

The Economist

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The right way to do Brexit

Who Cyril Ramaphosa should fire

Lead paint, still a poisonous problem

South Korea's fetish for fortune-telling

The meddler

How Russia menaces Western democracies



*It's time to swap
the screen for the green.*

*It's time to break free
and breathe again.*

*It's time to get out
and connect with life.*

It's time for Kerala.



**On the cover**

Why the West's response to Russia's dirty tricks is inadequate: leader, page 7. Division makes a country vulnerable to Russian disinformation campaigns, page 15. Russian meddling is only one challenge facing Facebook, page 53

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5 The world this week**Leaders**

- 7 Russia's dirty tricks** The meddler
- 8 New president, new hope** How to fix South Africa
- 8 Public health** As black as painted
- 9 Housing reform** Fannie and Freddie
- 10 Britain and Europe** The right way to do Brexit

Letters

- 12 On digital health, migrants, school shootings, doping, Theresa May**

Briefing

- 15 Russian disinformation** The discord amplifier
- 17 Inside the IRA** A troll's life

Asia

- 19 Indian politics** All hat and cattle
- 20 Australian forests** Chainsaw massacre
- 20 Orangutans** Money swinging from trees
- 21 State elections in India** Christians for Hindu nationalism
- 22 Korean fortune-telling** Prophets and profits

China

- 25 Regional development** The woes of the rust belt
- 28 Banyan** How racist is China?

United States

- 29 National security** Unchanging
- 30 Guns and protest** Calling BS
- 32 Deportations** Deal or No Deal
- 32 Public-sector unions** Judgment day
- 33 Winter in Chicago** Dibs etiquette
- 34 Lexington** The new normal

The Americas

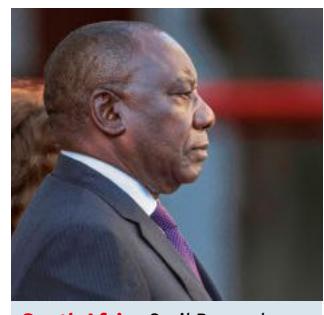
- 35 Coca in Colombia** Spraying v co-operating
- 36 Bello** Mexico's young hopeful
- 38 Counterfeit goods** A Canadian market

Middle East and Africa

- 39 Terrorist financing** Islamic State's fund
- 40 Syria's civil war** Hotting up again
- 40 The conquest of Yemen** Gobbling up Arabia
- 41 Ethiopia's emergency** Back to the iron fist
- 42 South Africa after Zuma** The hangover
- 42 A fuss over Freemasons** Rolled-up trousers



Brexit Britain can "take back control" from Europe without cutting all ties: leader, page 10. Theresa May's government is firmly against the Norway model for Britain's trade with the European Union. Yet it offers many advantages, even for Brexiteers, page 47



South Africa Cyril Ramaphosa can make big changes just by hiring honest, competent people: leader, page 8. How to set South Africa on a new course, page 42



Fortune-telling in South Korea A \$3.5bn business is beginning to contend with automation, page 22



OPEC Led by Saudi Arabia, the oil cartel mulls a long-term alliance with Russia to keep prices stable, page 60



Crypto-valley A Swiss banking centre seeks to reinvent itself, page 65



Lead poisoning It still does terrible damage to young minds: leader, page 8. Rich countries are dealing with the horrible legacy of lead paint. Poor ones are still making the stuff, page 51

Britain	
47 Options for Brexit	Norwegian lessons
48 Customs controls	He who pays the toll
50 Bagehot	The divided kingdom

International	
51 Lead poisoning	Painted into a corner

Business	
53 Social media	Facebook unfriended
54 Corporate tax in America	The devilish detail
55 Europe's gunmakers	Trigger happy
55 Magnit and the state	Last checkout
56 The pharma business	Making Merck work
57 Foreign startups in China	Go east, young founder
58 Schumpeter	The Santander experiment

Finance and economics	
60 OPEC and Russia	A bigger gig
61 Buttonwood	Long-term returns
62 American trade	Steel yourself
62 HSBC changes the guard	Asia bound
63 The Bank of Japan	Kuroda ain't over
64 Corruption in Latvia	Laundry list
64 Religion and poverty	Both God and Mammon
65 Digital currency	Switzerland: the crypto-nation
66 Free exchange	Moral hazard

Science and technology	
67 The AAAS meetings	A generation game
68 Transplants	Mix and match
69 Unconsciousness	Going under
69 Quantum computing	Quality over quantity
70 Tsunami detection	Ahead of the wave

Books and arts	
71 The state of the world	A future perfect
72 Chinese fiction	The dragons of salvation
72 Risk and rationality	Black swan down
73 Remembering Debussy	A life among phantoms
73 Journalism in film	Some of the president's men
74 The history of art	Out of one, many

76 Economic and financial indicators	
---	--

Statistics on 42 economies, plus a closer look at corruption perceptions	
--	--

Obituary	
78 John Perry Barlow	On the cyber-frontier



America's science jamboree

This year's meeting of the AAAS heard about a new gene, growing transplant organs, safer anaesthesia, quantum computing and tsunami detection, page 67

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Politics



The **Syrian** army bombarded Eastern Ghouta, a rebel-held suburb of Damascus, killing hundreds of people, according to observers. Meanwhile, pro-government militias moved into the Kurdish enclave of Afrin, where they attempted to join Kurdish forces defending the region from **Turkish** troops, who entered the area last month.

An aide to Binyamin Netanyahu turned state's witness in a case involving allegations of corruption at Bezeq, an **Israeli** telecoms giant. It is one of several investigations encircling Mr Netanyahu, who denies wrongdoing. Police also accused a former spokesman for the prime minister of trying to bribe a judge into dropping a fraud case against Mr Netanyahu's wife.

Cyril Ramaphosa was sworn in as president of **South Africa**. A new budget reminded voters just what a fiscal mess he has inherited from his predecessor, Jacob Zuma, under whom graft and cronyism thrived.

Dozens of schoolgirls were missing after an attack on a village in north-eastern **Nigeria** by jihadists from Boko Haram. The group's abduction of 270 girls in 2014 from a school in Chibok sparked international outrage; over 200 are still held captive.

The UN warned of a humanitarian disaster in the **Democratic Republic of Congo**, where millions of people have been displaced by

fighting between militias and government forces.

Rusty armed forces

A parliamentary report in **Germany** disclosed that much of the country's military equipment is defective. At the end of last year, it said, not one of the navy's six submarines was operational. Germany spends only 1.2% of its GDP on defence, far below the 2% to which NATO countries are committed.

Annegrat Kramp-Karrenbauer, dubbed by some as the "mini-Merkel", was appointed secretary-general of Germany's ruling **Christian Democratic Union**, possibly a sign that she is being groomed as Angela Merkel's eventual successor.

On the streets



Brazil's president, Michel Temer, ordered the army to take control of security in the state of Rio de Janeiro after shoot-outs during Carnival festivities. Some say the military intervention, the first of this scale since Brazil's return to democracy in the 1980s, is a ploy to boost Mr Temer's rock-bottom popularity. It also halts a controversial pension-reform bill, as the constitutional changes it requires are forbidden during army interventions.

The head of an anti-corruption mission in **Honduras** sponsored by the Organisation of American States resigned. He complained of a lack of support from the Honduran government and from the OAS.

Venezuela's government launched an oil-backed digital currency, the petro, in an attempt to circumvent foreign

sanctions imposed by America and to raise cash during a dire economic crisis. Meanwhile, the main opposition coalition announced it would not take part in hastily scheduled presidential elections in April, claiming that the vote will be rigged.

A court in **Peru** ruled that Alberto Fujimori, a former president, could be tried for his alleged role in the death-squad killings of six people in 1992. Late last year Pedro Pablo Kuczynski, the current president, pardoned Mr Fujimori, who had been convicted of another crime.

Nothing fake about this

The **Russian** government denied that it had meddled in the American presidential election of 2016. Robert Mueller, the special counsel investigating Russian influence in the campaign, had earlier issued indictments against 13 Russian citizens, laying out in detail the extent to which they had tried to sway the election using social media.

Following the mass shooting at a school in Florida, Donald Trump issued an order to ban **bump-stocks**, devices that convert some weapons into fully automatic rifles.

Pennsylvania's highest court redrew the boundaries of the state's congressional districts, having ruled last month that the map drawn by the Republican legislature was a clear case of partisan **gerrymandering**. The new boundaries make a handful of seats in the state more competitive.

Mitt Romney announced that he would run for a Senate seat in Utah. The former Republican presidential candidate declared that Utah welcomes legal immigrants, in contrast to the "message of exclusion" sent from Washington. Mr Trump endorsed his candidacy, though their truce is unlikely to hold. In 2016 Mr Trump described Mr Romney as one of the "dumbest" candidates in Republican history. Mr Romney called Mr Trump a "fraud".

So close, and yet so far

The White House said that Mike Pence, America's vice-president, had planned to meet senior **North Korean** officials at the Winter Olympics in South Korea, but that the North Koreans had pulled out at the last minute.

