structure is ageing". Young staff say they have few channels for promotion to decision-making positions, says Mr Pan, and few opportunities to build sparky products, as Tencent spends on stakes in other companies. A young Tencent employee who left to work for a newer tech firm says that pay at firms like Bytedance and Kuaishou, a short-video app (in which Tencent has a stake), is "in another band", and

that they feel more like foreign startups.

Tencent's outsize influence in China's online world is ballast that should steady it as it targets business customers. For sheer scale, WeChat seems likely to hold its own. It has given Tencent a powerful distribution channel for its own games, and has allowed it to stymie new rival products, including Douyin, by blocking them from its platform. But the giant is under pressure, and seems to know it. "We have to stay awake," urged its president, Martin Lau, last month. Such introspection is necessary. Mr Chow says it was thought until this year that "Tencent could win every battle". With more formidable competitors on the scene, the company will need to pick its fights more carefully. ■

Amazon

HQ2 times 2

NEW YORK

Amazon's "second headquarters" may be no such thing

NOT FOR the first time, *The Onion*, a satirical website, got it right. "You are all inside Amazon's second headquarters," Jeff Bezos announces to horrified Americans as massive dome envelops nation." That headline captured both the American e-commerce goliath's endless expansion in recent years and the stratospheric level of hype around its quest to find a second headquarters.

Fourteen months ago Mr Bezos, Amazon's boss, announced that he was looking for a city in North America in which to invest over \$5bn building a campus that would create 50,000 high-quality jobs. The firm vowed that this new location, "HQ2", would be no mere satellite, but a "full equal" to its Seattle campus.

A beauty pageant among cities ensued. Over 200 made proposals; in Janu-

ary, 20 were chosen as finalists. Chicago reportedly offered \$2bn in incentives ranging from tax breaks to subsidies for worker training. Andrew Cuomo, re-elected New York's governor this week, promised to change his name to Amazon Cuomo "if that's what it takes".

It now appears that Amazon played cities like so many fiddles. According to multiple reports this week (Amazon has not confirmed its plans), it intends to split its investment between two bases. One is Long Island City (LIC) in New York City's Queens and the other is likely to be Crystal City, a part of Virginia next to Washington, DC. Amazon does lots of work for the federal government, so being close should help. And a base in LIC, just across the East River from Manhattan, means it would be able to tap the latter's big tech and media workforce.

Workers in the two locations focused on the effect on their commute. Adding even 25,000 workers would further choke the subway system, complains an employee at an education-tech firm in LIC. If logistics are a priority for Amazon, Dallas may still be a contender given its central location in North America.

Critics of Amazon accuse it of a bait-and-switch; cities were promised a true headquarters on a par with Seattle, but if the split of HQ2 is confirmed, it will create much smaller offices. Another objection is that the firm will have collected a boatload of local data it can use in future business decisions. Yet the winners are unlikely to complain, and cities would probably have surrendered their data even for a bigish Amazon satellite office. The dome is taking over.



Prime property

Outdoor advertising

Sign of the times

NEW YORK

Innovations from online advertisers are being adapted to billboards

PEDESTRIANS STROLLING down 8th Avenue in Manhattan's Hell's Kitchen neighbourhood will be struck by the cast-limestone façade of the Hearst Magazine Building. Commissioned by William Randolph Hearst in 1926, the 40,000-square-foot (3,716-square-metre) art deco building is adorned with fluted columns and statues and topped by a 600-foot (183-metre) glass and steel skyscraper. Another conspicuous feature is a vast digital screen transmitting advertisements from BuzzFeed, ESPN and Vice. This blend of history and modernity is emblematic of the outdoor-advertising business itself, which, despite being one of the world's oldest forms of marketing is embracing digital technologies.

Most forms of conventional advertising—print, radio and broadcast television—have been losing ground to online ads for years; only billboards, dating back to the 1800s, and TV ads are holding their own (see chart). Such out-of-home (OOH) advertising, as it is known, is expected to grow by 3.4% in 2018, and digital out-of-home (DOOH) advertising, which includes the LCD screens found in airports and shopping malls, by 16%. Such ads draw viewers' attention from phones and cannot be skipped or blocked, unlike ads online.

Billboard owners are also making hay from the location data that are pouring off people's smartphones. Information about their owners' whereabouts and online browsing gets aggregated and anonymised by carriers and data vendors and sold to media owners. They then use these data to work out when different demographic groups—"business travellers", say—walk by their ads. That knowledge is added to insights into traffic, weather and other external data to produce highly relevant ads. DOOH providers can deliver ads for coffee



Times Square pre-neon

when it is cold and fizzy drinks when it is warm. Billboards can be programmed to show ads for allergy medication when the air is full of pollen.

Such targeting works particularly well when it is accompanied by "programmatic" advertising methods, a term that describes the use of data to automate and improve ads. In the past year billboard owners such as Clear Channel and JCDecaux have launched programmatic platforms which allow brands and media buyers to select, purchase and place ads in minutes, rather than days or weeks. Industry boosters say outdoor ads will increasingly be bought like online ones, based on audience and views as well as location.

That is possible because billboard owners claim to be able to measure how well their ads are working, even though no "click-through" rates are involved. Data firms can tell advertisers how many people walk past individual advertisements at particular times of the day. Advertisers can estimate how many individuals exposed to an ad for a Louis Vuitton handbag then go on to visit a nearby shop (or website) and buy the product. Such metrics make outdoor ads more data-driven, automated and measurable, argues Michael Provenzano, co-founder of Vistar Media, an ad-tech firm in New York.

As the outdoor-ad industry becomes more data-driven, tech giants are among those to see more value in it. Netflix recently acquired a string of billboards along Hollywood's Sunset Strip, where it will start advertising its films and TV shows. Tech firms, among them Apple and Google, are heavy buyers of OOH ads, accounting for 25 of the top 100 OOH ad spenders in America.

The outdoor-ad revolution is not problem-free. The collection of mobile-phone

data raises privacy concerns. And criticisms of the online-ad business for being opaque, and occasionally fraudulent, may also be lobbed at the OOH business as it becomes bigger and more complex. The industry is ready to address such concerns, says Jean-Christophe Conti, chief executive of VIOOH, a media-buying platform. One of the benefits of following the online-ad trailblazers, he notes, is learning from their blunders. ■

Pharmaceuticals

Pill bills

NEW YORK

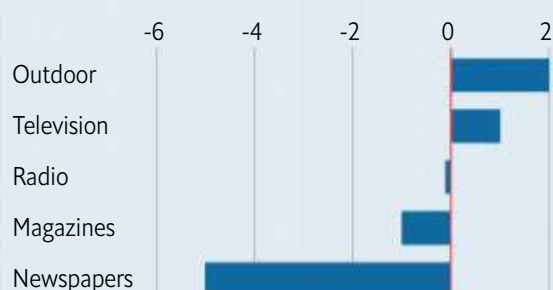
Biosimilar drugs promise to cut health-care costs in rich countries

"IT'S THE prices, stupid." That simple assessment of America's wildly expensive health-care system was made 15 years ago by Uwe Reinhardt, a health economist who died last year. Health costs as a proportion of America's economic output have soared since, from 14.5% in 2003 to over 17% in 2017, with drug-price inflation a big culprit. Less than 2% of Americans are treated with specialty biotech drugs, but these account for as much as 35% of total drug spending.

The good news is that cheaper biotech drugs are coming. Known as biosimilars, these complex copycat drugs (which are a bit like generics) have been allowed in Europe since 2004 and in America since 2010. At first, owing to policy roadblocks and anti-competitive tactics by incumbents, only a few came to market. But the firms

The great outdoors

United States, advertising revenues*
1995-2016, annual average % change



Source: Credit Suisse

*Excluding the internet

▶ that make them, which range from biotech giants to scrappy upstarts, are turning the trickle into a torrent.

Consider Humira, a biotech drug made by America's AbbVie that treats rheumatoid arthritis, psoriasis, Crohn's disease and other maladies. It is the world's top-selling drug; annual sales of \$20bn are more than double that of the next two top sellers combined. The annual cost (after rebates) of Humira in America has shot up from about \$19,000 a patient in 2012 to some \$38,000 a patient. David Maris of Wells Fargo, a bank, calculates that a 9.7% price increase imposed earlier this year by AbbVie on Humira could add \$1.2bn to America's health-care costs in 2018.

Such sums explain why the launch of several biosimilar rivals to Humira in Europe in October is being watched closely. Five copycats, which regulators have verified are safe and effective, have been approved and three have launched. One of them is Amjevita, which is made by Amgen, a giant American biotech firm with pricey branded drugs of its own to defend. AbbVie confirmed in an earnings call on November 2nd that rivals are undercutting Humira's list price by up to 80% in some European countries. This has forced AbbVie to cut prices steeply.

In America a similar battle is brewing over Neulasta, a biotech cancer drug made by Amgen with global sales of some \$3.7bn this year. On November 2nd America's Food and Drug Administration approved a biosimilar rival to Neulasta developed by Coherus BioSciences, a biotech firm based in California. Its pricing is unknown but this time it seems likely to be Amgen that has to lower prices.

Makers of biosimilars do face hurdles. The owners of branded biologic drugs have been known to put out misleading advertising that casts doubt on the copycats' safety. Denny Lanfear, boss of Coherus, bemoans the fact that firms typically file dozens of patents on old drugs to extend their monopolies. He notes that AbbVie's "patent thicket" means Humira will not face biosimilar competition for years to come in America. Also, nobody knows whether President Donald Trump will follow up on his recent praise for biosimilars with practical policies on reimbursement for them in the Medicare system.

Yet overall the future looks bright. McKinsey, a consultancy, estimates that the global market for biosimilars could triple, to \$15bn, by 2020. That is tiny compared with overall health spending. But because the new drugs lead to price-cutting by incumbents, the systemic benefits could be far bigger. The RAND Corporation, a think-tank, says that biosimilars could reduce American health-care spending by \$54bn over the next decade. Biosimilars could prove to be the mouse that roars. ■



Trade with Iran

Risky business

PARIS

Europe is struggling to find ways for firms to defy America on Iran

WHATEVER YOU do if you are a European company pulling out of Iran, do not mention the sanctions. On November 5th America re-imposed an embargo on Iran, aimed at blocking its supposed nuclear ambitions. Its restrictions to trade do not apply directly to European companies but bosses fear being banned from the American market if they keep doing business in Iran. Yet obeying America's sanctions is itself illegal under rules devised by Europe, whose leaders want to keep Iran in the global trade fold.

Firms opting to bow to America have thus devised a ruse: blame unspecified issues of "commercial viability" for their decision to leave Iran. This is what British Airways and Air France both did when they recently stopped flying to Tehran. Most big firms have announced that they are leaving, including Total, a French energy group, and Siemens, a German engineering giant. (American firms were banned even before, though with occasional exemptions, such as Boeing selling Iran aircraft.)

The exodus is perhaps inevitable. "Anyone doing business with Iran will NOT be doing business with the United States," President Donald Trump blasted on Twitter when the sanctions were further ratcheted up in August. Few think America will act on the threat of imposing "secondary sanctions" on defiant firms, but even fewer care to find out whether Mr Trump is bluffing.

BNP Paribas, a French bank, was fined nearly \$9bn in 2015 for doing business with embargoed countries, including Iran.

European policymakers think this unfair. They have alighted on two potential solutions. The first is to threaten European firms with being liable for any costs incurred by other companies as a result of their compliance with the sanctions. But this seems, by all accounts, to be a political statement, not a genuine policy: in practice no firm pulling out of Iran is going to get punished, officials admit.

The second is a mechanism that would act as a state-owned buffer between Iranian firms and European ones. The finance ministries of Britain, France and Germany—the European parties to the Iran nuclear trade deal that America is pulling out of—want to set up a "special purpose vehicle" (SPV) to intermediate trade. The idea is that European companies buying from and selling to Iranian counterparts would not have to send or receive money from Iran, but would pay each other instead.

Under the mechanism an Italian importer of Iranian pistachios, for example, would settle the tab of an Iranian firm buying German machinery through a ledger organised by European governments (these payments would be mirrored in Iran). No money would enter or leave Iran, many of whose banks are being cut off from the international financial system (on November 5th SWIFT, the Brussels-based international financial messaging system, said it would comply with American sanctions and suspend some Iranian banks' access). Firms from third countries might be able to participate in the SPV, too.

As a plan it has two big flaws. One is that, despite America announcing sanctions six months ago, the SPV is still on the drawing board. No country has volunteered to host it. Officials vaguely recall a similar system of formalised barter allowing access to the Soviet Union, but can offer no firmer blueprint for now.

The second defect is that the proposed SPV only resolves the issue of payments. Companies trading with Iran could still be designated as *societas non grata* by America. "At the end of the day, you are still engaging in trade with Iran," points out Maya Lester, a sanctions expert at Brick Court Chambers in London, and so still potentially liable for secondary sanctions.

Michael Tockuss, head of the German-Iranian Chamber of Commerce, says that some smaller German firms will continue exporting to Iran if they have no business in America. Workarounds of sanctions devised for an embargo imposed by Europe and the United Nations in 2012-2015 are still fresh in the minds of compliance departments. Some big firms might find ways of keeping a presence there, he suggests, but in a far more discreet manner. ■

Retailing

A handmade tale

The growth of microbrands is challenging the business of consumer goods

COMPANIES SUCH as Casper, which sells mattresses, Warby Parker, a spectacles brand, and Glossier, a cosmetics firm, were once seen as interesting curiosities. Touting their products online, luring customers with digital advertising and eschewing conventional retailers and marketers, they were anomalies shaking up small segments of retail. In fact, the growth of microbrands—or direct-to-consumer (DTC) brands—represents a profound shift in the consumer-goods sector.

Industry giants took time to begin worrying about the arrival of game-changing newcomers; barriers to entry in their business are high. But by now the incumbents are stagnating. According to Nielsen, a consultancy, the biggest 25 food-and-beverage companies, for example, generated 45% of sales in the category in America but drove only 3% of the total growth in the industry between 2011 and 2015 (see chart). A long tail of 20,000 companies below the top 100 produced half of all growth.

Imagine, 25 years ago, coming up with the idea for a radically better toothpaste, suggests Randall Rothenberg, the boss of the Interactive Advertising Bureau (IAB), a trade organisation for digital advertisers, who studies microbrands. Raw materials would only be available by the tonne. No factory would produce toothpaste for a tiny new player. Ads would be hopelessly expensive so driving demand would be impossible. No large retailer would stock it.