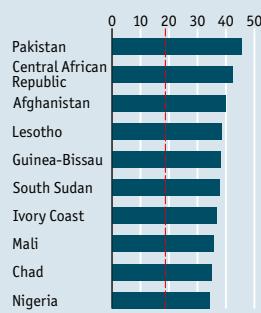
The parliament of the **Maldives** voted to extend by 30 days the 15-day state of emergency declared earlier this month by Abdulla Yameen, the president. But not enough lawmakers were present to make a quorum. The prosecutor-general declared the vote illegal.

A **Malaysian** court declined to hear challenges to proposed new parliamentary constituencies, even though they would further skew elections in favour of the ruling coalition. The opposition won 51% of votes at the most recent election, but only 40% of seats.

Neonatal deaths

Per 1,000 live births*, 2016

--- GLOBAL AVERAGE



Source: UNICEF

*Died within 28 days

Deaths of newborn babies in African and Asian countries are still distressingly common, according to a report from **UNICEF**. In some poor countries the neonatal death rate (when a child dies within 28 days of being born) is 50 times higher than it is in some rich countries. In Pakistan one in 20 newborn babies dies within a month; in Japan it is one in 1,000. Each year 2.6m infants do not survive a month.

UNICEF says 80% of cases could be averted with better health-care provision and education. Some 1m babies draw their last breath on the same day as their first.

Business



The governor of Latvia's central bank denied claims that he had accepted bribes, saying he had been smeared in an attempt to throw his anti-corruption campaign off course. Ilmars Rimsevics has headed the **Bank of Latvia** since 2001. The Baltic country has a reputation as a money-laundering hub for Russians; America recently banned Latvia's third-largest lender from operating in the country for allegedly laundering billions of dollars. Latvia's defence ministry suggested that the allegations against Mr Rimsevics were part of a "massive information operation" directed from another country (ie, Russia).

The release of the minutes from the **Federal Reserve's** latest meeting indicated its approach to raising interest rates is more hawkish than had been thought, which drove the yield on the ten-year American Treasury bond to its highest level in four years.

Germany wants the top spot

Luis de Guindos, Spain's economy minister, secured the job as the next vice-president of the **European Central Bank**. Three other appointments to the ECB's six-member executive board are to be made over the next 18 months, including a replacement for Mario Draghi, the president.

In the week that Stuart Gulliver retired after seven years as chief executive, **HSBC** reported a big rise in pre-tax profit for 2017, to \$17.2bn. It also took a charge in part related to bad loans that were probably made to Carillion, a bankrupt government contractor.

The head of **Ford's** North American business was sacked after the company investigated allegations of misconduct made against him. Raj Nair had worked at the carmaker for three decades.

Online accounting

Investors took fright at **Walmart's** announcement that its online sales have slowed considerably, sending its share price down by 10%. The retailer has made a big push into e-commerce to counter competition from Amazon, but online revenue in America grew by 23% in its latest quarter, much slower than the more than 50% chalked up in previous quarters. E-commerce accounts for a tiny part of Walmart's sales. It hopes to increase that by focusing on its Walmart-branded website rather than the Jet.com site that it acquired in 2016.

Amazon's existential threat to conventional bricks-and-mortar supermarkets was also a factor behind the decision by **Albertsons** to buy the parts of the **Rite Aid** pharmacy chain that are not being acquired by Walgreens. Albertsons, which operates in 35 states and counts the Safeway and Vons brands among its assets, hopes that putting Rite Aid's drug coun-

ters in its stores will bring in more shoppers, who might then be tempted to buy the food it sells.

Buoyed by a healthy underlying six-month profit, **BHP**

Billiton slapped down a proposal from Elliott, an activist hedge fund, to end its dual listing in London and Sydney and list solely in Australia. For months Elliott has been putting pressure on the mining giant over its corporate structure. It reckons a sole listing could reap \$22bn in savings, but Andrew Mackenzie, **BHP's** chief executive, is pointing to the risks, such as being booted out of the FTSE 100 index.

Glencore's annual net profit soared to \$5.8bn and it announced a big payout to shareholders. The mining and commodities trading company has benefited from rising prices for metals and minerals, such as copper, coal and cobalt.

Qualcomm raised its bid for **NXP Semiconductors** to \$44bn, an offer that was accepted by those hedge funds with stakes in NXP that had pressed Qualcomm to increase its price. Qualcomm wants to buy NXP in order to expand its chip business, which has focused on smartphones,

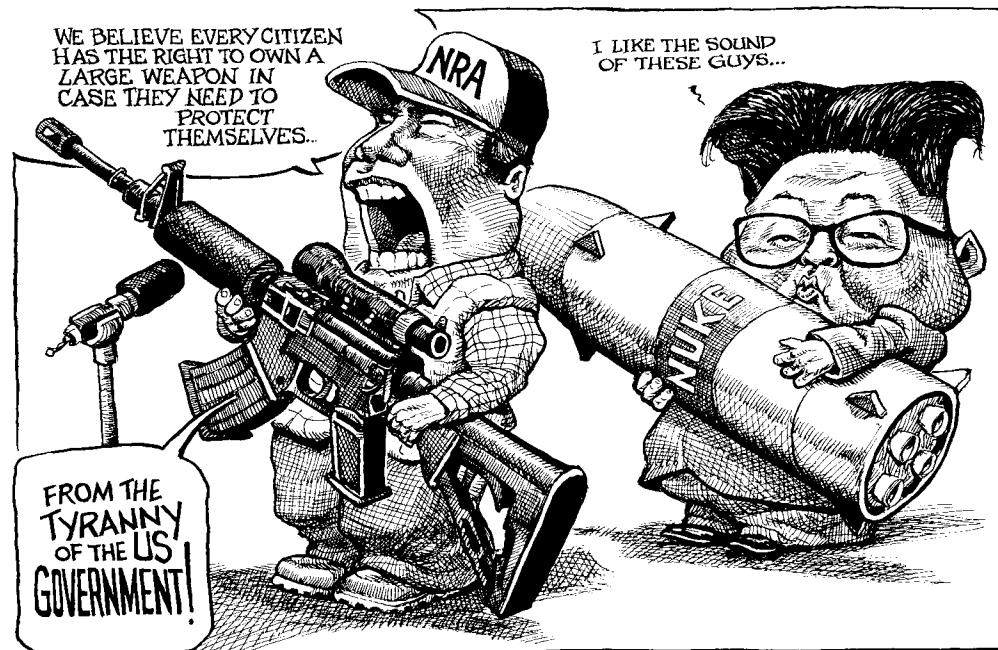
towards the new smart technologies found in cars and security systems. A deal would also fortify its defences against a hostile takeover attempt from Broadcom.

Output per hour in Britain, the main measure of the Office for National Statistics for **labour productivity**, increased by 0.8% in the final quarter of 2017; the last six months of the year saw the strongest growth in productivity since the economic downturn of 2008. The unemployment rate increased slightly, to 4.4%, which the ONS suggested might become a trend as people previously defined as "inactive" register as unemployed, and fewer people drop out of the labour market and become inactive.

What a fowl-up

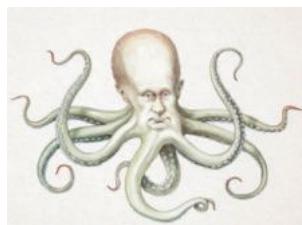
Kentucky Fried Chicken closed two-thirds of its outlets in Britain when it ran out of hens. It has switched its logistics contract to **DHL**, which failed to deliver the poultry. Fans of **KFC** were in a flap. Some thought that Amazon's drones would have done a better job, but most were left asking **DHL**: Why didn't the chickens traverse the road?

Other economic data and news can be found on pages 76-77



The meddler

Why the West's response is inadequate



13 Russians on February 16th by the American special counsel, Robert Mueller, it is clear just how fragile that belief was.

Mr Mueller alleges that in 2014 Russia launched a conspiracy against America's democracy, and he believes he has the evidence to withstand Russian denials and a court's scrutiny. Perhaps because Vladimir Putin, Russia's president, thought the CIA was fomenting an uprising in Ukraine, the Internet Research Agency, backed by an oligarch with links to the Kremlin, set up a trolling team, payments systems and false identities. Its aim was to widen divisions in America and, latterly, to tilt the vote in 2016 from Hillary Clinton to Donald Trump.

Europe has been targeted, too. Although the details are sketchier, and this is not the focus of the Mueller probe, Russia is thought to have financed extremist politicians, hacked computer systems, organised marches and spread lies (see page 15). Again, its aim seems to have been to deepen divides.

It is futile to speculate how much Russia's efforts succeeded in altering the outcomes of votes and poisoning politics. The answer is unknowable. But the conspiracies are wrong in themselves and their extent raises worries about the vulnerabilities of Western democracies. If the West is going to protect itself against Russia and other attackers, it needs to treat Mr Mueller's indictments as a rallying cry.