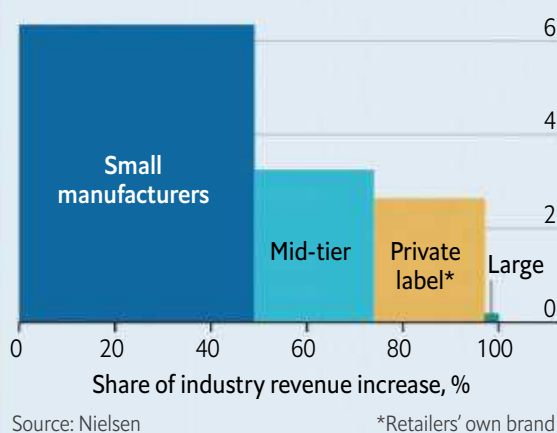
That is no longer true, thanks to shifts in supply chains and data. The growth of “just-in-time” manufacturing means startups no longer need to splurge on inventory. The surge in food startups meant factories had confidence to let him start with a small order, on the condition that future ones would be bigger, says Blake Sorensen, founder of Blake’s Seed Based, which makes allergy-friendly snacks.

Other service providers can pass on economies of scale once available only to consumer-goods giants. Lumi, a packaging firm, uses a network of factories to design and produce packaging for small brands. It represents thousands of brands so can get better prices.

Businesses such as ShipBob, a Chicago startup, do something similar with shipping, allowing small brands to offer faster, cheaper deliveries. E-commerce companies such as Shopify provide turnkey online shops from as little as \$29 a month.

Small is beautiful

United States, food and beverage manufacturers
Revenue, 2011-15 annual average % increase



Shopify handles the back-end infrastructure that would have cost hundreds of thousands of dollars to build, says Steven Mazur, one of the founders of Ash & Erie, a brand of clothing for short men. Assembled Brands provides funding specifically to microbrands. It will invest in any kind of manufactured consumer-goods product as long as the company has started trading.

Microbrands can also sell their products through Amazon. The costs are high but it gives them access to the online giant's shipping services and huge user base. Many of the big firms have, by contrast, been reluctant to sell on the giant's website, so feature low in search rankings. More of them have started selling on Amazon in recent years, says R.J. Hottovy of Morningstar, a research firm, but it still represents a small slice of their sales.

Selling directly to consumers means that microbrands boast a wealth of data. Mr Sorensen launched his business online in January 2018. He sold \$50,000 of snacks and then, on the basis of data gleaned, Blake's Seed Based changed its recipe and relaunched in September. M Gemi, an online seller of posh shoes, offers new designs weekly so can respond precisely to consumer demands. Their giant rivals, by contrast, use data filtered by retailers.

Online advertising, using platforms such as Facebook, allows brands to target customers with great accuracy. The vast majority of growth in advertising is coming from the digital kind, and a large proportion of this is from small advertisers, says Jonathan Barnard of Zenith, a media agency. Meanwhile many big companies, especially the consumer-goods firms, are

keeping their spending flat or reducing it in view of pressure on margins.

Consumer-goods behemoths are well aware of the threat posed by microbrand ankle-biters. One response is to buy them. Unilever bought Dollar Shave Club, a subscription service for razor blades and now-canonical microbrand, for \$1bn in 2016, grabbing the market share the upstart had itself snatched from Gillette. The biggest ten consumer-goods firms have all recently invested in direct-to-consumer startups. Nestlé's acquisition in 2017 of Blue Bottle, a hip Californian coffee brand, bought it exposure to new market segments.

Competition is fierce to buy the best microbrands so big firms may overpay for their acquisition, says Mr Hottovy. Explaining its purchase last year of Native, a small deodorant brand, Marc Pritchard, the chief brand officer of Procter & Gamble, explicitly referred to its DTC model, saying it is “where things are going”. Other big firms are trying to grow their own brands. Earlier this year Kraft Heinz launched Springboard, an incubator for small, disruptive food and drink brands.

In the long term some small brands will be swallowed up but others will be encouraged, argues Sonali De Rycker of Accel, a venture-capital firm. More will want to remain independent for longer, or entirely, which will mean larger deals or IPOs.

To flourish, incumbents will not only have to acquire these new brands or start their own; they will have to learn from them. And instead of having a discrete set of multi-billion-dollar brands, sold through third-party retailers, they will have to come up with larger portfolios of smaller, more transitory ones, argues Mr Rothenberg. Scale still matters, but it will have to be used more shrewdly. ■



Warby Parker had vision

Schumpeter | India's shadow-banking crisis

The world's second-most-populous country has been flirting with a Lehman moment



WHEN NARENDRA MODI was elected prime minister of India in 2014, his plan was to revive its GDP growth rate back to the near-double-digit figures seen in the mid-2000s. Few would have guessed that the biggest threat to that goal was the financial industry. For several years state-run banks have failed to get to grips with a \$100bn mountain of dud loans. Now panic has seized parts of the privately run system. One bank boss says the situation is as bad as the Asian crisis of 1998 or the global crash of 2008.

In September IL&FS, a financial firm that owns and finances roads and power plants, defaulted on some of its \$13bn of debt. The contagion has struck India's shadow banks, which rely on \$250bn-300bn of borrowing to fund themselves. Their market value has collapsed by a median of 40% this year. A bitter row about how to respond has erupted between the government and the Reserve Bank of India (RBI), the largely independent central bank. Over a billion people depend on an emergency being avoided.

India's financial system has both Chinese and American characteristics; it faces a blend of a slow-motion banking crisis at government-run lenders, plus a high-speed liquidity run of the kind that hit Wall Street in 2008. That the industry has taken on a hybrid character over time reflects the conflicting aims of the forces that shaped it. The state wants pliant banks, ready to lend to the rural poor and to infrastructure projects, and that will buy government bonds. The RBI emphasises stability, so is paranoid about wheeler-dealers taking risks or ripping off the vulnerable. Entrepreneurs want capital and to start financial-services firms themselves. And consumers want loans and whizzy new banking technologies.

About half the system, measured by loans, consists of state-run banks. They are usually listed but the government appoints their top brass and often influences them to disastrous effect. Another 25% comes from private banks; some of which are among Asia's best-run lenders—HDFC Bank and Kotak trade on about four times their book value, compared with below one times for the zombie state banks. The other quarter is from a motley crew of 50-odd shadow banks that have expanded quickly. They are less heavily regulated and lend in particular areas such as housing. They are usually prohibited from taking deposits so fund themselves with debt. Last, there are innovative digital firms, such as Paytm, a mo-

bile-payments firm. Overall, the system straddles the 19th and 21st centuries, featuring subsiding bank branches protected from the monsoon by tarpaulins, but also virtual mobile chatbots.

The present troubles have their roots in 2005-12, when state banks went on a lending bender, extending credit to dubious tycoons and to infrastructure projects. Net bad debts are 9% of state banks' loan books. The government has not properly recapitalised these zombies and the flow of credit from them has slowed. Accidents keep happening. In February PNB, the second-biggest state lender, disclosed a \$2bn fraud involving diamond merchants.

A second phase began after 2012. Between 2012 and 2017 more capital flowed into India than flowed out. In 2015 interest rates began to fall and in November 2016 the government replaced the stock of bank notes overnight, leading savers to switch from physical money into deposits with banks, and into debt mutual funds. Flush with cash, and with rates low, they looked for ways to lend the money out again and part of the answer was to fund the shadow banks, which went on a binge—the top 50 have doubled their debts and assets in the past five years. Perhaps as much as \$50bn-100bn of their debts comes due within 12 months.

Borrowing short and lending long is a high-stakes game. After the IL&FS collapse, confidence has evaporated. The group has 348 opaque subsidiaries, including India's longest tunnel. It has now been taken over by the government, which indirectly owned 40% of it. Mutual funds and banks are reluctant to lend to other shadow banks—most report solid capital ratios, but can anyone be sure they do not have time-bombs buried in their balance-sheets? For weeks the shadow banks have faced a liquidity crunch.

They are big enough to damage India's entire financial system. Mutual funds, which are sold to the public, have \$55bn of exposure to them, or 11% of total assets under management. Conventional banks have loaned \$70bn to shadow banks, the equivalent of two-fifths of the former's core capital. Among private lenders the mood is already jittery: ICICI's boss has just departed after claims of conflicts of interest (which she denies). Yes Bank is replacing its boss after the RBI refused to approve an extension of his term. Even if a full crisis does not erupt shadow banks may be forced to shrink. When combined with the rotten state banks, that would mean that 75% of India's financial system is on crutches.

Bazooka time

A sell-off in global markets could easily trigger a new wave of panic. The government, facing a general election next year, wants the central bank to lend more freely to the shadow banks. But the RBI does not want to reward failure and has so far injected liquidity only indirectly, by buying government bonds and allowing banks to guarantee some new bonds issued by shadow banks. It blames the government for its endless meddling in state-run lenders and for its failure to recapitalise them, despite years of warning signs.

In the short term the government is right—unless the liquidity squeeze abates soon, the central bank will need to set aside its natural reluctance and act boldly. In the long term the RBI is right. A "big bang" reform is needed to privatise the state banks and extract them from the government's tight grip. India also must end the regulatory arbitrage that allows shadow banks to raise most of their funds from retail investors and deposit-taking banks. Either shadow lenders should come out of the dark and be turned into banks, or a firewall will have to be erected around them to protect the rest of banking. And if India does not get its financial system back on its feet, the economy will not grow fast. It is that simple. ■



Farming in America

Tough row to hoe

LIBERTY, ILLINOIS

Donald Trump's trade war will make American agriculture less competitive and more distorted

A CALM USUALLY descends on America's farm belt in November. Combines have mostly finished churning across fields; trucks have hauled crops to grain elevators; and farmers retreat to their living rooms to rest. This year, at least by one measure, they should feel particularly content. Randy Sims, a hog-and-grain farmer in western Illinois, produced 75 bushels of soybeans per acre, a third more than in the past. Indeed American soybean production in 2018 is expected to reach 4.69bn bushels, a record. But it is unclear who will buy them.

America's farmers are at the centre of President Donald Trump's trade war. More than a fifth of agricultural exports face new tariffs. From January to September pork exports to Mexico and China fell by 31% and 36%, respectively. Sales of soybeans, America's biggest farm export, to China have plunged by 98% since January (see chart). "It's a big concern," says David Williams, who farms 3,800 acres in Michigan. He flew to Shanghai for a conference in early November with a group of soybean growers keen to maintain ties with Chinese importers, in the hope that the trade stand-off ends soon. In the meantime America's agriculture department expects farm incomes to drop by 13% this year. The ratio of

farm debt to assets is forecast to rise to its highest level since 2009.

It is all reminiscent of the 1980s, when America suspended grain sales to the Soviet Union, interest rates rose, incomes sank and many farmers left the business. For now debt levels are climbing but still man-

ageable. But much depends on how long tariffs persist. By the time the trade war ends, they may have caused enduring harm.

American farmers are titans of international commerce. From 2000 to 2017 the value of agricultural exports nearly tripled. Exports comprise more than a fifth of farm output. Grain gushes abroad in the highest volumes. As the world eats more meat, livestock producers need more animal feed, raising demand for soybeans. Exports last year reached \$21.6bn, more than double the value of corn, the next largest export.

These successes are due in part to government subsidies that incentivise production, such as farm payments that rise when commodity prices fall. These mainly support big operations: farms with incomes of \$167,000 or more received nearly 70% of commodity payments in 2016, according to the Heritage Foundation, a think-tank.

Productivity-boosting measures have helped, too. Mr Sims, for instance, now uses data on yields to fine-tune the application of fertiliser. He flies drones to inspect crops for insect damage. Farmers often coat seeds before planting to fend off rot and pests. Environmentalists worry about the impact on water and biodiversity. But production has boomed.

This has helped depress prices for corn and soybeans in recent years, even as land, fertiliser and seed have remained relatively expensive. So a trade war is particularly ill-timed. Mr Trump announced tariffs on steel and aluminium imports in March, and extended them to Mexico, Canada and Europe in May. In retaliation Mexico, the second-largest importer of Ameri- ▶▶

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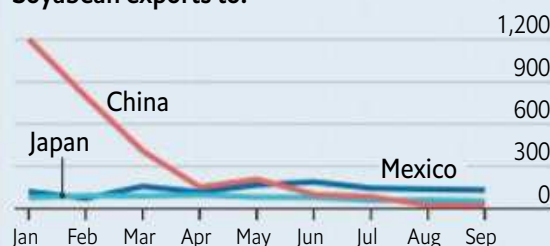
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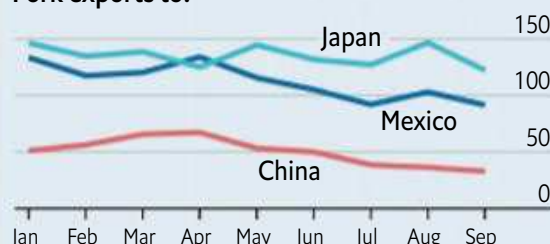
Reaping what you sow

United States, 2018, \$m

Soyabean exports to:



Pork exports to:



Source: United States Department of Agriculture

► can pork by value, raised tariffs to 20%. China's tariffs of up to 70% on pork, and 25% on soyabeans, hurt even more.

Mr Trump is due to meet Xi Jinping, China's president, at the G20 summit later this month, but neither man may concede much. In September Mr Trump agreed on a new deal to replace the North American Free Trade Agreement with Canada and Mexico. But it does not affect America's tariffs on steel and aluminium, so Mexico's pork tariffs remain in place. Indeed Canadian and Mexican retaliatory tariffs wipe out the modest gain in exports from the

new deal, according to analysis from Purdue University, leading to a \$1.8bn net loss in farm exports.

When one export market shuts, it can be hard to divert goods elsewhere. Pork, for instance, can be transported to Mexico in refrigerated trucks. It is more expensive to freeze and ship it across an ocean.

Soyabean farmers fear that demand and trade flows will shift permanently. China's appetite for imports would wane if producers lower the soya protein in pig feed or if, as some traders fear, the government urges consumers to switch to chicken or beef,

which require less soya than pork does. What demand remains may increasingly be met by Brazil and Argentina. Wallace Tyner of Purdue University estimates that Brazil has another 9m acres of farmland that it could convert to soyabeans relatively quickly. "The market loss that we face in the short run really opens the door to competitors," says Jim Sutter of the United States Soybean Export Council.

The price of American soyabeans is now depressed, compared with that of Brazilian beans. Many farmers must accept an even lower price than that published on the ►►

Buttonwood Where the hurt is

Why house prices in global cities are falling

CENTRE POINT, a tower that looms over central London, was empty for so long in the 1970s that it lent its name to a homelessness charity. Recently it was converted from offices to flats. Half are yet to find buyers. So the developer has taken them off the market pending a clearing of the political fog over Britain. Its boss complained to *Estates Gazette*, a trade paper, of bids that were "detached from reality". One-bedroom flats were on sale for £1.8m (\$2.4m).