Troleology

They hold three uncomfortable lessons. One is that social media are a more potent tool than the 1960s techniques of planting stories and bribing journalists. It does not cost much to use Facebook to spot sympathisers, ferret out potential converts and perfect the catchiest taglines (see page 53). With ingenuity, you can fool the system into favouring your tweets and posts. If you hack the computers of Democratic bigwigs, as the Russians did, you have a network of bots ready to dish the dirt.

With a modest budget, of a little over \$1m a month, and working mostly from the safety of St Petersburg, the Russians managed botnets and false profiles, earning millions of retweets and likes. Other, better-funded, groups exploit similar techniques. Nobody yet knows how the outrage they generate changes politics, but it is a fair guess that it deepens partisanship and limits the scope for compromise.

Hence the second lesson, that the Russia campaign did not create divisions in America so much as hold up a warped mirror to them. It played up race, urging black voters to see Mrs Clinton as an enemy and stay at home on polling day. It sought to inflame white resentment, even as it called on progressives to vote for Jill Stein, of the Green Party. After Mr Trump's victory, which it had worked to bring about, it organised an anti-Trump rally in Manhattan. Right after the Parkland school

shooting, Russian bots began to pile into the debate about gun control (see page 30). Europeans are to a lesser degree divided, too, especially in Brexit Britain. The divisions that run so deep within Western democracies leave them open to intruders.

The most important lesson is that the Western response has been woefully weak. In the cold war, America fought Russian misinformation with diplomats and spies. By contrast, Mr Mueller acted because two presidents fell short. Barack Obama agonised over evidence of Russian interference but held back before eventually imposing sanctions, perhaps because he assumed Mr Trump would lose and that for him to speak out would only feed suspicions that, as a Democrat, he was manipulating the contest. That was a grave misjudgment.

Mr Trump's failing is of a different order. Despite having access to intelligence from the day he was elected, he has treated the Russian scandal purely in terms of his own legitimacy. He should have spoken out against Mr Putin and protected America against Russian hostility. Instead, abetted by a number of congressional Republicans, he has devoted himself to discrediting the agencies investigating the conspiracy and hinted at firing Mr Mueller or his minders in the Justice Department, just as he fired James Comey as head of the FBI. Mr Mueller is not done. Among other things, he still has to say whether the conspiracy extended to the Trump campaign. Were Mr Trump to sack him now, it would amount to a confession.

How to win the woke citizens vote

For democracy to thrive, Western leaders need to find a way to regain the confidence of voters. This starts with transparency. Europe needs more formal investigations with the authority of Mr Mueller's. Although they risk revealing intelligence sources and methods and may even please Russia—because proof of its success sows mistrust—they also lay the ground for action. Party-funding laws need to identify who has given money to whom. And social media should be open to scrutiny, so that anyone can identify who is paying for ads and so that researchers can more easily root out subterfuge.

Then comes resilience, which starts at the top. Angela Merkel successfully warned Mr Putin that there would be consequences if he interfered in German elections. In France Emmanuel Macron frustrated Russian hackers by planting fake e-mails among real ones, which discredited later leaks when they were shown to contain false information. Finland teaches media literacy and the national press works together to purge fake news and correct misinformation.

Resilience comes more easily to Germany, France and Finland, where trust is higher than in America. That is why retaliation and deterrence also matter—not, as in the cold war, through dirty tricks, but by linking American co-operation over, say, diplomatic missions, to Russia's conduct and, if need be, by sanctions. Republican leaders in Congress are failing their country: at the least they should hold emergency hearings to protect America from subversion in the mid-term elections. Just now, with Mr Trump obsessively blaming the FBI and Democrats, it looks as if America does not believe democracy is worth fighting for. ■

New president, new hope

How to fix South Africa

Cyril Ramaphosa can make big changes just by hiring honest, competent people



THE new president of South Africa, Cyril Ramaphosa, has a heck of a mess to clear up (see page 42). Under Jacob Zuma, who was forced to resign last week, corruption thrived, the law was mocked and investors fled. Unemployment, including

those who have given up hope of finding work, is an alarming 36%. Public debt is soaring: the budget released on February 21st expects it to rise to 56% of GDP by 2023, up from 26% in 2009 when Mr Zuma took over. Economic growth slumped from an average of 5% in the five pre-Zuma years to 1.5% on his watch, barely keeping up with the rise in population. Schools are in chaos, public health is a disgrace and Cape Town is running out of water. Mr Ramaphosa needs to move fast to restore the rule of law, revive investor confidence and fix public services. He should start by hiring good people.

That would be a huge change. Mr Zuma chose his lieutenants not for their honesty or competence but for their pliability and loyalty. Spotless integrity was not required, even for those charged with upholding the law. The country's chief prosecutor had been caught lying under oath; his deputy was struck off the roll of lawyers for misleading a court. The head of an anti-corruption police agency was appointed after a judge ruled that he was dishonest. When picking bosses for state-owned companies, Mr Zuma appears to have taken advice from his friends, the Gupta brothers, who are accused by the former Public Protector of "capturing" the state for their own ends. Throughout Mr Zuma's time in power, useless ministers were allowed to doze through parliamentary sessions and preside over collapsing departments—as long as they were loyal.

To get South Africa working again, crooked and inept back-sides must be removed from powerful seats. But do it cautiously,

ly, some are warning Mr Ramaphosa. His position is not wholly secure, they whisper. He only narrowly defeated Mr Zuma's supporters within the ruling African National Congress (ANC). Too swift a clean-up might be perceived as a purge of his enemies. It could split the ANC and perhaps even spark violence in KwaZulu-Natal, Mr Zuma's home province.

Personnel is policy

Poppycock. The risks of timidity far outweigh those of boldness. Mr Ramaphosa cannot begin to reform South Africa without honest and capable public servants running the state and its companies. If he leaves the worst people from the Zuma era in place, they will continue to bilk and bungle—and Mr Ramaphosa's presidency will end in failure. Now, when voters have such high hopes, is the time to act.

First, Mr Ramaphosa should put good people in charge of the national finances and the criminal-justice system. Then he should go through all the top-level jobs over which he or parliament has control, dumping the dross and hiring talent. There are plenty of fine administrators in South Africa who would be happy to work for Mr Ramaphosa (and there is no reason why he should not hire foreigners for some jobs). So even a vigorous clean-up need not be unduly disruptive. On the contrary, it should re-energise a state whose honest employees have been crying out for better leadership.

Mr Ramaphosa should not be vindictive and, mindful of the precedent, he should be seen to be fair. But if he appoints good investigators and prosecutors and lets them do their jobs without interference, it is a fair bet that they will look into the many allegations of skulduggery against Mr Zuma's pals. If malefactors in high places are dealt with firmly and impartially, that will deter others and signal to investors that the rule of law still applies in South Africa. Meanwhile, Mr Ramaphosa will be able to start on the other tasks in his gigantic in-tray. ■

Public health

As black as painted

Lead poisoning still does terrible damage to young minds



LEAD has proved to be such a useful, malleable metal that it turns up everywhere, from water pipes to window flashing and printing type. It went into car batteries, and into additives that gave petrol more vroom. It also helped make bright pigments, used to paint walls, metalwork and toys. Yet lead is also a poison, and its ubiquity makes it a pernicious one (see page 51). In the worst cases it causes comas, convulsions and death. More often it acts insidiously. It is a menace to toddlers, who are most likely to ingest contaminated

dust and paint chips. Their brains are especially vulnerable. Only years after exposure are the results apparent in lower IQs, behavioural disorders and learning disabilities.

The dangers of lead have long been known. America banned it from paint 40 years ago, and by the late 1990s leaded petrol had been phased out in almost all rich countries. But the effects linger. Half a million American children are diagnosed with lead poisoning. The situation is more alarming in the poor world, where the use of lead-based paints is spreading. Curbing lead poisoning more than pays for itself. There is little excuse for poor countries to repeat the mistakes of rich ones.

The Romans did themselves no good by using lead for water pipes and sometimes even as a food sweetener. In 1786 Ben-

►

jamin Franklin wrote a letter to a friend noting how the use of lead in distilleries had caused North Carolina to complain against New England Rum “that it poison’d their People, giving them the Dry Bellyach, with a Loss of the Use of their Limbs.”

In 2015 the Institute for Health Metrics and Evaluation, a research institute in Seattle, estimated that exposure to lead globally caused about 500,000 deaths that year and 12% of developmental disabilities, such as cerebral palsy and epilepsy. Another estimate is that lead poisoning costs Africa \$135bn a year in lost output, the equivalent of 4% of GDP.

The most urgent task is to stop putting more lead into the environment. As people in Asia and Africa become richer, they start to spruce up their homes. But the paint they use, even from pots labelled “lead-free”, often contains it. And they lack facilities to recycle lead batteries properly.

It is neither difficult nor expensive to stop using lead. All countries should ban lead in paint. There should be no exemptions for industrial use, because the contamination spreads and industrial paint inevitably finds its way into the consumer market. Yet only four sub-Saharan African countries have for-

mally enacted bans and local manufacturers are often unaware of the harm that lead causes.

The next step is to find and remove more of the lead introduced decades ago, particularly in rich countries. This will not be cheap, especially when the clean-up involves replacing lead pipes, as it often does in America. But the costs are worth it. The Pew Charitable Trusts, an NGO, reckons that every dollar spent on “lead abatement”—painting over old painted walls or removing flaking woodwork—saves at least \$17 in medical and special-education costs, and lost productivity.

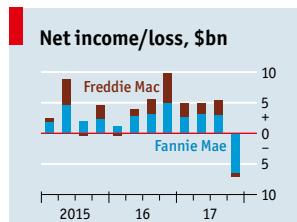
In America investigations are typically carried out only in known cases of lead poisoning. However, children should not be used to test dangerous living conditions. It would be better to test older houses before problems appear.

Cities and states need to make sure that landlords carry out remedial work. When poor owners cannot afford to fix their homes, the government should help as a prophylactic to save money on health care and education later. Charities that seek to help sick children and poor countries can contribute, too. There is no need to poison so many young minds. ■

Housing reform

Tackling Fannie and Freddie

America’s taxpayers continue to shoulder too much risk in the housing market



IMAGINE how worrying this month’s stockmarket turbulence would have been had taxpayers been on the hook for any losses. Fortunately, the government does not guarantee shares. But there is an asset class that is also vulnerable to changes in sentiment and interest rates and which Uncle Sam does stand firmly behind: housing. In 2017, through entities such as Fannie Mae and Freddie Mac, the Treasury guaranteed 70% of all new mortgage lending. The taxpayer’s total exposure to housing is enormous, at over \$6trn, or 30% of GDP, but it is hidden off the government’s balance-sheet. Reform is long overdue.

Evict or eviscerate them

Fannie and Freddie were rescued by taxpayers during the financial crisis. They both recently announced that they need another infusion of public cash. Since taking charge of the firms, the Treasury has absorbed their profits and run down their capital buffers. Now it takes only a small loss to render them technically insolvent. Their recent losses were not caused by falling house prices, but by write-downs resulting from President Donald Trump’s tax reform. The episode serves as a reminder that, in the event of a housing-market downturn, the taxpayer’s obligations could be immediate and large.

Politicians have fought over the future of Fannie and Freddie for years. Today the problem sits with the Senate Banking Committee, which is considering a draft proposal to replace them with multiple privately capitalised firms, whose equity holders would suffer first during any slump. The government would maintain an insurance fund, supported by fees levied on the firms, to cover catastrophic losses—similar to how bank deposits are insured. The hope is that competition between

the new firms would prevent any one entity from becoming too big to fail, and would encourage innovation.

Another idea is to keep the duopoly in place, but to turn Fannie and Freddie into utilities, privately capitalised but with regulators capping returns. This would in principle prevent shareholders and executives from getting rich by selling mispriced taxpayer guarantees, as they did before the crisis.

This newspaper would prefer the government to get out of the housing market altogether. The state has no business subsidising home buyers, let alone standing behind most mortgage lending. Alas, complete withdrawal is a political non-starter. Fannie and Freddie make possible the 30-year, fixed-rate, prepayable mortgages Americans have come to expect.

Fortunately, both proposals are vast improvements on the status quo. Either would apply the same remedy to the housing system as banks received after the financial crisis: bigger safety buffers. If Fannie and Freddie were capitalised to the same standards as banks and forced to make adequate profits, taxpayers would be left with only the remote risks that markets find it hard to price. Regulators could easily reduce even that subsidy later, by increasing the insurance fee.

The question is whether any reform can attract the necessary bipartisan support. Democrats fret about reducing the poor people’s access to credit. They need not. The Senate’s proposal would make it easier to channel money specifically towards low-earners. Today’s system supports high-risk mortgages indiscriminately, enabling imprudently indebted rich buyers to benefit from support intended for poor families.

Republicans, meanwhile, may be tempted to hold out for more radical change. They should instead recognise the political reality—that some subsidies will survive—and compromise. The longer today’s system endures, the greater the risk to taxpayers. Almost a decade after Fannie and Freddie were rescued, it is long past time for America to finish the clean-up. ■

Britain and Europe

The right way to do Brexit

Britain can “take back control” from Europe without cutting all ties



AS WE went to press, the cabinet was due to enter an extended session in order to hammer out what kind of Brexit is best for Britain. Ministers are at loggerheads over the relationship the country should have with the European Union. Time is short. With just over a year until Britain leaves the EU, leaders of the 27 other member states, who will meet in March, are frustrated. Britons on both sides of the Leave/Remain divide need to plan ahead. All they get is blather and contradictions.

The government is groping towards a “hard” Brexit, leaving both the single market and customs union. The prime minister, Theresa May, seems to believe that this is the only way to honour the result of the referendum. On that view, a “soft” exit, into an arrangement closer to that of Norway, is unacceptable because it fails to secure the independence of the courts, the freedom to strike new trade deals and the ability to limit immigration. It would render Britain a “vassal state” that, to add insult to injury, would have to pay the EU a vast annual levy.

Yet a closer look at Norway shows that this depiction of a soft Brexit is simply wrong. Mrs May is right to say that Britain will end up with its own model rather than copying anyone else’s. But instead of ignoring other countries, she should learn from them. And Norway, it turns out, is a good place to start.

Think again

In 1994 Norwegians voted against joining the EU, by the same narrow margin as Britain chose to leave it in 2016. Whereas the debate in Britain has been dominated by hardliners, Norwegians took that as a cue to compromise (see page 47).

Their country is outside the EU, but inside the single market, allowing it to trade freely with the continent. For Britain, by the government’s estimate, leaving the single market would mean that GDP 15 years after Brexit would be 3·6% lower than if it stayed in it. (Brexiters counter this with rosy predictions for a hard Brexit, but their models are based on far-fetched assumptions, such as the total abolition of tariffs.) Norway set up carve-outs to keep control over areas it prized, such as farming and fishing. It agreed to follow most other EU rules, open its borders to EU migrants and make hefty annual payments.

How does that square with Leavers’ demands? Start with the money. Per person, Norway’s contributions to the EU are about three-quarters of what Britain pays now. Rather than going into the central EU budget, most of the cash is tied to particular research or educational programmes, such as the Erasmus student exchanges, or sent to poorer countries in the form of grants that are controlled by Norway, not the EU. A country with \$1trn in oil wealth may shrug off such payments more easily than one grappling with a budget deficit. But Britain has already said that it will pay for access to the single market and take part in specific programmes.

Next come EU laws. Mrs May has said Britain must escape the jurisdiction of the European Court of Justice (ECJ). Norway’s trade with Europe is instead governed by the court of the

European Free Trade Association (EFTA). As a matter of principle, the EFTA court’s rulings are advisory, and it lacks the power to fine member states that do not comply. Britain could expect to nominate a judge to the court, which it could not to the ECJ. As a matter of practicality, British exporters will have to follow the rules of the single market even if they are not in it.

More important, Norway is not the “vassal state” that Brexiters claim. It is involved in drawing up EU laws and regulations, particularly in areas such as energy, where it knows the ropes. It has no seat in the European Parliament or Council, but most regulations are passed without a formal vote. Instead they are negotiated in committees where what counts is expertise and knowledge. Both Norway and Switzerland wield influence in Brussels. Britain’s clout would be greater still, especially in areas that matter to it, like finance.

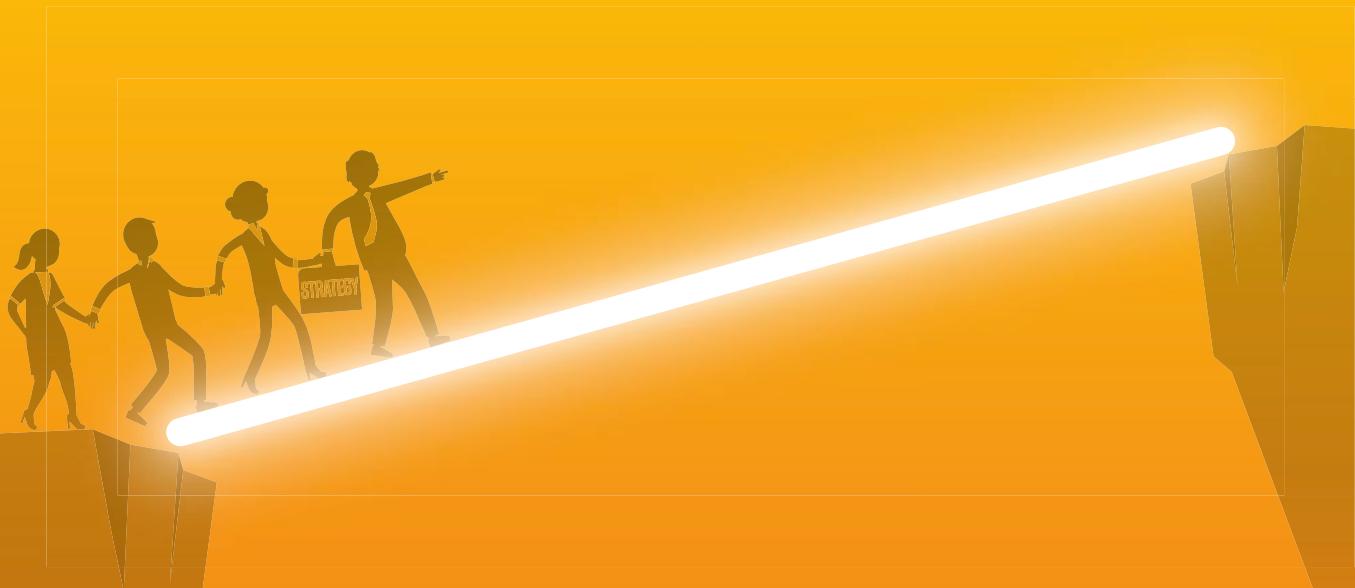
It is the same with free movement of people. At least in theory, Norway might be allowed an emergency brake against a sudden upsurge in migration. In practice Britain could anyway take measures that are available under EU rules, such as restricting property purchases or expelling those who have not found a job after six months. Net migration to Britain is falling and worry about immigrants is subsiding. A majority of all voters, including a third of those who voted to leave, would accept free movement in return for free trade.