Even flats with less hefty price tags have been hard to shift lately. Property prices in London are falling. Sellers are waiting for better prices. It is tempting to put all the blame on Brexit, but that would ignore the broader picture. House prices in big global cities increasingly move together. What happens in London has a growing influence on what happens in New York, Toronto and Sydney—and vice versa. And trouble is brewing in some of these other markets, too.

Property used to be thought of as an inflation hedge. But in recent years it has become a substitute for low-yielding Treasury bonds—a safe asset in which the globally mobile can store their wealth. After years of rapid price rises, houses in the most favoured markets are overvalued. Rising bond yields, tighter mortgage credit and shifting politics are now combining to push prices down.

The value of homes in the posher parts of global cities move in sync because they have become a distinct asset class. Private-equity firms and investment trusts, not just individuals, own them. Prices in such cities are explained more by global factors, such as the yields on the safest government bonds, than by local conditions. This global influence is particularly marked in financial centres that are open to capital flows, such as

London, New York, Toronto and Sydney. It has extended into smaller European cities, such as Amsterdam.

Demand from emerging markets such as China and Russia has been growing. Buyers are willing to pay steeply to secure a safe place for their savings—or a bolthole for themselves. Cristian Badarinza of the National University of Singapore and Tarun Ramadorai of Imperial College London have shown that political trouble in Russia, parts of Africa and the Middle East predicts a rise in the price of prime London property. The same sort of influence is also found in less ritzy neighbourhoods, says Mr Ramadorai. For instance, property prices in Hounslow and Southall, which have lots of settlers from South Asia, picked up in the early 2000s, a period of political tensions in India.

Foreign demand has spillovers. If an oligarch buys a house, it drives up the prices of smaller properties nearby. A paper by Dragana Cvijanovic of the University of North Carolina and Christophe Spaenjers of HEC Paris finds similar effects in Paris's property market. Foreign buyers, mostly from China, have been a force behind booms in the big cities of Australia and Canada.

But the tide has changed. Global cities look awfully dear. The rental yield on investment homes worldwide fell below 5% for the first time ever in 2016, according to MSCI IPD, a financial-information firm. House prices relative to incomes are well above their long-run average in Amsterdam, Auckland, London, Paris, Sydney and Toronto (see chart).

And prices are falling in some of the dearer cities, in response to a variety of forces. The yield on Treasury bonds, the world's benchmark safe asset, is rising. A tightening of credit standards on mortgages in Australia and Canada has squeezed housing in cities there. Uncertainty about Brexit has made London a place of political risk rather than a refuge from it. Meanwhile, capital is moving less freely. Governments are chary of Russian money. China is shaking down its super-rich for taxes and is zealous in its policing of capital outflows.

A corollary of stronger links between global cities is a kind of "waterbed" effect. For instance, when taxes were levied on foreign homebuyers in Vancouver in 2016, the market cooled, but Toronto took off. There are buyers who will compare prices in, say, Mayfair in London and Park Avenue, New York. They look for value. But it is vanishingly scarce. The market is turning. Those who bought at the peak, or are hoping to sell, will slowly adjust to a new reality.

Prime suspects

Cities house-price index
Real terms, Q1 2012=100

Overvalued against
income*, %



Sources: Economist Intelligence Unit; Thomson Reuters; Zillow; national statistics; The Economist

*Relative to long-run median disposable household income

► Chicago Board of Trade, as elevators struggle to store and transport grain for which there are few buyers. Mr Williams has had to sell his soybeans at a discount. In North Dakota, which usually sends soybeans to ships in the Pacific Northwest, some elevators have stopped buying them altogether.

Economists at the University of Illinois expect the average farm in central Illinois to make an overall loss of \$70,000 next year. A recent survey from the Kansas City Federal Reserve found that farm lending from July to September was a third higher than in the same period last year. Most of the increase was not to buy new machinery but to support the basic business of farming. Farmers may plant more corn next year, rather than soybeans, but that is not a permanent solution. Continuously planting corn, rather than rotating crops, lowers yields.

In 2015, 51% of output came from farms with sales of at least \$1m, compared with

31% in 1991. The trade dispute may speed consolidation. Bigger farms have more cash to invest in yield-boosting technology and the scale to win better terms from buyers. Mr Sims is one of many large farmers to invest in bigger silos, in order to store crops while waiting for better prices.

The government may also become even more involved in agriculture, to muddled effect. Mr Trump, having disrupted global trade flows, is now using \$12bn of taxpayers' money to offset some of farmers' losses. Concern for their welfare may buoy support for a new farm bill—but the version favoured by Republicans in the House of Representatives would make even richer farmers eligible for payments. Mr Sims is hopeful that Mr Trump will win better trade terms for farmers. "I am willing to weather the storm," he says. But by the time the president strikes a deal, whatever it is, American farming is likely to have become less competitive and more distorted. ■

dent Barack Obama and structural aspects of equity markets which date from Republican administrations. A common theme is the harms of over-regulation. She cites Nobuchika Mori, until recently Japan's top financial regulator, on the proliferation of international financial overseers. Surveying 140 projects by the Basel Committee on Banking Supervision, the International Organisation of Securities Regulators, the Financial Stability Board and the International Association of Insurance Supervisors, Mr Mori warned that "too much medicine might make the patient sick".

Her first speech, in March, concerned the impact of a rule drafted by the Financial Stability Oversight Council, which was set up in 2009. Its aim was to improve mutual funds' liquidity; in reality, she says, it has increased providers' costs and requires them to produce numbers that are useless, even misleading. She is similarly critical of the "fiduciary" rule, another Obama-era regulation intended to ensure that financial advisers act in their clients' interests. The reams of legalese required to produce an operable definition, she says, are "wonderful for marketing purposes but potentially misleading for investors", and provide "a false sense of reassurance".

In May she took issue with the Obama administration's conception of the SEC as primarily an enforcement agency. That encouraged it to bring as many cases as possible—indeed to inflate their number by double-counting. The increasingly opaque structure of America's equity markets, with their stew of dark pools and bilateral trading platforms, has also drawn her attention. In another speech she noted "the strange role that the commission plays in directing—and often determining" this structure, and asked if it had "lost its way".

In September she took issue with the notion that governments should mandate representation of certain groups, such as women, on company boards. "Policymakers might be tempted to get this or that favoured group included," she said, thus introducing "uncertainty and political influence into corporate operations". And in a talk to law students at the University of Michigan, she challenged them to include in their concept of the "public interest" helping companies in the "hunt for profit", which drives them to "meet people's needs using as few resources as possible".

Such positions may seem radical. In fact they would mean the SEC refocusing on its main historical role, says Mr Lofchie, namely to ensure disclosure of material facts and then to step aside. When Mr Trump took office, the SEC had only two commissioners. It now has a full complement and a mixture of views is starting to emerge. A debate about its purpose—and that of financial regulation more broadly—is overdue. ■

The SEC

Peirce remarks

WASHINGTON, DC

A new commissioner at America's main securities regulator causes a buzz

FOR ALL the talk about deregulation under President Donald Trump, when it comes to the financial industry the word used by many is "tailoring"—meaning trimming the loose threads of tangled rules, rather than unpicking them. An exception is Hester Peirce, who in January became one of the five commissioners at the Securities and Exchange Commission (SEC), America's most important financial regulator. Since her appointment she has given a series of speeches with a polite tone

and blunt message about the downsides of government intervention.

Though she has yet to gain a large following, her words have not gone unremarked. Her "arrival at the SEC is genuinely exciting", writes Steven Lofchie, a securities lawyer who runs a popular (within the small world of regulation) blog. It is probably the first time the word has been used in connection with the SEC in years.

Ms Peirce is not partisan, criticising both the centralising trend under Presi-



Not your regular regulator

1MDB

Start casting the movie

NEW YORK AND SINGAPORE

Criminal charges for Goldman employees and a Malaysian financier

IN 2010 GOLDMAN SACHS created a “business standards” committee to try to repair the reputational damage the financial crisis had done. Clients and transactions were to be screened for ethical shortcomings. Charges of money-laundering and bribery filed by federal prosecutors in a Brooklyn court on November 1st suggest that the investment bank had diagnosed a real problem, if not found the solution.

The allegations relate to work done by Goldman for 1Malaysia Development Berhad (1MDB), a sovereign-wealth fund set up in 2009, shortly after Najib Razak became Malaysia’s prime minister. Since 2015 investigators in various countries, including America, Singapore, Switzerland and latterly Malaysia itself, have been trying to trace the money it raised and channelled through a maze of financial institutions and shell companies. According to the filing in New York, funds were misappropriated to buy paintings, luxury properties and jewellery (including a necklace costing \$27m), and to pay for parties attended by musicians, actors and models, and even a movie, “The Wolf of Wall Street” (fittingly, about financial sleaze).

Goldman’s role was to underwrite three bond offerings together worth \$6.5bn, from which it earned \$600m. That juicy cut drew accolades from the firm’s senior management, even as those who expressed doubts about why the client was willing to pay so much were overruled. According to the indictment, \$2.7bn of the money raised went astray.

According to the filings, Goldman’s former chairman for South-East Asia, Tim Leissner, has pleaded guilty to bribery and money-laundering. He is due to be sentenced in December, though that may be delayed. One of his associates at Goldman, Roger Ng, was indicted on similar charges and arrested on an American warrant in Malaysia shortly before the documents were filed. Also indicted was Jho Low, a Malaysian who allegedly masterminded the plot. Goldman has beefed up its legal team, hiring a former deputy US attorney-general, as it seeks to persuade prosecutors not to bring criminal charges against the firm.

The indictment acknowledges that Goldman’s compliance department had blocked Mr Low from doing direct business with it and that its controls were “knowingly and wilfully” circumvented. But it also says that the firm’s “business culture”, par-

PUBLIC OPPROBRIUM ought to be something to avoid. It has laid low mighty men in Hollywood accused of sexual misdeeds and sporting heroes caught pumping drugs. But it is not bad for everyone: for some populist politicians it can be fuel to their supporters’ fire. And a new study* suggests that Wall Street’s sins have a surprising side-effect: press reports of bad behaviour by investment banks during and after the financial crisis were good for business.

Thomas Roulet, of Cambridge University’s Judge Business School, sifted all the editorial and opinion articles about the financial industry in the *New York Times*, *Wall Street Journal* and *Washington Post* published between 2006 and 2011. He



ticularly in South-East Asia, was “highly focused on consummating deals, at times prioritising this goal ahead of the proper operation of its compliance functions”.

Some of the diverted money was allegedly used to support Mr Najib’s re-election in 2013. Until this year’s election, which he lost, the Malaysian authorities continued to insist that there was nothing to investigate—even as America’s justice department sought to recover what it regarded as ill-gotten gains. But the new administration, which campaigned against *kleptokrasi*, is bent on prosecutions. Malaysian regulators are working with American investigators to locate and recover assets.

Mr Najib, who faces more than 30 charges, including of money-laundering and abuse of power, will go on trial next year. In the weeks after he lost power, boxes stuffed

Banks behaving badly

When vice is virtue

Naughty investment banks win more IPO business

built a list of 204 terms of reproach, signifying greed (eg, “avarice”), violence (“rapacity”), extreme risk-taking (“gambling”) or opacity (“manipulation”). He then searched the whole of those newspapers for uses of the words applying to 28 investment banks. During the period banks were roundly chastised, for example in reports by Andrew Cuomo, New York’s attorney-general, in 2009, and by the Senate in 2011.

Mr Roulet found that the more disapproval a bank earned—measured by the density of reproachful words in articles about it—the more fees it earned too. Specifically, it was likelier to oversee initial public offerings of American companies’ shares between 2007 and 2011. Of course, bigger banks attract more coverage; Mr Roulet controls for that, partly by using the density of critical words, not the total. And other factors also matter: the more shares a bank had placed in the past year, say, or the more “bookrunners” an IPO had, the better its chances of being hired.

A finer analysis shows that adverse reports in the *Journal* gave a bank by far the biggest boost. What the media, and hence the public, found disreputable, Mr Roulet concludes, potential clients saw as evidence of professional prowess. Banks don’t revel in being cast as villains. It may help them just the same.

.....
* “Sins for some, virtues for others: banks’ misconduct and adherence to professional norms during the financial crisis”, by Thomas Roulet. Forthcoming in *Human Resources*.

with designer handbags, jewellery and cash were recovered from his residences. The publisher of the *Edge*, a newspaper which gave 1MDB heavy coverage, was arrested under Mr Najib. He has now been knighted. No one in Malaysia will work with Goldman again for a “long, long time”, says a prominent official.

Mr Low has vanished. He is thought to be in China, though Chinese officials deny it. If he is, he may be hard to get back, since Chinese state firms may have been used to launder money from 1MDB. But there is speculation that Chinese authorities may hand him over if Malaysia agrees to honour big contracts that Mr Najib signed with Chinese companies, some of which the new government has already suspended. Mr Low could turn out to be more valuable as a fugitive than he was as a financier. ■

Non-wage compensation in America

Time to perk up

The benefits gap between high and low earners is widening

ISEE PATIENTS every day who are going to have babies because they work at Facebook,” says Peter Klatsky of Spring Fertility clinic in Silicon Valley. Tech giants now include egg-freezing and *in vitro* fertilisation in their employees’ health coverage. But even as high-earning Americans have the cost of making a baby covered by their companies, many low earners cannot get paid leave to look after theirs.

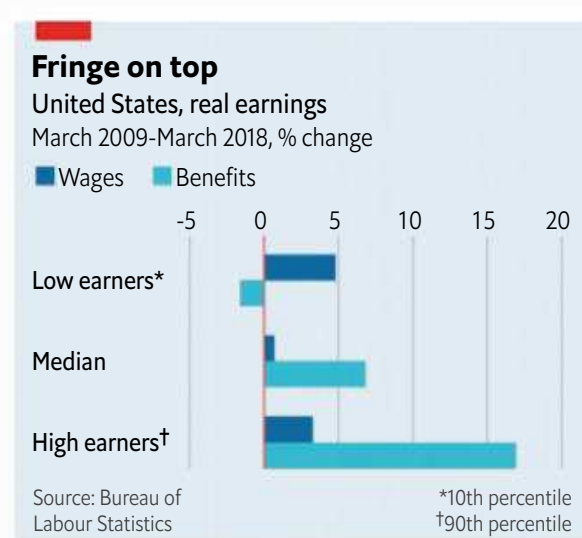
Since the end of the first world war, American workers have seen a steady rise in benefits. According to the Bureau of Economic Analysis, “supplements” to wages, which include most of today’s benefits but exclude performance bonuses, rose from 1.4% of total compensation in 1917 to 17.5% in 2000. Using a broader measure that includes performance bonuses as well as paid leave, overtime, health insurance and contributions to retirement plans, that share has risen further since: from 27% of compensation in 2000 to 32% now.

When growth in wages slowed after the financial crisis, so did growth in benefits. Another trend also became apparent: a widening gap between rich and poor. Workers at the tenth percentile for wages saw benefits fall by around 2% in real terms between 2009 and 2018. Those at the 90th percentile saw a rise of 17% (see chart).

Wage growth has picked up recently as the labour market has tightened. Figures released on November 2nd showed that 250,000 jobs were added across America during October, and that average wages grew at an annual rate of 3.1%, the fastest since the financial crisis. By the end of the summer, there were over a million more unfilled positions than jobless Americans.

But growth in benefits for lower earners has remained sluggish. One reason is that few get employer-provided health insurance, which has accounted for about a third of the increasing cost of employers’ benefits since 2000. Just one in four of those in the bottom 25% by earnings are covered, compared with three in four in the top 25%. Those working in the gig economy lose out on conventional benefits such as pension contributions. Meanwhile, at the top end of the labour market, bonuses are increasingly being used to retain the most prized workers. Aon Hewitt, a human-resources consultancy, finds that over four decades bonuses have grown to a record high, reaching 12.8% of payroll in 2014.

The gap is likely to be wider still when



intangible benefits are included. The share of Fortune 1,000 companies with shorter hours on “summer Fridays” has doubled, to 42%, since 2015. Salesforce, a software giant, gives employees several paid days off per year for volunteering, and \$1,000 to donate to a cause of their choice. Since such perks are more common at tech firms and in offices, low-paid workers often miss out. Unionised workers, who have more leverage with employers, choose to receive a notably larger share of their compensation as benefits than non-unionised ones. In a survey of American workers by FRACTL, a content-marketing firm, 88% said they would sacrifice a higher wage for better health insurance and more flexible hours.

The hope for low earners lies in the fact that they are often the last to gain from expansions. As the labour market has tightened, their wage growth has accelerated sharply. They may soon start to feel the benefit beyond their pay cheques, too. ■

Crowdfunding development

It's coming home

Investment platforms are vying to capture a share of global remittances

IN 2016 AYO ADEWUNMI, a Nigerian-born agricultural trader living in London, bought a five-hectare farm in his homeland. It has produced little since. “I am not in the country, so I have to rely on third parties. It’s just not good enough,” he says.

Mr Adewunmi has since discovered another, potentially more satisfactory way to make such investments: through FarmCrowdy, a crowdfunding platform that lends to Nigerian farms and provides technical assistance to their owners. The two-year-old startup, which is considering expanding into Ghana, places high hopes in the African diaspora as a source of funds.

The case for such platforms goes beyond agriculture. Global remittances are

expected to soar from \$468bn in 2010 to \$667bn in 2019. They are among the top two foreign-currency sources in several countries, including Kenya and the Philippines. Yet hardly any of the money is invested.

In part, this is because recipients use three-quarters of the money for basics such as food and housing. But it is also because emigrants who want to invest back home have few options. New investment channels could attract lots of extra cash—about \$73bn a year in Commonwealth countries alone, according to research by the 53-country grouping.

Crowdfunding platforms would enable investors to put modest sums directly into smaller businesses in developing countries, which are often cash-starved. Yet of the emerging world’s 85 debt- and equity-crowdfunding ventures, only a handful raise money abroad. Several platforms set up in rich countries over the past decade to invest in developing countries, including Emerging Crowd, Homestrings and Enable Impact, quickly folded.

A big problem is that few developing countries have rules about crowdfunding. Many have allowed activity so far chiefly because the industry is so small, says Anton Root of Allied Crowds, a consultancy. Cross-border transfers using such platforms easily fall foul of rich countries’ rules intended to stop money-laundering and the financing of terrorism.

Some developing countries have realised that they need to act. Thailand, Malaysia, Singapore and Indonesia have all recently passed regulations on equity crowdfunding or peer-to-peer lending. But from a cross-border perspective, Africa seems most inventive, owing to active entrepreneurs and Western help.

Last month the British government approved a grant of £230,000 (\$300,000) to the African Crowdfunding Association to help it craft model accreditation and investor-protection rules. Elizabeth Howard of LelapaFund, a platform focused on east Africa, is part of an effort to see such rules adopted across the continent. That would help reassure sending countries that transfers do not end up in the wrong hands, she says. She hopes to enlist the support of the Central Bank of West African States, which oversees eight Francophone countries, at a gathering of crowdfunders and regulators sponsored by the French government in Dakar, in Senegal, this month.

Thameur Hemdane of Afrikwity, a platform targeting Francophone Africa, says the industry will also study whether prospective laws could be expanded to the Central African Economic and Monetary Community, a grouping of six countries. Harmonised rules will not guarantee crowdfunders’ success, but would be a useful step towards raising the amount of diaspora capital that is put to productive use. ■

Free exchange | Rome alone

An Italian budget showdown underlines the need for the euro area to reform

THE FATE of the euro was always going to depend on Italy. With annual GDP of more than €1.6trn (\$1.9trn), about 15% of euro-area output and debt of nearly €2.3trn, it poses a challenge to the single currency that Europe seems unable to manage but cannot avoid. Matters are now coming to a head, as Italy's new coalition government instigates a showdown over the European Union's fiscal rules. The disagreement might well become disastrous. But it is also an opportunity for the euro zone to begin building a better, more durable approach to fiscal policy.

Trouble began earlier this year when the populist Five Star movement, led by Luigi Di Maio, formed a government with the right-wing Northern League, led by Matteo Salvini. Both promised budget goodies: Mr Salvini a hefty tax cut and Mr Di Maio a basic minimum income. Such largesse may test the deficit limit of 3% set by the EU's stability and growth pact. And it seems certain to break other fiscal rules set by the bloc: the government's initial budget plan is forecast to raise borrowing to 2.4% of GDP in 2019, above the 0.8% target to which Italy previously committed itself and enough to reverse recent, modest declines in its debt burden.

The EU did not take the news well. On November 5th other countries' finance ministers warned that failure to revise the budget would lead to an "excessive deficit procedure", and possible sanctions. But Italians are unbowed. Mr Di Maio, now deputy prime minister, argued in comments to the *Financial Times* that Italy's fiscal expansion will prove so successful that other European leaders will clamour to follow, citing, somewhat dubiously, faster growth in America after a budget-busting Republican tax cut.

Both sides have their points. Italians are frustrated. Real incomes in Italy have fallen since joining the euro area; inequality and poverty have risen. Economic growth briefly rose to almost 2% in mid-2017 but has since slipped back to close to zero. At 10.1%, the unemployment rate is well above the pre-crisis low of 5.8%. Economic weakness is re-emerging even as the European Central Bank reduces its stimulative asset purchases and prepares for eventual interest-rate rises. Recent indicators of service-sector and manufacturing activity suggest that the economy is at risk of falling back into contraction. A return to recession would prove disastrous for Italy's politics and its long-run budget position. And a bit more spending now would probably not spark a bond-market panic, since the government's debt has an average maturity of nearly seven years and most is held domestically. A little forbearance on the part of the EU might therefore enable a dangerous po-

litical moment to be defused at little economic cost.

Yet it is hard to fault the EU for its wariness. Italy's slow growth reflects serious structural problems. The European Commission estimates that the country's natural unemployment rate has risen from about 8% in 2007 to 10% now, suggesting that boosting employment is a matter more of reform than stimulus. The OECD estimates that Italy's output gap, the shortfall between an economy's actual and potential output, will have closed by next year. Potential output—ie, what an economy can sustain without inflation accelerating—is easy to underestimate. But some variables suggest that labour-market slack is disappearing. For example, after a long period of decline year-on-year wage growth roughly doubled over the summer, to 2%. Nor have Italians been deeply mired in austerity in recent years. Italy's structural budget deficit has nearly doubled since 2015. Its pensions remain among the euro area's most generous, a perversity given the disproportionate economic pain borne by young Italians over the past decade.

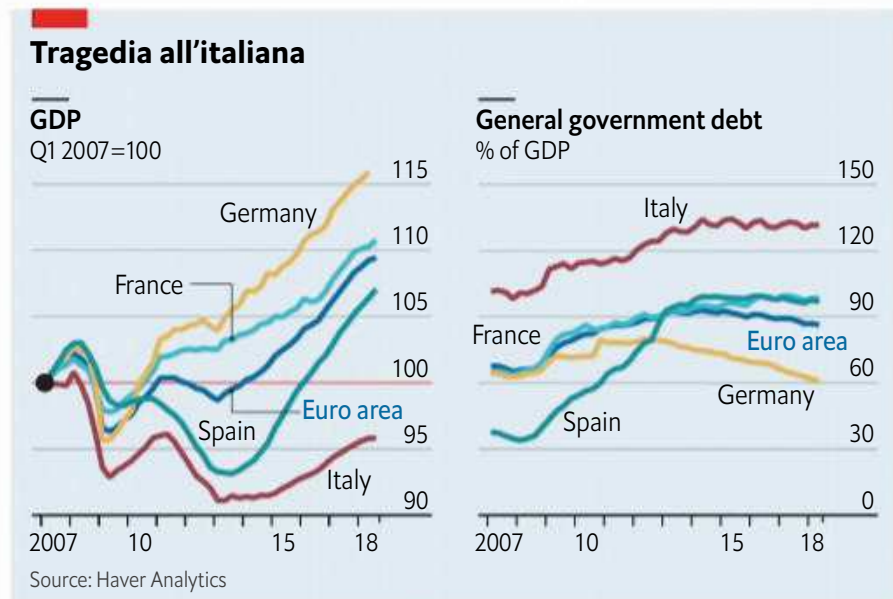
Tight budget rules were, moreover, the price of the extraordinary measures that saw the euro area through its crisis earlier this decade. A bail-out programme for Italy could well prove fatal to the currency bloc; a showdown might be worth provoking to keep Italy's debt manageable and the euro area viable. Each side has its reasons for fighting all the way.

Ciao time

There is a path through this impasse. The euro zone shares a monetary policy but lacks a correspondingly coherent fiscal approach. The Italian dispute offers a timely opportunity to address that. Across the euro area as a whole, fiscal policy is arguably too tight. The ratio of debt to GDP is a relatively modest 86.3% and falling fast, by three percentage points in the past year alone. In countries with big budget surpluses, such as Germany and the Netherlands, higher spending on growth-boosting investments would slow the shrinking of debt burdens, but not stop it altogether. Some of the resulting fiscal boost would spill over into Italy through increased tourism and consumption of its exports, boosting demand without straining the Italian public purse. In exchange, the EU could ask Italy to moderate its fiscal plans.

Though it would be anathema to northern Europeans, a further sweetener, in the form of limited debt mutualisation, should also be considered. Italy's debt is an old problem. It reached 100% of GDP almost three decades ago; but the country has run a primary surplus every year for the past quarter-century, except for the two years immediately after the financial crisis. Taking a hard line with Italy today does nothing to discipline the governments of the 1980s but adds to the bitterness felt by young people, who have fared worst under the euro and must accept towering budget surpluses in perpetuity or face ejection from the single currency. A plan to swap some national bonds for Eurobonds backed by all euro-area governments might be pie-in-the-sky, politically. Yet that policy would acknowledge that euro-area countries share a fiscal fate, relieve young Italians of doing penance for their forebears' sins and make fiscal probity for Italy a less Sisyphean task—and, perhaps, more politically tolerable.

European integration is meant to build a whole greater than the sum of its parts. The euro area could wield its combined fiscal capacity to deal with the Italian threat while building a sense of shared fiscal responsibility. Instead, Europe and Italy are heading towards confrontation. The euro zone's greatest weakness is not its spending, but its politics. ■





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Conservation and deep-ocean mining

The seas are lovely, dark and deep

Soon, human machinery will open Davy Jones's locker and begin extracting the mineral riches therein. What will that mean for existing denizens of the abyss?

DIVA AMON, a researcher at the Natural History Museum in London, spotted her first whale skull in 2013, during an expedition to the Clarion Clipperton Zone (CCZ) in the tropical Pacific. It sat on beige silt, some 4,000 metres beneath the sea's surface, and was entirely covered in a black coating. Her find was twice notable. First, the skull's coating meant it was millions of years old, for it was made of the same slowly accumulating metallic oxides as the potato-like ore nodules that are drawing miners to the area. Second, the discovery highlighted how little is known about the deep ocean. Dr Amon's whale skull, and others like it, raise questions about the trade-offs between the economic gains of mining the seabed and that mining's environmental consequences.

Those involved in deep-sea mining hope it will turn into a multi-billion dollar industry. Seabed nodules are dominated by compounds of iron (which is commonplace) and manganese (which is rarer, but not in short supply from mines on dry land). However, the nodules also contain copper, nickel and cobalt, and sometimes other metals such as molybdenum and vanadium. These are in sufficient demand that visiting the bottom of the ocean to acquire them looks a worthwhile enterprise.

Moreover, these metals seldom co-occur in terrestrial mines. So, as Kris Van Nijen, who runs deep-sea mining operations at Global Sea Mineral Resources (GSR), a company interested in exploiting the nodules, observes: "For the same amount of effort, you get the same metals as two or three mines on land."

Hades' hall

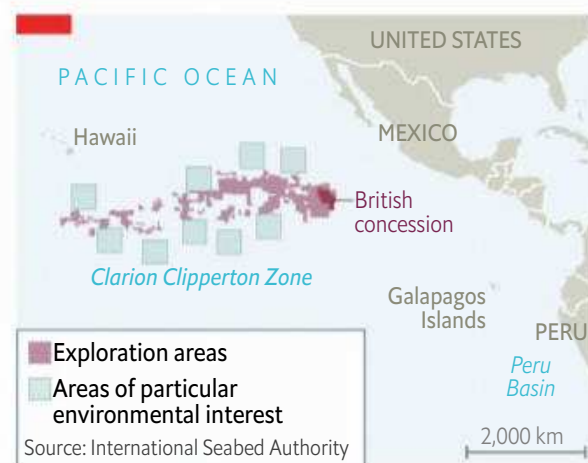
Though their location several kilometres beneath the ocean surface makes the nodules hard to get at in one sense, in another they are easily accessible, because they sit invitingly on the seabed, almost begging to be collected. Most are found on parts of the ocean floor like the CCZ, outside the 200-

nautical-mile exclusive economic zones of littoral countries. They thus fall under the purview of the International Seabed Authority (ISA), which has issued 17 exploration licences for such resources. All but one of these licences pertain to the CCZ, an area of about 6m square kilometres east-south-east of Hawaii.