In one area, however, Britain would need a closer arrangement. Norway is not part of a customs union with the EU, so vehicles crossing at the border with Sweden and Finland are subject to checks. This would not suit Britain. Its borders are busier than Norway’s and its firms more integrated into European supply chains. Worse, customs controls in Northern Ireland would jeopardise the peace process, and hence the security of both British and Irish citizens. The government has ruled out a customs union with the EU, claiming it would preclude signing trade deals with third countries. That, too, is wrong-headed. The customs union applies only to goods; Britain would still be free to strike deals in services, which the government says is the priority in a longed-for deal with America.

A final benefit is choice. Britain is leaving just as the EU is becoming a looser union of countries moving at different speeds. Euro-zone members are heading for closer integration; others outside it hang back. In a multi-speed Europe, being in the single market and the customs union would put Britain in an outer lane, rather than forcing it off the road altogether. Later, it could move closer or farther away, as it wished. To hardliners, who want out at any cost, this flexibility is dangerous. To pragmatists who accept that the future is uncertain, it is valuable.

And think a third time

A regime akin to Norway’s, fortified by a customs agreement, does not honour every promise made in the heat of the Brexit campaign. We know of no deal that could. But it would mean doing what Britain voted for: leaving the EU. This newspaper argued against that course. Now that the country is set on it, it needs a proven, workable model for being out of Europe’s political project but in its economy. Norway would be a good place to start. ■



Looks perilous...

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Successfully Bridging the Gap Between Strategy Design and Delivery

Digital doctors

Sir William Osler, arguably the greatest physician of the 20th century, said this about being one's own doctor: "A physician who treats himself has a fool for a patient." The idea that the digital revolution in medicine will allow patients to manage their own medical care is naive ("Doctor You", February 3rd).

Doctors and surgeons devote seven or more years of their lives acquiring the knowledge, judgment and experience that allows them to be qualified to care for patients. In fact it takes all these years to be able to do just three things: make a correct diagnosis, arrive at a prognosis and apply the correct treatment. Your presumption that, without medical training and experience, anyone can play app roulette, surf the net and become his own doctor, is folly.

FREDERICK HOLMES
Professor emeritus of medicine
University of Kansas Medical Centre
Kansas City, Kansas

The root cause that explains why IT has failed to transform the delivery of medical care is the information "disorder" deeply embedded within mainstream medical practice and in new alternatives to that mainstream. The only remedy is to define generally accepted standards of care for managing clinical information (patient data and medical knowledge). These standards are missing from medicine. As a rough analogy, imagine an economy operating without broad-based accounting principles for financial information. The effects would be crippling. That is where the health-care industry is now.

Medical records have always been plagued by disorder, both paper and electronic. To bring order, support tools that aid clinical decisions should be designed to identify the required patient data and couple that data with medical knowledge, rather than being based on algorithmic and probabilistic standards.

LINCOLN WEED
Underhill, Vermont

H.L. Mencken once said, "For every complex problem there is an answer that is clear, simple, and wrong." Medical apps help people who are mostly young and mostly well and who want to consult a doctor quickly. They exclude those who suffer a greater burden of ill health. Simple IT answers exist at the expense of the more complex and expensive patients who must continue to rely on their traditional general practices for health care. Those practices will have less income if they lose young, healthy patients to apps, but will have to do more work caring for the complex cases.

The research evidence does not suggest that this new service results in better access or better quality care with fewer costs. Doctors want innovations that will improve the workload and workforce crisis in the National Health Service, rather than fake innovations that make the crisis worse.

TERRY KEMPLE
Former president
Royal College of General Practitioners
Bristol

"Doctor You"? A catchy phrase for your leader, but it would be better if we had a movement based on "Doctor with You".

DAVID CUMBERLAND
Kuala Lumpur

Europe's migrant crisis

Although Charlemagne touched on some criticisms of Italy's intervention in Libya's migrant crisis, they were swiftly brushed under a carpet threaded with niceties about Marco Minniti, the Italian interior minister (February 3rd). Organisations such as Amnesty International do not "hate" Mr Minniti. Rather, many of us are deeply troubled by the effect of his policies. Italian and European co-operation with Libya means that tens of thousands of people are trapped in a country where they face horrific human-rights violations.

The Libyan government is refusing to take the steps necessary to overhaul its rotten migration-management sys-

tem. These steps must include ending the detention and abuse of refugees and migrants and recognising the status of the UN. The fact that Mr Minniti and his fellow European ministers of interior are not making their assistance to Libya conditional upon such measures speaks volumes about their priorities. It also makes such co-operation unlawful. We should focus on resettling refugees out of Libya and bringing stability to a divided country. Europe must do much more to protect the women, men and children trapped in Libya. By closing its doors it is abandoning them to a wretched future.

MATTEO DE BELLIS
Amnesty International
London

Gun demographics

"How many more?" (February 17th) stated that the shooting at the Marjory Stoneman Douglas school in Florida "was merely America's 18th school shooting this year". To many people that might sound like it was the 18th where someone killed, or tried to kill, students. In fact, the figure of 18 comes from an anti-gun group and counts any incident where a gun was fired on or near school property, including accidental discharges and one incident where a veteran with PTSD shot himself in a school's parking lot when the school was closed.

MICHAEL BEARD
Portland, Oregon

It is unlikely that a generation raised on lockdown drills, with access to phone footage of gun rampages and a waning interest in hunting, will grow up parroting the National Rifle Association's rhetoric as enthusiastically as today's political leaders. Change is coming.

JOAN MAHER
West Bradford, Pennsylvania

An Olympic effort

One issue that remains taboo when it comes to doping in sport ("Whatever it takes", February 10th) is the use of criminal sentences to combat

it. The traffickers of the banned substances are punished, but in most countries the athletes face no criminal charges. This is unfair. In October 2015 the World Anti-Doping Agency issued a statement opposing the criminalisation of doping in sport. One of its reasons was that the system of sanctions, including the right to appeal to the Court of Arbitration for Sport, is sufficient. Well, obviously, it is not.

OLEKSANDR OVCHYNNYKOV
Strasbourg



Another way to fight doping in addition to the ones you listed is retesting. This allows for the storing of blood or urine samples taken from athletes who are tested in order to retest it once detection methods have improved. The deterrent effect is that a doped athlete takes the risk that his result will be disqualified long after his performance at the Olympics, or any other tournament he competes in, up to two years after the sample was collected.

SARKIS HOMBERGER
Geneva

A government in distress

A little over a year ago you nicknamed the British prime minister "Theresa Maybe" (January 7th 2017). After her subsequent disasters, I think a more apt moniker would be Theresa Mayday ("A sea of troubles", February 3rd).

JAVIER SEMPERE
Madrid ■

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

Executive Focus



The Office of the United Nations High Commissioner for Refugees (UNHCR) in Geneva, Switzerland, is seeking applications for three (3) positions on its Independent Audit and Oversight Committee (IAOC).

Established in December 1950, UNHCR (www.unhcr.org) is mandated to lead and coordinate international action to protect and assist refugees and other people of concern. In more than six decades, our agency has helped about 50 million people restart their lives. Today our workforce of 11,000 continues to help over 65 million people in 129 countries.

It has been agreed by UNHCR's Standing Committee that an **Independent Audit and Oversight Committee** be established to serve in an expert advisory capacity to assist both the High Commissioner and the Executive Committee in exercising their oversight responsibilities in accordance with relevant best practices, industry standards and applicable UN financial and staff rules and regulations.

UNHCR wishes to appoint **three members** to the Committee. The members of the Committee must have recent and relevant senior-level experience in financial oversight, audit and/or inspections. Preference will also be given to individuals with experience in governance, assurance and risk management; knowledge and understanding pertinent to the UNHCR's core mandate; experience in managing organisations of a similar size; and an understanding of the organisation and United Nations system-wide operating context and accountability structure. An excellent knowledge of English is a prerequisite.