The licensees include Belgium, Britain, China, France, Germany, India, Japan, Russia, Singapore and South Korea, as well as several small Pacific island states. America, which is not party to the United Nations Convention on the Law of the Sea that established the ISA, is not involved directly, but at least one American firm, Lockheed Martin, has an interest in the matter through a British subsidiary, UK Seabed Resources. And people are getting busy. Surveying expeditions have already visited the concessions. On land, the required mining machines are being built and tested. What worries biologists is that if all this busyness does lead to mining, it will wreck habitats before they can be properly catalogued, let alone understood.

The first task, therefore, is to establish what exactly lives down there. At first glance, the CCZ's abyssal plain does not look of much interest. It is a vast expanse of mud, albeit littered with nodules. But, though life here may not be abundant, it is diverse. Craig Smith, an oceanographer at the University of Hawaii, Manoa, who studies the ocean's abyssal plain, says that the CCZ contains a greater variety of species than the deep seas off the coasts of California and Hawaii.

Some of the CCZ's creatures stretch the imagination. There is the bizarre, gelatinous, yellow "gummy squirrel" (pictured), ►



▶ a 50cm-long sea cucumber with a tall, wide tail that may operate like a sail. There are galloping sea urchins that can scurry across the sea floor on long spines, at speeds of several centimetres a second. There are giant red shrimps, measuring up to 40cm long. And there are “Dumbo” octopuses, which have earlike fins above their eyes, giving them an eerie resemblance to a well-known cartoon elephant.

Every expedition brings up species that are new to science, many of them belonging to biological families that are also novel. At a conference in Monterey, California, in September, Dr Smith presented results of a biodiversity survey carried out in the British concession, which sits at the eastern end of the ccz. Of 154 species of bristle worms the surveyors found, 70% were previously unknown. Dr Smith says the concession may be part of a biodiversity hotspot, one which would not be represented in the nine protected areas of environmental interest that have been set aside in the ccz. He therefore argues for the establishment of a tenth such area, on the margins of the concession.

A whale of a tale

The ocean’s largest inhabitants may also be visitors to the ccz. This summer Leigh Marsh of Britain’s National Oceanography Centre, in Southampton, described more than 3,000 large depressions in the mud there. These formed a series of curved tracks. Similar tracks elsewhere have been linked to whales scraping themselves against the seafloor. Dr Marsh and her colleagues suggest that deep-diving whales may be foraging on the ccz seafloor, using it as a giant loofah to scrape parasites from their skins or even ingesting the nodules as ballast. If true, this would significantly extend the depth to which whales are known to dive.

The only direct evidence of whales in the ccz, though, comes in fossil form. In Monterey, Dr Amon set the audience buzzing when she presented preliminary data suggesting that the region contains large deposits of fossil whale bones. Such fossils were first noted by the *Challenger* expedition, a world-spanning investigation of the deep ocean conducted in the 1870s by a British naval research vessel. Dr Amon’s find back in 2013 prompted her and her colleagues to go through tens of thousands of images gathered by various exploration submarines. These recorded 548 cetacean fossils from a range of species. Among the oldest was *Choneziphius*, an extinct animal that lived more than 10m years ago.

Although this work was a study of photographs, rather than of the remains directly, which could cast doubt over some of the identifications, the metallic-oxide coating of many of the bones gives a sense of how old they are. Because of the density

of fossils, Dr Amon says the ccz may be a previously undiscovered, and rare, submarine fossil bed.

Why whale fossils would accumulate in this particular spot is unknown. Possibly, those elsewhere are simply buried. The ccz sits beneath the ocean’s clearest waters, so its sediments accumulate extremely slowly. But it may be that some as-yet-unknown physical process is keeping the fossils and

the (equally old) nodules at the surface of the silt. Indeed, why the nodules are exposed is one of the great mysteries of the region. Regardless, Dr Smith, Dr Amon and others hope the bones’ presence will be taken into account as the isa drafts the rules and regulations for exploitation of the ccz.

Whale fossils, sea cucumbers and shrimps are just the stuff that is visible to the naked eye. Adrian Glover, one of Dr ▶▶



Underwater mining on land

Waste not, want not

SILVERMINES

A new robot system will reopen abandoned, flooded mineral workings

THE IDEA of underwater mining is not restricted to the ocean floor (see previous piece). High water tables submerge many terrestrial deposits, too. At minimum, this means doing a lot of pumping to make them workable. Sometimes, it makes those deposits altogether inaccessible. Flooding also adds to the cost of re-opening closed mines. The team behind VAMOS hopes to do something about this.

The Viable Alternative Mine Operating System, to give its full name, is being developed by a consortium of 16 European firms and research institutes. It is currently on trial at Silvermines, Ireland—which, as its name suggests, was once home to workings for silver and other metals. They are now closed and flooded. But one of them, a source of baryte, the principal ore of barium, has been repurposed as VAMOS’s test bed.

The core of VAMOS is a pair of remotely controlled vehicles. These are floated on-board a special platform into place over the site to be mined, and then dropped through the water (to a depth of 57 metres in this case) by a crane.

The larger vehicle is a 25-tonne tracked robot (pictured) with a powerful rock-cutting head at one end and, at the other, a hydraulic gantry that can carry tools such as drills and grabs. Crushed ore-bearing rock is pumped to the surface through a flexible pipe, and a cable carries power and data between the robot and an onshore control centre.

The smaller vehicle is called EVA. It has neutral buoyancy and swims around the mining site. It was designed at the Institute for Systems and Computer Engineering, Technology and Science, in Portugal. EVA first makes, and then continually updates, a 3D map of the area—transmitting this cartography to the main vehicle, to assist navigation.

Both vehicles use sonar, cameras and laser rangefinders to work out where they are. They send these data to a pilot in the control centre, who sees them displayed on a multi-screen console of the sort gamers can only fantasise about. A future version may also be able to analyse the ore spectroscopically as it is mined, enabling rich seams to be pursued and poor ones abandoned.

► Amon's colleagues at the Natural History Museum, and his collaborators spent weeks peering down microscopes, inspecting every nook and cranny of the surfaces of some of the nodules themselves. They discovered a miniature ecosystem composed of things that look, at first sight, like flecks of colour—but are, in fact, tiny corals, sponges, fan-like worms and bryozoans, all just millimetres tall. In total, the team logged 77 species of such creatures, probably an underestimate.

Out of sight. Out of mind?

Inevitably, much of this life will be damaged by nodule mining. The impacts are likely to be long-lasting. Deep-sea mining technology is still in development, but the general idea is that submersible craft equipped with giant vacuum cleaners will suck nodules from the seafloor. Those nodules will be carried up several kilometres of pipes back to the operations' mother ships, to be washed and sent on their way.

The size and power of the submersibles means that they will leave large tracks in their wake. These are likely to persist for a long time. Evidence for this comes from various decades-old disturbance experiments. In 2015 an exploratory expedition by IFREMER, a French government agency responsible for oceanography, noted that even mobile animals like sea urchins were 70% less abundant within 37-year-old experimental tracks than outside them.

The largest disturbance experiment so far was carried out in 1989 in the Peru Basin, a nodule field to the south of the Galapagos Islands. An eight-metre-wide metal frame fitted with ploughs and harrows was dragged back and forth repeatedly across the seabed, scouring it and wafting a plume of sediment into the water. In 2015 a research vessel returned to the site. Down went the robots, samplers and submarines with their scanners and cameras. The big question was, 26 years after the event, would the sea floor have recovered? The answer was a resounding “no”. The robots brought back images of plough tracks that looked fresh, and of wildlife that had not recovered from the decades-old intrusion.

Another concern, in the wake of the Peru Basin experiment, is sediment. This will be both stirred up during collection, as the robots crawl across the sea floor and Hoover it, and washed off the nodules at the surface when they are cleaned. Ideally, a second pipe would deliver those washings directly back to the seabed, in order to keep disruption in the water column to a minimum. In practice, dumping silt overboard will be much easier. Decades of failure to police overfishing demonstrate how hard it is to regulate activity on the high seas.

If silt were dumped in this way it could be disastrous. A steady stream of the stuff raining down from the surface would affect

everything along the way, especially filter-feeding animals such as sponges and krill, which make their livings by extracting small particles of food floating in the water. The effect both in the water column and on the sea floor might not be so great in other parts of the oceans, say biologists, but life in the crystalline ccz is wholly unadapted to murky waters.

All of this needs to be balanced against the impacts of mining the equivalent amounts of minerals on land, however. The ccz covers about 2% of the deep ocean. A 20-year operation within it would affect of the order of 10,000 square kilometres—about a six-hundredth of its area—according to Mr Van Nijen. And, unlike mining developments in virgin areas of dry land, which tend to bring other forms of development in their wake by creating transport links that encourage human settlement, no one is going to follow the nodule-hoovers and actually live on the abyssal plain.

In the end, the only way to measure how mining would change the bottom of the ocean may be to conduct small-scale pilot operations. The first will take place next

April, when GSR will lower *Patania II*, an enormous green tractor, to the bed of the ccz. *Patania II* is a prototype nodule collector. It will clear areas roughly 300 by 100 metres, leaving them nodule-free, so that future expeditions can return and study recolonisation rates. An array of sensors suspended in the nearby water will monitor the resultant silt plume, which the company's models suggest could travel up to 5km—not the hundreds of kilometres that some have suggested.

To scrutinise this trial independently, JPI Oceans, an intergovernmental research body, has paid for the *Sonne*, a German research vessel, to sail alongside GSR's. As Mr Van Nijen puts it, “We need to validate our equipment, but from an environmental perspective, the world's first mining test at depth is a unique opportunity for scientists to study the impacts. If we don't do this in a transparent manner, it will go nowhere.” That sounds like a promising start. But however careful the miners are, life for the inhabitants of the ccz is about to get a lot less peaceful than it has been for millions of years. ■

Evolution

Underneath the lamplight

Town-dwelling spiders prefer their parlours illuminated

MOST SPIDERS avoid light because, besides being predators, they are also potential prey. But there is a set of circumstances in which living beside a powerful light is an advantage. This is when you are a web-weaving spider. Moths and other insects are attracted to sources of illumination such as streetlights. Those are found predominantly in cities. It would therefore make sense if urban web-spinning spiders

had lost their photophobia, so that they could more easily set up shop beside such lights. And an experiment by Tomer Czaczkes of the University of Regensburg, in Germany, suggests that for at least one species this has happened.

Dr Czaczkes's interest in whether city life shapes spiders' behaviour began when he saw lots of fat, happy arachnids building webs near Regensburg's streetlamps. Delving into the academic literature, he discovered that urban moth populations have been shown to be less attracted to lights than are their rural relatives. Presumably, this is because, besides any webs involved, the whole business of flying round and round such lights is a fitness-reducing waste of time and energy. He reasoned that a similar but reverse sort of logic—resulting in their being more attracted to lights, or at least less afraid of them—should apply to town spiders versus country ones. And, as he reports this week in the *Science of Nature*, it does.

He and his colleagues collected egg sacks laid by their chosen animal, *Steatoda triangulosa* (the triangulate cobweb spider—selected because it is common throughout Europe and thrives in both ur- ►►



Lover of the light

► ban and rural environments), from two sites in the Italian countryside, and also from Milan, Munich and Nice. The resulting 783 spiderlings were placed individually into boxes that had a dividing board through the centre. One side of each box was lit by a lamp that shed no heat. The other side was left dark. Two tiny gaps in the dividing boards permitted the spiderlings easy access to both sides of the box. Spiderlings were placed at random in the light or

the dark at the start of their time there, and then monitored to find out where they built their first web.

Almost two-thirds of rural spiderlings built their webs in the dark part of the box, but only half of their urban cousins did so. That suggests rural spiders are indeed photophobic while urban spiders, though not actually attracted to the light, have ceased to be afraid of it—not so much *Steatoda triangulosa*, then, as *Steatoda luminosa*. ■

Success in art

Only connect

To get to the top of the art world, it helps to start there in the first place

WELL BEGUN, half done. That proverb, ascribed to Aristotle, seems an apt description of the art market—at least it is if a study of artistic careers, published this week in *Science*, is to be believed. In this study Albert-László Barabási, a physicist at Northeastern University in Boston, and Samuel Fraiberger, a data scientist at the Harvard Institute for Quantitative Social Sciences, deconstruct almost half a million artistic careers. They conclude that for artists, professional success seems often to depend on an early endorsement by the right set of galleries.

Dr Barabási and Dr Fraiberger used data from Magnus, a firm that collects information about the art market, such as auction sales and exhibitions, to build a picture of how works of art flow around the world's thousands of galleries and museums. The researchers' thinking was that the more places an artwork has been exhibited, the more demand there is for it—and the more successful that artwork (and its creator) might reasonably be thought to be. This, in turn, by a process of feedback, permits a map to be made showing which are the most prestigious and important art institutions in the world.

The feedback mechanism Dr Barabási and Dr Fraiberger used was inspired by PageRank, the algorithm at the heart of Google's search engine. PageRank determines a web page's importance not by looking at the contents of the page itself but rather by counting how many other pages on the web link to it, and how important those other pages are themselves deemed, by the same iterative process, to be. Dr Barabási and Dr Fraiberger arrived similarly at a prestige rating for each gallery or museum, by counting how many other museums and galleries sent artworks to it, and then giving due account to how prestigious those places were themselves.

The algorithm showed, to nobody's surprise, that the art world's biggest nodes are a group of European and North American powerhouses that include the Museum of Modern Art, the Gagosian Gallery and the Guggenheim in New York, the Tate Gallery in London, and the Pompidou Centre in Paris. These places had the highest prestige ratings, and most of the world's most successful art had, at some point, ended up being exhibited in one or more of them.

Just below the top tier, and less well-known outside the art world, were a set of institutions that also acted as important paths to artistic success—being those that most frequently feed works into the top tier. They include the Leo Castelli and Paula Cooper galleries in New York, Galerie Krinzinger in Vienna, Galerie Thaddaeus Ropac in Paris and London, and Galerie Max Hetzler in Berlin.

Their mapping exercise also permitted Dr Barabási and Dr Fraiberger to follow individual artists' careers. They were able to create an early-success score for each artist by averaging the prestige ratings of the museums or galleries which showed that artist's first five exhibitions. Remarkably, this simple early-career score gave the two researchers all they needed to predict an artist's future success.

Elite artists—those whose score at the start of their careers was in the top 20%—had only a 0.2% chance of ending their careers in the bottom 20%. Almost 60% maintained their elite status throughout.

At the other end of the scale it seems extremely hard to join the elite if you did not begin there. Of those artists who started by exhibiting in the bottom 20% of institutions, only 10% eventually made it into the elite group—and around 16% stayed at the bottom. These figures actually under-represent the scale of the struggle that such artists face, since most in this initial group did not stick it out for long. Of those who started at the bottom of the success scale, only 14% remained in the industry ten years after their fifth exhibit. For the elite group that figure was almost three times higher, 39%.

The financial consequence of all this is that elite artists' work sells 4.7 times more often at auctions than that of those at the bottom end, with maximum prices 5.2 times higher. Which could, of course, be evidence of a meritocratic system working perfectly. After all, for a young artist to beat the competition for wall space in a top gallery suggests he or she is producing work of great quality. Cynics might be forgiven, however, for wondering whether talent is the only factor involved in getting those crucial early shows. A topic, perhaps, for further research. ■





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Atheism

The valley of the shadow

A philosopher subjects the atheist creed to the sort of scrutiny normally reserved for religion

EVER SINCE the Enlightenment, Christianity has been exposed to rigorous examination that has contributed to the decline of organised faith. Though Christian teaching is at the heart of the Western academic tradition, atheism has long been the new gospel for many intellectuals. Some authors have tried to subject it to the same scrutiny that religion has received. But, as polytheistic Romans found in the fourth century, challenging rampant orthodoxies can be tough.

Alister McGrath's "The Twilight of Atheism" and Nick Spencer's "Atheists: The Origin of the Species" are excellent critiques; but both writers are Christians, so they have been relatively easy for unbelievers to dismiss. It has taken a prophet seated firmly in an atheist pew to publicise the creed's contradictions more widely. That prophet is John Gray, a retired professor of philosophy at the London School of Economics. In several books published over 15 years, Mr Gray has reasserted his belief that there is no God, while also attacking the liberal humanism that has emerged in God's stead—which, he thinks, is as flaky as the religion it has replaced.

At the centre of his argument, in books such as "Straw Dogs" and "The Silence of Animals", is the assertion that humans are

Seven Types of Atheism. By John Gray. Farrar, Straus and Giroux; 176 pages; \$25. Allen Lane; £17.99

no different from other creatures. Christianity's "cardinal error" is to say that they are. Yet dispensing with the teachings of monotheism leaves no coherent concept of humanity, nor of human dignity. Mr Gray uses this observation as a launch-pad to criticise "New Atheists" such as Richard Dawkins, and to point out that most modern atheists do not follow their reasoning to its logical conclusion. They may have rejected monotheist beliefs, but they have not shaken off a monotheistic way of thinking, and "regurgitate some secular version of Christian morality". Mr Gray has a much bleaker view of atheism's implications: "A truly naturalistic view of the world leaves no room for secular hope."

In "Seven Types of Atheism" Mr Gray neatly recapitulates his arguments, combining them with a whistle-stop tour of modern unbelief from the Marquis de Sade through to Friedrich Nietzsche and Joseph Conrad. He gives Christianity its due, conceding that not all enlightenment began at the Enlightenment and pointing out the imperfections of that era's heroes—the rac-

ism of Hume, Kant and Voltaire, for instance. Many of the saints of modern liberalism were not as secular as they might seem, he suggests. John Locke's liberalism is indebted to Christianity at every point; John Stuart Mill's insistence that morals did not depend on religion "invoked an idea of morality that was borrowed from Christianity". The new orthodoxy Mill founded was deeply rooted in Christianity, Mr Gray says: "the belief in improvement that is the unthinking faith of people who think they have no religion."

He is as exasperated with knee-jerk unbelief as he is with unthinking devotion, and has no time for several of the types of atheism he enumerates. All of them look to replace God with some form of secular humanism, science or politics. Their high priests tend to be just as blinkered as the ecclesiastics they abjure, Mr Gray complains: "While atheists may call themselves freethinkers, for many today atheism is a closed system of thought." He decries a rising intolerance in academia, where free expression is jeopardised by "a frenzy of righteousness" that recalls the iconoclasm of Christianity when it came to power in Rome. "If monotheism gave birth to liberal values," he says of today's illiberal liberalism, "a militant secular version of the faith may usher in their end."

Instead, he is drawn to the more bracing denominations of the new church, such as those espoused by Spinoza and Schopenhauer, "atheisms that are happy to live with a godless world or an unnameable God". These varieties reject the idea of a creator and dispense with all pieties regarding human nature. They have truly emerged from the shadow of Christianity: "Not looking ►►

► for cosmic meaning, they were content with the world as they found it.”

Mr Gray’s provocative, frank approach has three main drawbacks. The first is that the God he says does not exist cannot be recognised as the Christian God. He suggests that it was the apostle Paul and Augustine of Hippo who invented Christianity, turning a local Jewish movement into a universal one that Jesus never intended, and turning Jesus himself from a prophet into “God on earth”. Naturally this disregards the Bible’s account of Christ’s teaching about his identity and purpose. But it also contradicts recent scholarship that sees Paul less as a Roman who created a new faith than as a Jew who thought he was witnessing the long-expected fulfilment of Judaism. It is ironic that, having spent his career denouncing outmoded orthodoxies, Mr Gray rests his critique of Christianity on outdated perceptions.

The forsaken

The second weakness lies in his view that progress is an illusion: “you will find it hard”, he contends, “to detect any continuing strand of improvement” in human society. You don’t have to be Pangloss (or Steven Pinker) to demur; a glance at the history of medicine is ample evidence to the contrary. But the biggest problem is the void to which his skilful demolitions lead. What ought to be the basis for Western civilisation after the decline of religious faith? Mr Gray never proposes nihilism, hedonism or suicide, and seems (like Mr Dawkins) to believe that peace, prosperity, honesty and common decency are good things.

He ended “Straw Dogs” by asking, “Can we not think of the aim of life as being simply to see?” This might sound profound over port at high table, but may be less persuasive to people mired in abject poverty. It is not a premise on which to build a society. His new book is similarly lacking in constructive proposals.

Yet its reflections on the future are insightful. Looking beyond the squabbles over science and God, Mr Gray sees the challenges implicit in abandoning the metaphysical and moral order that Christianity once provided. Like Nietzsche, he says the West cannot ditch the faith and expect to retain congenial Christian ethics. It will be difficult, he predicts, for modern liberalism to ground a universal moral law on non-theistic foundations.

Relieved as they are by the weakening of the church’s oppressive aspects, many secularists have missed the flipside of Christianity’s decline. In the absence of a single moral code mandated by God, says Mr Gray, people must accept a spectrum of moralities, palatable or otherwise: “Anyone who wants their morality secured by something beyond the fickle human world had better join an old-fashioned religion.” ■

The new genetic revolution

Destiny’s child

Blueprint: How DNA Makes Us Who We Are. By Robert Plomin. *The MIT Press*; 280 pages; \$27.95. *Allen Lane*; £20

HUBRIS WINDS through the history of genetics like a double helix. “We used to think our fate was in our stars,” James Watson, one of the scientists behind the discovery of DNA, declared in 1989. “Now we know, in large measure, our fate is in our genes.” The implications were clear. Unravelling the genetic code would bring an exquisite understanding of bodies and their afflictions but also of minds. After the completion of the human genome project, which Watson initially led, such hopes faded. Individuals’ physical or mental characteristics, and their susceptibility to diseases, turned out to be extraordinarily complex. Some of the swagger went out of genetics. Now it is back.

In “Blueprint” Robert Plomin, a psychologist and geneticist, explains the advances behind this resurgent optimism—and their consequences for the science of human behaviour and psychiatric illness. He is well placed to do so: for more than 30 years he has studied the interplay of genes and the environment and their effects on personality. But Mr Plomin’s enthusiasm for his subject—he calls himself a “cheerleader”—means the ramifications are not explored even-handedly. “Blueprint” is absorbing. For those with a disposition less sunny than Mr Plomin’s, it is also alarming.

For much of the 20th century, psychology was dominated by the idea that human nature is a blank slate embellished by upbringing and environment. “Blueprint” begins by describing how Mr Plomin and others have demonstrated that, on the

contrary, behavioural differences are strongly influenced by genetics. Studies of adopted children indicate that in disposition they more closely resemble their genetic parents than their adoptive ones. Even when they are reared apart, identical twins are more alike than the non-identical kind (who are as genetically different as any brother or sister).

Such research shows that, on average, DNA accounts for about half of the psychological differences between people, with the remainder due to environmental factors; the actual proportion varies with the characteristic in question. More recently scientists have combed through human genomes to identify thousands of genetic variants associated with particular traits, from height and weight to educational attainment and neuroticism. Tests costing less than £50 (\$65) can measure genetic propensity to different outcomes—to be overweight, or to go to university.

For those who imagine all that leaves enough wriggle room for benevolent parents or teachers to exert an influence, Mr Plomin has bad news: these environmental factors are themselves substantially influenced by genes. For example, his work shows that genes account for about a third of the differences between the television viewing habits of children. Worse, the remaining tranche of environmental influence appears to be mostly attributable to unpredictable events rather than, say, being brought up in a house full of books.

These findings, says Mr Plomin, imply that “parents don’t make much of a difference in their children’s outcomes beyond the genes they provide”; DNA is a “fortune teller” that “makes us who we are”. Environmental effects are “important”, but “there’s not much we can do about them”.

Mr Plomin insists that, armed with their genetic test scores, individuals can take action to counter or augment their innate proclivities; but they are hardly likely to succeed if their psychology is as delimited by genes as he suggests. An equally plausible possibility is that these scores will be used to stigmatise genetic “have-nots” or to justify discrimination. This is the high road to eugenics, about which Mr Plomin is largely silent.

Instead he advocates the use of such scores when choosing between candidates for a job. Yet a person with high scores for traits associated with coding skills is not necessarily a good programmer—they merely have a higher likelihood of being one. A candidate who had demonstrated their aptitude for the job would feel rightly miffed to be passed over in favour of a genetically gifted incompetent. Likewise, though doctors may find it useful to know that a patient is genetically predisposed to be obese, the best way to establish their weight is to ask them to step on the scales. ►►



Nature not nurture

American fiction

What goes around

Unsheltered. By Barbara Kingsolver. Harper; 480 pages; \$29.99. Faber & Faber; £15.99

ONLY A NOVELIST, it might seem, could conjure up a figure like Mary Treat. A stalwart 19th-century scientist, she tramps the Pine Barrens of New Jersey in search of wax myrtle, swamp pinks and Venus flytraps. Her husband has left her for Victoria Woodhull, a suffragist who ran for president in 1872. Her intellect makes her the valued correspondent of Charles Darwin and his Harvard-based champion, Asa Gray.

Treat plays a central role in Barbara Kingsolver's engrossing new novel "Unsheltered", but she is no more an invention than are Woodhull, Darwin and Gray. She made her home in Vineland, New Jersey, a place that became a classic American manufacturing town but originated in the Utopian vision of a man called Charles Landis. He envisioned an agrarian community of homeowners whose lives would be untainted by the evils of alcohol. Half of "Unsheltered" is given over to Treat and her friendship with Thatcher Greenwood, a fictional teacher struggling to spread Darwin's new doctrine.

Their story alternates with that of Willa Knox and her family, who wash up in Vineland in 2016. When the university at which her husband taught went bankrupt, he and Willa lost not only a salary but their home. By lucky chance they inherit a house in Vineland from Willa's aunt; unfortunately, the place is a wreck. And in the novel's first chapter the joyous arrival of a grandchild turns to tragedy when the baby's mother commits suicide. The easeful middle age the couple imagined for themselves is upended. Meanwhile an unnamed, blustering candidate seems alarmingly likely to win the highest office in the land.

Ms Kingsolver knits these two narra-



tives together masterfully. The final words of each chapter become the title for the next, a pattern expressed in the lives of the characters too. A Vineland house is crumbling in storylines nearly 150 years apart; relationships in both time-frames are unsettled by change; in-laws prove awkward. The novelist's stitching is never visible, only the beautiful cloth that results.

What 1871 and 2016 have in common is a mood of revolutionary change. Willa becomes fascinated by Treat, her era and how frightening Darwin's work seemed to many: "A great shift was dawning, with the human masters' place in the kingdom much reduced from its former glory." In the present, Willa and her family must learn to make new lives in a world of warming seas and melting ice. "We can't afford to stop doing the shit that's screwing up the weather, and can't afford to pick up the pieces after we do our shit," she reflects.

If that sounds gloomy, "Unsheltered" never is. We got through this once before, Ms Kingsolver's echoes seem to say; we'll get through it again, somehow.

► These are problems of emphasis rather than accuracy. But in a field as ethically fraught as genetics, even that can be troubling. For instance, as Mr Plomin notes, the size of the genetic component of a particular trait—its "heritability"—varies between different populations. The heritability of educational attainment in Norway has increased since the second world war as the country widened access to health care and schools, flattening out environmental ef-

fects. That trend seems, worryingly, to have reversed in America in the 21st century. The irony is that the heritability of many traits rises if states do more to provide for all their citizens equally.

You might conclude that without broad measures to tamp down inequalities of opportunity, genes have fewer opportunities to shine. "Blueprint" instead touts the importance of DNA in shaping the individual. Hubris indeed. ■

Lives of the composers

Piano forte

Fryderyk Chopin: A Life and Times. By Alan Walker. Farrar, Straus and Giroux; 768 pages; \$40. Faber & Faber; £30

THE LINEAMENTS of Chopin's short, dramatic life are familiar to most classical-music enthusiasts. Born in 1810 in Warsaw to a middle-class family, he was a child prodigy and became a noted pianist and composer of small-scale but exquisite Romantic pieces of music, such as ballades, études, impromptus, mazurkas, nocturnes and polonaises. He was mostly based in France, mingling with the cream of Parisian society and the arts and playing for aristocrats and royalty. The German poet Heinrich Heine reverentially called him "the Raphael of the piano".

In 1838 he absconded to Majorca with the feminist novelist George Sand, who scandalised French society by wearing trousers and smoking cigars, and subsequently carried on a long and stormy affair with her. Having suffered since adolescence from a wasting disease, probably tuberculosis, he died tragically young, aged 39. By then he was, as he remains, one of Poland's best-known sons. His music is still played and enjoyed all over the world.