Please note that in order to maintain the necessary independence, the selected members shall not receive a fee for services rendered. They will, however, receive a daily allowance and be reimbursed for travel expenses incurred to attend Committee meetings. The Committee shall, in principle, meet at least two times per year and each session shall last for four (4) days. The meetings shall take place in Geneva.

In order to be considered for this opportunity, please send your up-to-date curriculum vitae accompanied by a letter of interest by 4 March 2018 midnight (CET) time to hqtopr@unhcr.org with the subject line "Application to IAOC membership".

For more information on the terms of reference of the IAOC please consult the following document: <http://www.unhcr.org/4e1416c59.pdf>.

The UNHCR workforce consists of many diverse nationalities, cultures, languages and opinions. UNHCR seeks to sustain and strengthen this diversity to ensure equal opportunities as well as an inclusive working environment for its entire workforce. Applications are encouraged from all qualified candidates without distinction on grounds of race, colour, sex, national origin, age, religion, disability, sexual orientation and gender identity.



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The discord amplifier

Also in this section

17 A troll's life

AMSTERDAM, ROME, STOCKHOLM AND WASHINGTON, DC

The divided West is particularly vulnerable to Russian disinformation campaigns, whether old-fashioned or high-tech

HEAD Barack Obama looked out of the right window in the White House on May 29th 2016, he might have seen someone holding up a sign that read “Happy 55th Birthday Dear Boss”. The felicitations were not for Mr Obama (whose birthday is in August); they were for Yevgeniy Prigozhin, a Russian businessman known as “Putin’s chef”. The sign-carrying well-wisher did not know Mr Prigozhin. But over the course of 2016, many people who were strangers to Putin’s cook nonetheless did what he wanted them to do, both in America and elsewhere.

This bizarre story is one of the details which make the grand-jury indictment filed in Washington, DC, on February 16th so fascinating, as well as deeply troubling. The indictment was filed by Robert Mueller, a former director of the FBI who is now the special counsel charged, as part of his investigation into Russian efforts to interfere with America’s election in 2016, with finding any links between Donald Trump’s election campaign and the Russian government. It charges three companies Mr Prigozhin controlled, including the Internet Research Agency (**IRA**, see box on next page), and 12 other named Russians with identity theft, conspiracy to commit wire and bank fraud and conspiracy to defraud America by “impairing, obstructing

and defeating the lawful governmental functions of the United States”.

Using fake social-media personas, the Russians tried to depress turnout among blacks and Muslims, encourage third-party voting and convince people of widespread voter fraud; their actions were designed to benefit Bernie Sanders, who lost the Democratic nomination to Hillary Clinton, and Mr Trump. “Many” of the social-media groups created as part of the operation, Mr Mueller says, had more than 100,000 followers. The Russians organised and co-ordinated rallies in several states, such as a “Florida Goes Trump” day on August 20th. They were in touch with “us activists” (perhaps it was one of them who sent those birthday greetings from Lafayette Park). These included “unwitting members, volunteers, and supporters of the Trump campaign”.

The indictment says nothing about the degree to which unwitting parts of Mr Trump’s campaign may have encouraged these actions, though it does refer to co-conspirators “known...to the Grand Jury”. Nor does it delve into the question of Russian responsibility for hacking the Democratic National Committee. But it is an unprecedentedly thorough, forensic account of a scheme that was of a piece with the covert propaganda and influence operations

Mr Putin now wages against democracies around the world. Sometimes, these interventions seek to advance immediate foreign-policy goals. They also have a broader, long-term aim: weakening Western democracies by undermining trust in institutions and dividing their citizens against each other.

In this, they are working with the grain of the times. Social media are designed to hijack their users’ attention. That makes them excellent conduits for the dissemination of lies and for the encouragement of animosity. Russia’s manipulations make use of these features (from the point of view of those who would make money from social media) or bugs (from the point of view of people who would like political lying to be kept to a minimum) in much the same way as unscrupulous political campaigns that are not subject to malign outside influence. This makes the effects of Russia’s actions hard to gauge. In many cases they may be minor. But that does not make their intent less hostile, or their evolving threat less disturbing. Nor does it make them easier to counter. Indeed, the public acknowledgment of such conspiracies’ existence can help foment the divisions they seek to exploit.

The use of disinformation—“active measures”, in the KGB jargon of Mr Putin’s ➤

► professional past—to weaken the West was a constant of Soviet policy, one that the would-be victims fought back against with similar weaponry. In the 1960s the KGB-funded Liberty Book Club published the first title alleging that John F. Kennedy's assassination was a conspiracy. Later the KGB forged a letter from Lee Harvey Oswald in an attempt to connect the plot to the CIA. Mostly this had little effect. In the 1970s forged pamphlets designed to start a war between the Black Panthers and the Jewish Defence League failed to do so. But some worked. The CIA did not invent HIV in a biological-weapons lab, but the KGB did invent the story, and many people still believe it.

After the collapse of the Soviet Union the use of active measures against the West went into hiatus, though they still found use against some countries of the former Soviet Union. Then, in December 2011, people took to the streets in protest against Mr Putin. Mr Putin blamed Mrs Clinton, then America's Secretary of State.

The Maidan uprising in Ukraine in February 2014, the subsequent Russian-backed fighting in the east of the country and the annexation of Crimea moved things up a gear. Kremlin-controlled media claimed that Ukraine's government was dominated by fascists and that its armed forces were committing atrocities. Russian trolls spread the stories on Twitter, Facebook and the Russian social-media platform VKontakte.

In July of that year 298 people were killed when Malaysia Airlines flight MH17 was shot down by a Russian missile over eastern Ukraine. The Kremlin responded with a barrage of disinformation blaming Ukraine. Its defence ministry hosted a press conference at which it presented fake data on the plane's flight path, as well as a tampered video which made it appear that the lorry carrying the missile had passed through Ukrainian-controlled territory. As European public opinion turned sharply

anti-Russian, the Kremlin stepped up efforts at covert influence well beyond Ukraine proper.

The cyber elements of such activities get the most attention, but much of Russia's activity consists of techniques from the pre-digital Soviet manual: marshalling human assets, be they active spies or sympathetic activists; funding organisations that may be helpful; and attempting to influence the media agenda.

Tried and not true

Anton Shekhovtsov, a Ukrainian political scientist, has studied the links Russia has cultivated with an array of European parties. Some are tiny outfits like Italy's neo-fascist Forza Nuova. Others are much larger, such as the right-wing Northern League. Last year its leader, Matteo Salvini, signed a co-operation agreement with Mr Putin's party, United Russia. Austria's hard-right FPÖ, which now controls the foreign, interior and defence ministries, has a similar pact. In Germany Russia maintains ties with Die Linke, a far-left group descended from East Germany's Communist Party, but has also cultivated the hard-right Alternative for Germany (AfD) party. The AfD does especially well with the million or so Germans of Russian descent; last year it published its manifesto in Russian.

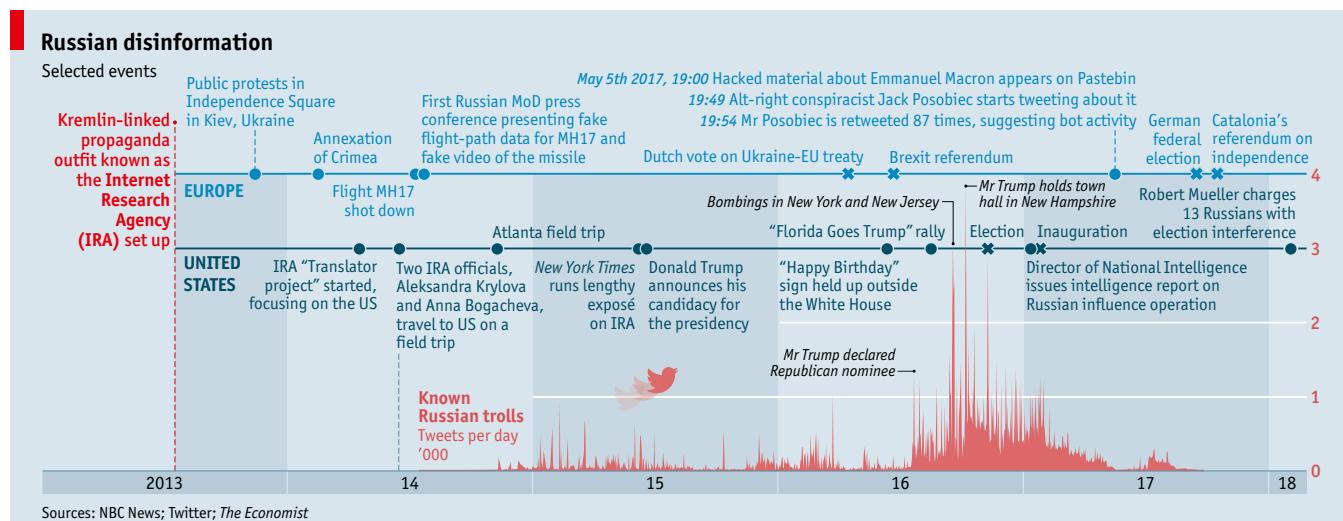
Sponsored visits to Russia have bolstered relationships with politicians including Nick Griffin, once the leader of the fascist British National Party; Frank Creyelman, a member of the Flemish parliament for the far-right Vlaams Belang party; and Marton Gyongyosi, a leader of Hungary's far-right Jobbik party. Last September an MP from the far-right Sweden Democrats (SD), Pavel Gamov, managed to get kicked off one of these junkets by demanding that his hosts pay his bar tab and other untoward expenses. (The SD expelled him, too.)