Since his life was almost a Romantic work of art in itself, he has had no shortage of biographers, starting immediately after his death with his fellow composer and friend of sorts, Franz Liszt, and continuing in a steady trickle ever since. So was there a need for another one? Having previously produced a magisterial three-volume biography of Liszt, Alan Walker has searched for new primary sources from Warsaw to Washington, shed new light on many aspects of Chopin's life and cleared away a thicket of myths. He has much to say, too, about the political, military and social aspects of the age, including two revolutions, various wars, epidemics and natural disasters; he vividly brings to life the delights of Paris salons and French country-house living, as well as the discomforts of 19th-century long-distance travel and the horrors of the era's medicine.

How far studying a composer's life elucidates the music is an old and vexed question. Mr Walker identifies two schools of thought. One is that the music could not have existed without the life, "with all its joys and sorrows", so they are inextricably entwined. The other is that art must always be assessed in "splendid isolation".

In Chopin's case, the issue seems moot, because the life and the music are quite un- ►►

related. At times when his experiences were dark, he might write a brilliantly sunny piece, and vice versa. Chopin had no truck with programme music (the sort that tries to conjure up images or tell stories), in which other Romantic composers delighted. He laughed at some of his contemporaries' attempts to ascribe non-musical meanings to his pieces. Mr Walker's book contains plenty of analysis of specific works, but he is careful not to suggest any link between music and events.

Scrupulous as it is, this monumental biography is deeply engaging and enjoyable. Chopin mostly comes out of it well, and on closer examination seems a less exotic figure than his reputation suggests. He was a kindly man with a good sense of humour. Despite being something of a loner,

he was able to maintain long and strong friendships, many with fellow Poles. He proved surprisingly adept, almost without trying, at attracting the financial and practical support he needed to keep on composing even as his health failed.

And even though he was lionised for most of his life, he never took his gift for granted, agonising over each composition, crossing out, reinstating and crossing out again. However long it took, he laboured until each piece was exactly right. Because of this perfectionism, and the brevity of his life, his oeuvre is relatively small. Before he died, he asked for all his unpublished manuscripts to be destroyed. His sister, who oversaw his estate, demurred, thus saving a few dozen extra works for posterity. The world should be grateful to her. ■

Art, gender and conflict

The puppet-mistress of Mali

BAMAKO

The struggles of the only female practitioner of a venerable art form

EACH MORNING, Maoua Koné (pictured) wakes beneath the black-eyed gaze of masks and marionettes on the walls of her cramped one-room flat in Bamako. When Ms Koné, Mali's only female marionettist, manipulates the shiny forms, her male counterparts tremble. "The men are scared of me because they think I have a lot of magical powers," she says. "They think it is not possible for a woman to be a marionettist." Her career has overcome chauvinism, only to be stifled by another stubborn obstacle: violent conflict.

Mali's marionette theatre originated centuries ago in the villages of Bozo fishermen and Bambara hunters in southern and central regions. The custom co-existed with Islam, the main religion, which has historically forbidden figurative representation of human beings. Performances explore communities' histories, tell morality tales and limn the roles of men and women. They celebrate the coming of the rains and of the harvest. Masks and puppets stand in for people and animals, but also character traits, spirits and ancestors.

The country's rich cultural life has always been segregated by gender. In the renowned music scene, for example, women rarely play the *djembe*, a kind of drum, or the *kora*, a lute-like instrument. Women have traditionally been forbidden from operating marionettes, or even making them, a craft that entails complex rituals, conducted under cover of night and involving kola nuts and roosters. In these ceremonies, says Broulaye Camara, a fellow marionettist, male initiates determine whether a puppet's spirit will be benevolent. Women are barred, Mr Camara maintains, because they have not been initiated, and because they are gossips. "Women talk too much," he says. "They don't keep secrets."

Ms Koné, a tall 60-year-old with cropped greying hair, says the men have nothing to worry about. Her marionettes do not have spirits or powers because they are "modern", made of clay and papier-mâché rather than wood. She abjures the old-fashioned kind. "I would never touch



The show must go on

them," she says. "The marionette itself couldn't do anything, but the men around it could do very bad things."

She grew up in Koulikoro, about an hour from Bamako on the banks of the Niger river, a town known for its marionettes, masks and unique, sacred statuettes that represent the dead. She was born into a noble family in Mali's complex caste system, rather than an artistic one, and her parents did not support her ambitions. "It was difficult for my family to accept," she says. Of 12 siblings, she is the only artist, and the only daughter who chose not to have children, believing they would hamper her career.

Coming of age in the early decades of independence, she was a beneficiary of the investment in the arts made by Modibo Keita, Mali's first president (from 1960-68). His government "understood that the arts were a very important part of creating a national identity and bringing people together," says Mary Jo Arnoldi, a curator at the National Museum of Natural History in Washington and an expert on marionette culture. Ms Koné was educated at the National Institute of the Arts (INA), a cutting-edge college that, says Ms Arnoldi, "broke down gender and caste boundaries" and produced some of Mali's finest artists.

Ms Koné has broken many taboos herself. She made sculptures of torn vaginas to illustrate the harm of genital cutting, statues depicting domestic violence and satirical figurines of women wearing full veils—a burgeoning practice in Mali, of which she disapproves. For all his scepticism, Mr Camara performed with her in the national marionette troupe in the 1990s, when urban companies educated Malians on subjects such as HIV and child labour.


This artistic progress has been violently interrupted. After a partial jihadist occupation in 2012, followed by a coup d'état, foreigners no longer attend Ms Koné's performances and workshops. Invitations from European festivals and schools have dried up. Donors have diverted funds to the security services. (Around 14,000 UN peacekeepers remain in Mali; ethnic strife still bubbles.) "Europeans are frightened to invite us," Ms Koné says; and "because there are explosions and people are being killed here, they won't come."

Fodé Sidibé, director of Mali's annual marionette festival, thinks the current government and donors should sponsor the arts to promote peace in a divided country. "The political establishment don't understand the value of culture," Mr Sidibé says. "The security problem will not be solved with arms, but with arts."


These days, though, Ms Koné's avant-garde troupe—named "Torch of Liberty"—rarely have a chance to perform. But they still meet every evening in the INA's courtyard, where they mould marionettes for a show they may never stage. ■

“
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Economic data

	Gross domestic product				Consumer prices			Unemployment rate		Current-account balance		Interest rates		Currency units	
	% change on year ago				% change on year ago							10-yr gov't bonds		per \$	
	latest	quarter*	2018†		latest	2018†		%		% of GDP, 2018†		latest,%	change on year ago, bp	Nov 7th	% change on year ago
United States	3.0	Q3	3.5	2.9	2.3	Sep	2.5	3.7	Oct	-2.6		3.10	78.0	-	
China	6.5	Q3	6.6	6.6	2.5	Sep	2.1	3.8	Q3§	0.5		3.35§§	-62.0	6.93	-4.3
Japan	1.3	Q2	3.0	1.1	1.2	Sep	0.9	2.3	Sep	3.8		0.13	11.0	113	0.6
Britain	1.2	Q2	1.6	1.3	2.4	Sep	2.4	4.0	Jul††	-3.4		1.49	18.0	0.76	nil
Canada	1.9	Q2	2.9	2.3	2.2	Sep	2.3	5.8	Oct	-2.6		2.54	65.0	1.31	-2.3
Euro area	1.7	Q3	0.6	2.1	2.2	Oct	1.7	8.1	Sep	3.4		0.45	12.0	0.87	-1.1
Austria	2.3	Q2	-4.0	2.9	2.0	Sep	2.1	4.9	Sep	2.2		0.57	-5.0	0.87	-1.1
Belgium	1.7	Q3	1.6	1.5	2.8	Oct	2.2	6.3	Sep	-0.3		0.89	28.0	0.87	-1.1
France	1.5	Q3	1.7	1.7	2.2	Oct	2.1	9.3	Sep	-0.9		0.79	4.0	0.87	-1.1
Germany	1.9	Q2	1.8	1.9	2.5	Oct	1.8	3.4	Sep‡	7.9		0.45	12.0	0.87	-1.1
Greece	1.8	Q2	0.9	2.0	1.1	Sep	0.8	19.0	Jul	-1.3		4.30	-78.0	0.87	-1.1
Italy	0.8	Q3	0.1	1.1	1.6	Oct	1.4	10.1	Sep	2.4		3.35	165	0.87	-1.1
Netherlands	3.1	Q2	3.3	2.8	2.1	Oct	1.7	4.7	Sep	10.1		0.55	10.0	0.87	-1.1
Spain	2.5	Q3	2.4	2.7	2.2	Oct	1.8	14.9	Sep	1.1		1.45	-2.0	0.87	-1.1
Czech Republic	2.7	Q2	2.9	3.0	2.3	Sep	2.3	2.2	Sep‡	0.8		2.12	52.0	22.6	-2.1
Denmark	1.5	Q2	1.0	1.3	0.6	Sep	1.1	3.9	Sep	7.2		0.40	-2.0	6.50	-1.1
Norway	3.3	Q2	1.5	1.6	3.4	Sep	2.9	4.0	Aug††	8.5		2.00	41.0	8.32	-1.6
Poland	5.1	Q2	4.1	4.6	1.7	Oct	1.8	5.7	Sep§	-0.6		3.21	-20.0	3.74	-1.9
Russia	1.9	Q2	na	1.6	3.6	Oct	2.9	4.5	Sep§	5.1		8.80	117	66.2	-10.6
Sweden	2.4	Q2	3.1	2.7	2.3	Sep	2.0	6.0	Sep§	3.8		0.66	-12.0	9.00	-6.4
Switzerland	3.4	Q2	2.9	2.7	1.1	Oct	1.0	2.5	Sep	9.9		0.09	15.0	1.00	nil
Turkey	5.2	Q2	na	3.8	25.2	Oct	15.3	10.8	Jul§	-5.7		16.7	448	5.40	-28.0
Australia	3.4	Q2	3.5	3.2	1.9	Q3	2.1	5.0	Sep	-2.6		2.73	15.0	1.37	-4.4
Hong Kong	3.5	Q2	-0.9	3.4	2.7	Sep	2.2	2.8	Sep††	3.7		2.44	61.0	7.83	-0.4
India	8.2	Q2	7.8	7.4	3.8	Sep	4.6	6.9	Oct	-2.4		7.80	91.0	73.1	-11.0
Indonesia	5.2	Q3	na	5.2	3.2	Oct	3.4	5.3	Q3§	-2.6		8.60	194	14,580	-7.3
Malaysia	4.5	Q2	na	5.0	0.3	Sep	0.9	3.4	Aug§	2.6		4.15	14.0	4.16	1.7
Pakistan	5.4	2018**	na	5.4	7.0	Oct	5.4	5.9	2015	-5.8		12.0†††	380	132	-20.4
Philippines	6.1	Q3	5.7	6.2	6.7	Oct	5.2	5.4	Q3§	-1.5		7.87	254	53.0	-3.1
Singapore	2.6	Q3	4.7	3.5	0.7	Sep	0.6	2.1	Q3	17.4		2.52	39.0	1.37	-0.7
South Korea	2.0	Q3	2.3	2.8	2.0	Oct	1.6	3.6	Sep§	4.5		2.27	-27.0	1,123	-1.0
Taiwan	2.3	Q3	1.9	2.6	1.2	Oct	1.7	3.7	Sep	12.9		0.91	-10.0	30.8	-1.9
Thailand	4.6	Q2	4.1	4.1	1.2	Oct	1.2	1.0	Sep§	9.6		2.57	25.0	32.8	1.1
Argentina	-4.2	Q2	-15.2	-2.3	40.3	Sep	33.6	9.6	Q2§	-4.3		11.3	562	35.9	-50.7
Brazil	1.0	Q2	0.7	1.5	4.6	Oct	3.8	11.9	Sep§	-1.0		8.14	-100	3.76	-12.8
Chile	5.3	Q2	2.8	3.9	3.1	Sep	2.5	7.1	Sep§††	-2.0		4.50	5.0	677	-6.3
Colombia	2.5	Q2	2.3	2.7	3.3	Oct	3.3	9.5	Sep§	-2.7		7.05	33.0	3,141	-3.3
Mexico	2.6	Q3	3.6	2.1	5.0	Sep	4.8	3.3	Sep	-1.8		8.67	146	19.8	-3.4
Peru	5.4	Q2	12.5	4.1	1.8	Oct	1.4	6.1	Sep§	-1.8		5.81	79.0	3.36	-3.6
Egypt	5.4	Q2	na	5.3	16.0	Sep	17.0	9.9	Q2§	-2.0		na	nil	17.9	-1.5
Israel	3.9	Q2	1.8	3.6	1.2	Sep	0.8	4.0	Sep	1.7		2.45	77.0	3.67	-4.1
Saudi Arabia	-0.9	2017	na	1.5	2.1	Sep	2.6	6.0	Q2	8.0		na	nil	3.75	nil
South Africa	0.4	Q2	-0.7	0.7	4.9	Sep	4.8	27.5	Q3§	-3.5		9.08	-15.0	14.0	1.9

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist poll or 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

	Index	% change on:	
		Nov 7th	Dec 29th 2017
United States DJIA	26,180.3	4.2	5.9
United States NAScomp	7,570.8	3.6	9.7
China Shanghai Comp	2,641.3	1.5	-20.1
China Shenzhen Comp	1,340.4	3.6	-29.4
Japan Nikkei 225	22,085.8	0.8	-3.0
Japan Topix	1,652.4	0.4	-9.1
Britain FTSE 100	7,117.3	-0.2	-7.4
Canada S&P TSX	15,369.4	2.3	-5.2
Euro area EURO STOXX 50	3,246.2	1.5	-7.4
France CAC 40	5,137.9	0.9	-3.3
Germany DAX*	11,579.1	1.1	-10.4
Italy FTSE/MIB	19,540.9	2.6	-10.6
Netherlands AEX	528.6	1.9	-2.9
Spain IBEX 35	9,167.9	3.1	-8.7
Poland WIG	57,818.4	4.5	-9.3
Russia RTS, \$ terms	1,164.3	3.4	0.9
Switzerland SMI	9,050.5	0.3	-3.5
Turkey BIST	95,493.3	5.9	-17.2
Australia All Ord.	5,982.0	1.2	-3.0
Hong Kong Hang Seng	26,147.7	4.7	-12.6
India BSE	35,237.7	2.3	3.5
Indonesia IDX	5,939.9	1.9	-6.5
Malaysia KLSE	1,714.9	0.3	-4.6

	index	% change on:	
		Nov 7th	Dec 29th 2017
Pakistan KSE	41,544.0	-0.3	2.7
Singapore STI	3,065.4	1.5	-9.9
South Korea KOSPI	2,078.7	2.4	-15.8
Taiwan TWI	9,908.4	1.1	-6.9
Thailand SET	1,675.3	0.4	-4.5
Argentina MERV	31,404.7	6.5	4.5
Brazil BVSP	87,714.3	0.3	14.8
Mexico IPC	46,917.4	6.8	-4.9
Egypt EGX 30	13,615.9	2.8	-9.3
Israel TA-125	1,488.1	3.6	9.1
Saudi Arabia Tadawul	7,792.6	-1.4	7.8
South Africa JSE AS	54,700.6	4.4	-8.1
World, dev'd MSCI	2,084.4	3.1	-0.9
Emerging markets MSCI	997.9	4.4	-13.9

US corporate bonds, spread over Treasuries		
Basis points		Dec 29th 2017
Investment grade	154	137
High-yield	413	404

Sources: Datastream from Refinitiv; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

The Economist commodity-price index				
2005=100	Oct 30th	Nov 6th*	month	year
Dollar Index				
All Items	137.4	134.9	-3.5	-8.0
Food	142.7	137.7	-4.7	-9.1
Industrials				
All	131.9	132.1	-2.1	-6.7
Non-food agriculturals	120.5	122.6	-2.2	-7.4
Metals	136.7	136.2	-2.1	-6.4
Sterling Index				
All items	196.3	187.6	-3.4	-7.6
Euro Index				
All items	150.3	147.0	-3.0	-6.7
Gold				
\$ per oz	1,224.4	1,228.0	3.3	-3.6
West Texas Intermediate				
\$ per barrel	66.2	62.2	-17.0	8.8

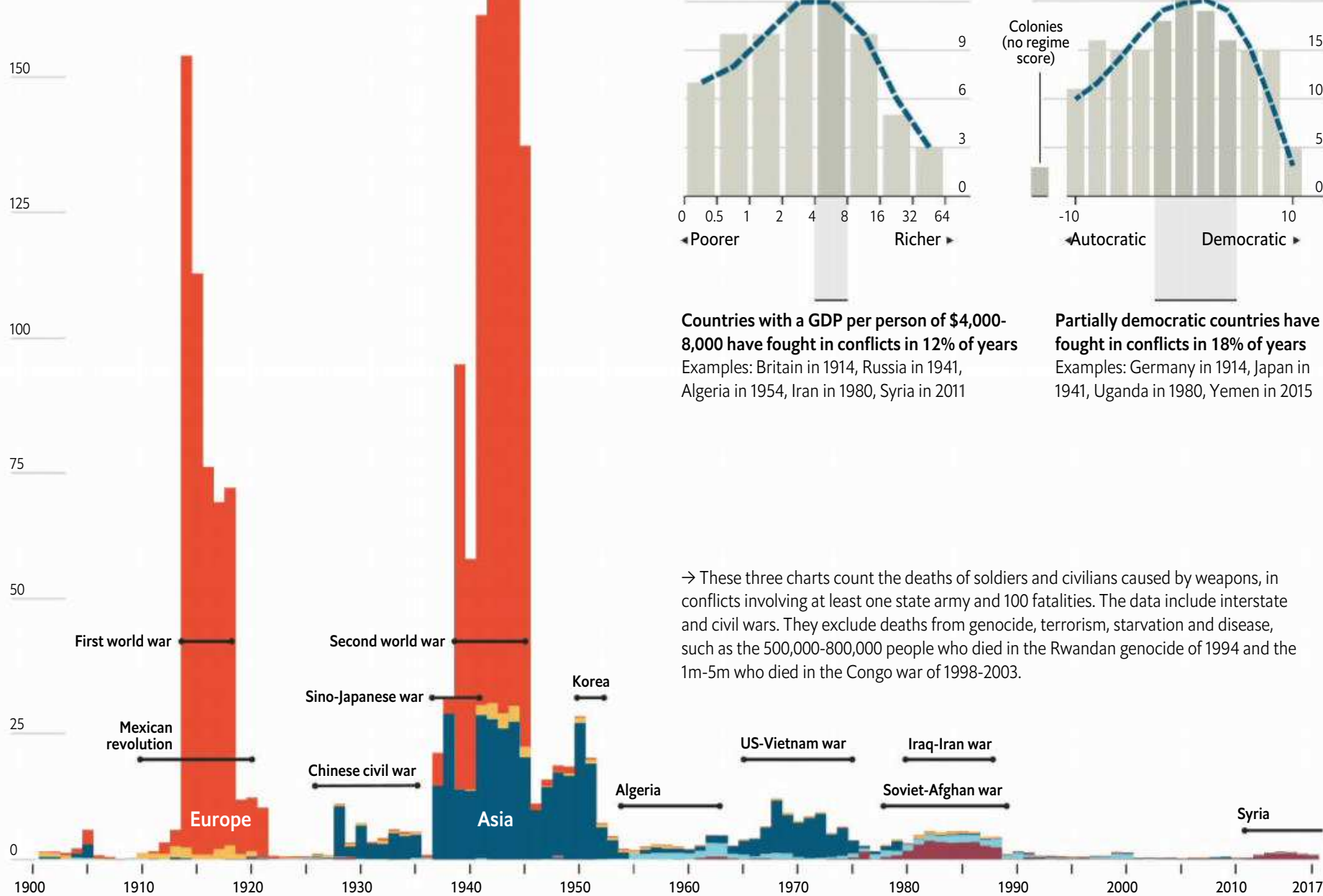
Sources: CME Group; Cotlook; Darmenn & Curl; Datastream from Refinitiv; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

For more countries and additional data, visit Economist.com/indicators

Combat deaths per 100,000 people worldwide

By nationality, grouped by region

Europe Americas Asia
Africa Middle East

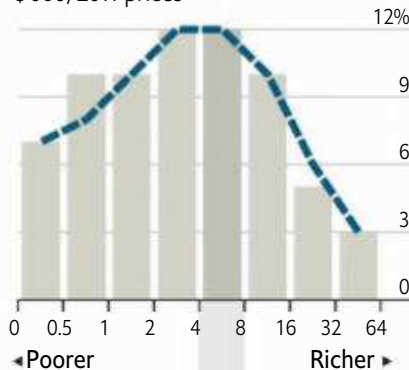


Chance of fighting in a conflict

Share of years in which a country suffered at least 100 combat deaths, 1900-2017

By GDP per person

\$'000, 2011 prices

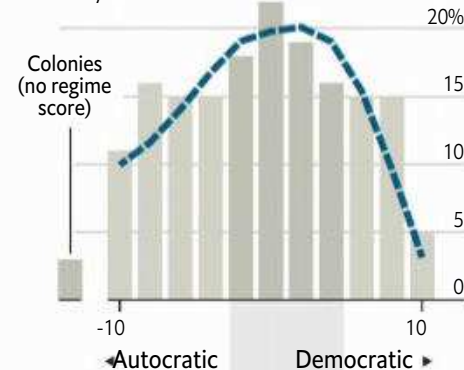


Countries with a GDP per person of \$4,000-8,000 have fought in conflicts in 12% of years

Examples: Britain in 1914, Russia in 1941, Algeria in 1954, Iran in 1980, Syria in 2011

By regime type

Polity scale



Partially democratic countries have fought in conflicts in 18% of years

Examples: Germany in 1914, Japan in 1941, Uganda in 1980, Yemen in 2015

→ These three charts count the deaths of soldiers and civilians caused by weapons, in conflicts involving at least one state army and 100 fatalities. The data include interstate and civil wars. They exclude deaths from genocide, terrorism, starvation and disease, such as the 500,000-800,000 people who died in the Rwandan genocide of 1994 and the 1m-5m who died in the Congo war of 1998-2003.

Sources: Peace Research Institute Oslo; Uppsala Conflict Data Program; Centre for Systemic Peace; Maddison Project Database; iCasualties.org; World Bank; *The Economist*

Conflict and development

No man's land

Partially democratic countries fight in wars most often

WHEN THE first world war ended on November 11th 1918, David Lloyd George, Britain's prime minister, told Parliament: "I hope we may say that thus, this fateful morning, came to an end all wars." History proved him wrong. But 100 years on, the world is far more peaceful. Fewer than one in 100,000 people have died in combat per year since 2000—one-sixth the rate between 1950 and 2000, and one-fiftieth of that between 1900 and 1950. Why?

The simplest explanation is the advent of nuclear weapons, which deter major powers from fighting each other. But wars have declined among non-nuclear states,

too. Another reason might be the spread of democracy and global norms. Bruce Russett and John Oneal, two academics, have found that countries that are democratic, trade heavily and belong to lots of international bodies fight each other less often than authoritarian, isolationist states do.

The Economist has analysed all international and civil wars since 1900, along with the belligerents' wealth and degree of democratisation (assigning colonies to their own category). We counted all conflicts involving national armies in which at least 100 people per year were killed, excluding deaths from terrorism, massacres of civilians outside combat, starvation or disease.

The data show a strong correlation between democracy and peace, with a few exceptions. (The United States has been quite bellicose, and its advanced democracy did not prevent a civil war in 1861 that claimed more American lives than any conflict since.) Moreover, the relationship does not seem to be linear. The countries most prone to wars appear to be neither autocracies nor full democracies, but rather countries in between. A similar finding applies to prosperity. Middle-income countries are more warlike than very poor or rich ones.

What causes such states' belligerence? Warfare is expensive, and citizens in tyrannies struggle to organise uprisings. Some studies find that civil wars are more common after sudden regime changes, which cause instability. Perhaps a little political competition or wealth make it easier to take up arms. All this might explain why the bloodiest battles since 1900 have shifted from Europe, to Asia, to the Middle East and Africa. If partial democracy is linked to conflict, recent backsliding in countries like Turkey looks even more worrying.

Even a bit of democracy, however, saves lives overall—because empires and dictators are more likely to starve and slaughter their subjects. Counting man-made famines and genocides, colonial and undemocratic powers have caused 250m premature deaths since 1900—five times the death toll from combat in all wars combined. ■



The business of crime

James “Whitey” Bulger, South Boston’s mobster-in-chief, was beaten to death on October 30th, aged 89

WHEN THE manhunt was on for Whitey Bulger, on the lam for 16 years and the FBI’s second-most-wanted after Osama bin Laden, officers would often check bookshops. He liked books. In his shabby apartment in Santa Monica, California, where he turned up living as Charlie Gasko behind thick black curtains, he had 200 books. True, they hid the holes in the walls where he stashed guns and \$800,000 in cash. But he read them, too.

Words entertained him, and they plagued him in a way. Like people calling him “Whitey” from his blond hair, which infuriated him, when he should have been “Jimmy”, or “Boots”, from the cowboy boots he wore. Or like the words “good” and “bad”. Clearly he was bad, because he was a racketeer, an extortionist (though “rent collector” was the term he preferred), an arms trafficker and a mobster. His first spree of robberies in 1955 was bad in the classic Hollywood style, bursting into banks with a pistol in each hand and fleeing with his girlfriend in a getaway car. James Cagney was in his mind then. Later he wore with pride his belt buckle from Alcatraz. As crime became his fixed career, from the 1970s to the 1990s, no one in eastern Massachusetts dared cross him.

Yet in Southie, home turf, he bought turkeys for the poor at Thanksgiving and held open doors for women. By day at least, he was still that neat well-mannered boy from the Mary Ellen McCor-

mack housing project who would sort out local bullies with threats, or lightning fists, to help the weak. The rockiness happened outside home. Some of the money he made went on weapons for the IRA, a good cause, as many in Southie saw it. As he told some federal drug agents once, as they were frisking him and stripping his car, they were the good-good guys, and he was bad-good.

“Crime” and “business” were another slippery pair of words. He despised stimulants of any kind: seldom sipped wine, never smoked. But for more than a decade, as boss of the Winter Hill Gang, he controlled the drug trade in the city and, to a large extent, horses, dogs, loan-sharking and the liquor trade. All the vices. Power was wrested from other mobsters, especially from Italian-American gangs, as any enterprises might outdo each other. If liquor retailers got successful they soon fell foul of his protection rackets, as did the owner of the store that became the South Boston Liquor Mart, the favourite hangout of his political allies. If drug distributors wanted to operate on his territory, he shook them down, making \$30m at it by one estimate. This criminal behaviour was obviously business, too. And there were rules. Heroin was banned in South Boston because it was a dirty drug, stuck in your arm with a needle that gave you AIDS. Instead, he dealt with a dozen big cocaine distributors all over the state. Cocaine was taken socially and cleanly. Dirty, clean—a thin line, again.

The word that bugged him most was “informant”. A snitch, a rat. While he was “in retirement” in California the story got out that he had been recruited by John Connolly of the FBI, in 1975, to inform on the Patriarca crime family and on rival Irish gangs. He helped the agency well into the 1990s, getting in exchange free rein for his business activities and immunity from arrest. Since his brother Billy, who always looked out for him, was at the time president of the state Senate, the most powerful politician in Massachusetts and a fount of patronage, it was a cosy arrangement both for local FBI field officers and for him. The agents even bought their Christmas wine at the South Boston Liquor Mart.

Nonetheless he denied it passionately. Among the Irish in Southie there was nothing worse you could be called, than a rat. He insisted he had never been one. As a thief from the age of 13 he’d had many a beating in police stations, but had not cracked. In prison he had been put in solitary for months, but told them nothing. He would go to hell before he did. The way he saw it, Connolly, who was a rogue agent anyway, had given him useful business information and he had paid him for it; it was that way round. He insisted from the very start, sitting in Connolly’s car that night, that his role and title would be “strategist”. Any ratting had been done by others, including his chief associate, Steve Flemmi, not by him. That word “associate”, too, had a business ring to it. And it preserved the distance he liked to keep from almost everyone, in case they were no longer his friend and, with eyes cold as marble and that hair-trigger violence he was famous for, he had to kill them.

That last was a word he avoided altogether. At his trial in 2011 on 32 counts of racketeering, extortion and weapons possession he was also charged with complicity in 19 killings, and was convicted two years later of 11 of them. He said he was not guilty, though the evidence was heard in court, clearly enough. How he had chained Bucky Barrett and tortured him into handing over the proceeds from a bank robbery, then shot him in the head anyway. How he had stabbed Louie Litif with an ice pick, and gunned down Eddie Connors in a phone booth; how he had joked about his victims, as he drove past the spots where he had buried them.

When he first killed a man, shooting him point-blank between the eyes, he picked the wrong, innocent brother of a pair of twins. His then-boss told him not to worry; the man smoked too much, and would die soon anyway. It was a lesson in callousness he did not forget. He occasionally regretted the shame he had brought on his family, but for his victims and their relatives he felt nothing. Most, as he saw it, had been informants. And if you silenced an informant, was that not good? ■

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