Direct funding of sympathetic parties is often rumoured but rarely proven, in part because many European countries have

strikingly lax election-finance laws. The Czech Republic's pro-Russian president, Milos Zeman, pulled off a narrow re-election victory last month with the help of a massive advertising campaign financed by a group known simply as "Friends of Zeman"; the source of some of that money is not known. A British investigation into the source of £8.4m (\$12m) in loans and donations provided to the Leave.EU campaign in the run-up to the Brexit referendum by Arron Banks, a prominent campaigner, have yet to reach a conclusion.

Broadcasters like RT and Sputnik spread disinformation that furthers Mr Putin's ends and slant news stories in ways that play up their divisiveness. Plenty of news outlets with greater reach do the latter; but one area where Russian active measures go further is in the use of straight-up forgery. Martin Kragh, a Swedish security expert, describes more than 20 forgeries that have made news in recent years. One was a fake letter supposedly written by Sweden's defence minister, offering to sell artillery to Ukraine. A second purported to contain evidence of a conspiracy to install Carl Bildt, a former Swedish foreign minister, as Ukraine's prime minister. The forgeries often appeared first on Russian-language websites, or were placed on social media by a pro-Russian account. As Mr Kragh notes, such fakes often continue to circulate on social media long after they are debunked.

It is in assuring such continued circulation that outfits like the IRA play a role, setting up automated accounts—"bots"—that promulgate messages to specific groups and individuals. Last November NATO's Stratcom Centre of Excellence in Riga, which studies disinformation, found that 70% of Russian-language social-media communication about NATO in the Baltic states seemed to be generated by bots. A study of social media during the Brexit campaign by 89Up, a consultancy, found that Russian bots delivered 10m potential ►



► Twitter impressions—about a third of the number generated by the Vote Leave campaign’s Twitter account. Such echoing amplifies the effect of RT and Sputnik stories, which are in general not much watched.

Their all-or-nothing nature makes referendums particularly juicy prizes. At least one in the Netherlands has been targeted. Javier Lesaca, a political scientist at George Washington University, found that RT and Sputnik stories on Catalonia’s independence referendum last year—which took the pro-independence side, as Russia would wish—were retweeted on a vast scale by “Chavista bots” which normally spent their time tweeting messages sympathetic to the Venezuelan government.

Estimating how many bots are out there is hard. Primitive bots give themselves away by tweeting hundreds of times per hour, but newer ones are more sophisticated. Some generate passable natural-language tweets, thus appearing more human; others are hybrids with a human curator who occasionally posts or responds on the account, says Lisa-Maria Neudert, a researcher at the Oxford Internet Institute. It is not always easy to distinguish bots from humans. “Journalists spend a lot of time talking on social media. Sometimes they look almost automated,” she says.

Discovering who controls such accounts is even harder. In America the main work of identifying which bots and troll accounts were run by the IRA has been done by Twitter and Facebook themselves. Independent analysts can try to identify Twitter bots based on their activity patterns, but for Facebook accounts, which are mainly private and post only to their own friends, it can be impossible for anyone outside the company.

“We don’t have a list of Russian troll accounts in Europe, similar to what we have for the us,” acknowledges Ben Nimmo of the Atlantic Council’s Digital Forensic Research Lab (DFRLab), which studies online influence operations. In Germany Mr Nimmo identified a Russian botnet—in this context, a network of mutually reinforcing bots—that amplified right-wing messaging in the week before the German election in September, promoting #Wahlbetrug (“election fraud”) as a hashtag. Beforehand the botnet had spent its time promoting pornography and commercial products. It may have been a freelance rent-a-botnet also available for far-right messaging; it may have been a Russian operation. The difference can be hard to see.

So can the impact of such interventions. Analysts are most confident of ascribing influence when they see a superhuman burst of bot activity followed by a deeper but more leisurely spread deemed to be “organic” (both in the sense of proceeding naturally and being done by flesh not circuits). This is what happened when material stolen from Emmanuel Macron’s

Inside the IRA

A troll’s life

MOSCOW

“Thought is made in the mouth” —Tristan Tzara

“INTERNET operators needed! Work in a chic office in OLGINO!!!!” read the ad posted in August 2013. “The task: posting comments on relevant internet-sites, writing thematic posts, blogs, social networks.” The job, an undercover reporter who applied for it discovered, was with the then new, now notorious Internet Research Agency (IRA).

Yevgeny Prigozhin, the catering baron in charge of the IRA, started off as a hot-dog seller in St Petersburg. One of the restaurants he went on to own, New Island, became a favourite of Vladimir Putin’s. That led to opportunities beyond the kitchen, from troll armies at home to private military contractors deployed in Syria. Mr Prigozhin operates far enough outside official structures to allow ministries to claim ignorance of his doings, but his Concord companies, which Robert Mueller’s indictment (see main story)

says stood behind the IRA, still made a fortune from working with the Russian state. One of his firms made \$8.15bn from the Russian government for catering services in 2011-17, according to an analysis by Reuters.

Rather more modest—but still, at 45,000 roubles (\$800) per month, healthy—remuneration attracted his employees. In 2014 Vitaly Bespalov spent time in the IRA’s “2nd Ukraine Department” replacing words like “separatist” and “terrorist” in news stories about Russian proxies in the Ukraine with “rebel”. In the social-media department he created fake profiles on Russian social networks. “We had to create the appearance of a real person,” he says. Women were considered more trustworthy; he pulled their pictures from Google image searches. “It was idiotic work,” he says. “Control-c, control-v.”

A more secretive department focused on English-language content. Their English was often awkward and their content asinine. “So do you brush your teeth before kissing Obama’s ass?” read one typical post from an IRA-linked Twitter account called @I_Am_Ass in mid-2014. “It is dirty fucked!” One former troll from the American department, Alan Baskaev, told TV Rain, an independent Russian broadcaster, how his colleagues hired a prostitute bearing a resemblance to Hillary Clinton to have sex with a black man on camera. He spent his time impersonating Americans on political forums and in the comment sections of news sites. “The six months that I was there it all resembled a farce and clowning around—it was true postmodernism,” he said. “Postmodernism, Dadaism, and surrealism.”



campaign was posted shortly before the second round of last May’s French election. An analysis by DFRLab showed that the top ten accounts retweeting links to the material posted more than 1,300 times in the first three hours, with one account posting nearly 150 tweets per hour. Later, says Ms Neudert, the messages began to spread organically. On the other hand, Mr Lesaca’s figures suggest that the retweets of RT and Sputnik by Chavista bots were not taken up by living, breathing Catalans.

Some European countries are trying to strengthen themselves against web-borne disinformation. On a sunny afternoon at the Alessandro Volta junior-middle school in Latina, 50km south of Rome, Massimo

Alvisi, who teaches digital literacy, runs through some of the topics the rambunctious children in front of him have covered this year. A visitor asks the class: why do people make things up online, anyway?

“People put up false stories to earn money,” shouts a dark-haired wiseacre at the back. “To create panic!” says another. “To deceive people.” “Just to have fun!”

Mr Alvisi, a history teacher by training, has been leading the digital-literacy classes for two years. He developed his course partly on his own initiative. But the issue has been given a new push. Last year the president of Italy’s Chamber of Deputies, Laura Boldrini, announced a “Basta bafala” programme (fake news, for reasons ►

► which appear obscure, is known as “bufala” in Italy). She has herself been a target of online attacks; she has furiously denounced a Northern League senator who shared a baseless post alleging that she had obtained a government job for her brother, a well-known abstract painter.

Italy is an easy target for disinformation; fake news is rife, trust in the authorities low, and some parties like it like that. In last year's German elections all parties swore off the use of bots (though the AfD dragged its feet). In Italy the Northern League positively encourages bottishness with an app that automatically embeds party postings in supporters' timelines. The populist Five Star Movement is opposed to anything top-down, including efforts to block fake news (which can indeed, in government hands, look disturbingly like ministries of truth). Its websites and Facebook pages have become Petri dishes for conspiracy theories in the run up to the general election in March.

Sweden, too, is rolling out a national digital-literacy curriculum. Teachers there are particularly impressed by the effect of assignments that get the students to create fake-news campaigns themselves; they dramatically improve students' awareness of how disinformation works, and how to recognise it. Sweden's Civil Contingencies Agency (MSB), which is responsible for communications during emergencies and for combating disinformation, runs similar “red teaming” exercises for government agencies, in which staff brainstorm attacks to test their own vulnerabilities.

Its flow chart for handling information attacks looks at the emotions they seek to engender (fear, shock, discouragement) and the tools they employ (trolls, hacks). Identifying the aggressor is not a priority. “Intelligence agencies can handle that. We need to think about the effects,” says Dominik Swiecicki of the MSB. Indeed, in some cases attribution could be counter-productive; saying someone has struck you without having the will, or where-withal, to strike back can, as America is learning, make you look hopeless.

Robust efforts by platforms such as Facebook and Twitter to monitor trolls, bots and aggressive disinformation campaigns would greatly help all such moves towards resilience. Facebook, for which Russian meddling poses a severe image problem (see page 53) has promised it will have 20,000 people monitoring abusive content by the end of the year. Twitter's identification of IRA-linked bots has enabled independent groups to track their activities as they happen, observing them as they seized on topics such as the high-school massacre in Parkland, Florida on February 15th (see page 30). Governments are pressing them to do more. But, as Ms Neudert observes, “There are massive concerns about freedom of speech.” She says

that because of German fines for online hate speech and fake news, “The platforms are ‘over-blocking’ all kinds of content that they are worried might be in any way problematic”. France, Italy and the Netherlands say they too are looking at laws and other measures to combat fake news.

Please tread on me

Such European efforts may backfire; but they are at least efforts. And some European leaders take the problem seriously. At his first meeting with Mr Putin, Mr Macron publicly accused RT and Sputnik of being state propaganda channels. Mrs Merkel is said to have explicitly warned him about interference in Germany's elections at a meeting in Sochi. In America, by contrast, one of the most striking things about the Russian attacks is how little has been done about them.

When evidence of the conspiracy first surfaced in 2016, Congressional Republicans refused to agree to a bipartisan statement warning of Russian attempts to breach voting systems. Mr Obama responded to what the intelligence services were telling him with modest warnings and symbolic sanctions, aware that to do more in defence of the election without the support of Republicans might backfire with suspicious voters. After the election, but before Mr Trump's inauguration, the director of national intelligence issued a report laying out much of the evidence he had seen and warning of its seriousness.

Then things got worse. Mr Trump appears to read allegations of Russian meddling not as national-security threats but as personal attacks—insinuations that without them he would not have won. He lies about the issue, as when he tweeted, “I NEVER said Russia did not meddle in the

election” on February 18th, and he has undermined the FBI's attempts to understand both the conspiracy and its links, if any, to his campaign. He fired James Comey, the FBI's respected head, after Mr Comey refused to offer him a pledge of personal loyalty. He publicly attacked the bureau after the Florida shooting (see Lexington).

Some Republican representatives have taken up Mr Trump's rhetoric about a “deep state” out to undermine his presidency, calling for a “purge” of the FBI and the sacking of Mr Mueller. So have media organisations such as Fox News—much more influential than Russian active measures could ever hope to be and similarly dedicated to division. Indeed, Mr Mueller may have released his indictment in part to make sacking him even less defensible than it would have been otherwise.

Mr Mueller still has a way to go. He has years of e-mail and social-media communication belonging to the 13 indicted Russian agents and, it appears, unnamed “co-conspirators”. Many expect him soon to indict those responsible for hacking into Democratic servers, and perhaps in doing so link them to organs of the Russian state, or members of Mr Putin's inner circle. On February 20th Alex van der Zwaan, a lawyer involved in Ukrainian politics and the son-in-law of a Russian oligarch, pleaded guilty to making false statements about his communications with a worker on the Trump campaign. But whatever Mr Mueller finds, the fate of the president will be political, not legal, determined by Congress and, ultimately, the voters.

Unfortunately, when it comes to voting, says Michael Sulmeyer, head of the Belfer Centre's Cyber Security Project at Harvard, interference looks set to continue. Mr Trump's intelligence chiefs also expect Russia to try to influence this autumn's midterm elections—presumably to benefit Republicans, since congressional Democrats are more eager to investigate their meddling. Many states use voting machines vulnerable to hacking (some are turning back to paper to guard against it). The Department of Homeland Security found that Russian hackers tried to breach election systems in 21 states in 2016.

Mr Trump has given no instructions as to how to counter this threat. His refusal to take Russian interference seriously and dismissal of unfavourable reports as “fake news” have made America fertile ground for further disinformation campaigns. They let his supporters deny the facts. A poll published this January found that 49% of Republicans do not believe Russia tried to influence the election in 2016. It would be naive to expect that number now to fall to zero. “If it was the GOAL of Russia to create discord, disruption and chaos,” Mr Trump tweeted on February 17th, “they have succeeded beyond their wildest dreams.” For once, he had it right. ■





Also in this section

- 20 Australia, deforestation hotspot**
- 20 Borneo's disappearing orangutans**
- 21 Elections in north-eastern India**
- 22 Fortune-telling in South Korea**

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Indian politics

All hat and cattle

DELHI

The BJP government looks ever more like the one it replaced

AT A rally in the southern state of Karnataka the prime minister wagged his raised finger, accusing the local government, run by the rival Congress party, of creaming a 10% cut from every state contract. “Do you want a commission government, or do you want a mission government?” he boomed. After four years in power Narendra Modi still relishes nothing more than attacking his opponents as no-good, lazy and corrupt.

In response Karnataka’s chief minister, Siddaramaiah, who faces a state election in two months, posted a cartoon on his Twitter account. It pictured glum citizens queuing outside a bank, a reminder of Mr Modi’s painful “demonetisation” in 2016, which sent hundreds of millions of Indians rushing to exchange abruptly voided banknotes. From the back of the bank, meanwhile, emerged a pair of grinning millionaires carrying big sacks of money. Airily waving them off was a Modi-like figure labelled *chowkidar* or watchman.

The reference was not subtle. Before his Bharatiya Janata Party’s (BJP) landslide win in the general election of 2014, Mr Modi had promised to be the country’s vigilant *chowkidar*. Yet on his watch there has been no let-up in the kind of scams and scandals that had made Congress such an easy target. The latest involves a diamond dealer who is said to have fled the country after allegedly defrauding a state-owned bank of some \$1.8bn. As recently as Janu-

ary the jeweller in question appeared in a photo of Indian tycoons hobnobbing with Mr Modi at the Swiss mountain resort of Davos. As the next general election, due early next year, approaches, it grows ever harder for Mr Modi to pose as the fresh, clean alternative to bad old ways. The BJP government has, in fact, slowly evolved into something surprisingly similar to its Congress-led predecessor, from which Mr Modi promised to “free” India.

The BJP looks increasingly like the party of state. Mr Modi’s image adorns billboards and newspaper ads. His voice resounds from state television and radio. His loyalists influence a growing array of public institutions. In some instances, say critics, such influence might be described as abuse. Police and courts, for instance, have all too often proven slow to follow up potentially embarrassing leads, or quick to absolve BJP bigwigs of wrongdoing. Milan Vaishnav, a scholar at the Carnegie Endowment for International Peace, a think-tank, points to recent instances when two powerful institutions, the central bank and the election commission, have appeared to bow to Mr Modi’s wishes.

The energetic prime minister has launched dozens of heavily promoted social programmes. But his government has also taken over numerous Congress-era projects and simply rebranded them, stripping away associations with such Congress figures as Jawaharlal Nehru and In-

dira Gandhi. A scheme started in 2012 called the Basic Savings Bank Deposit Account, aimed at providing banking for the poor, was peped up and relabelled the Prime Minister’s People’s Money Project.

In some cases Mr Modi has adopted policies that he sharply criticised while in opposition. He had dismissed Aadhaar, a Congress-initiated project to issue all citizens with a unique, biometrically certifiable identity number, as nothing but a gimmick. In practice his government has made Aadhaar cards mandatory for everything from mobile-phone lines to food subsidies. The BJP repeatedly stymied Congress’s attempts to replace a quaint hodge-podge of local taxes with a national goods and services tax, only to bring in the GST itself, with great fanfare, last year. Mr Modi also frequently disparaged Congress programmes to boost rural incomes as wasteful vote-buying. But his government has raised spending on these, while several BJP-run state governments are offering massive loan relief to indebted farmers.

Pander flair

The Hindu-nationalist BJP had excoriated the secular Congress for pandering to religious and ethnic minorities. Yet in hard-fought election campaigns this month in the small states of the north-east the ruling party has pandered as hard as anyone (see page 21). In the majority-Christian state of Meghalaya it promised free pilgrimages to Jerusalem. In Tripura, a state that suffered a separatist insurgency until 2004, the BJP has set aside its nationalist credentials to ally with a party that had backed the independence movement.

In 2014 business leaders were among Mr Modi’s most enthusiastic supporters. Many still praise such achievements as the introduction of the GST, a bankruptcy law and streamlined government procedures. ►

► Yet some of the BJP's economic moves raise questions about its commitment to reform. Earlier this month, for instance, Mr Modi's government quietly abandoned plans to relax a "licence Raj" rule that obliges any firm with more than 100 employees to seek government permission to fire any staff. Speaking in Davos in January, Mr Modi repeatedly declared India's commitment to open competition in a globalised world. A week later his finance minister unveiled a budget that sharply hikes tariffs on a broad range of goods. Duty on imported sugar is now 100%.

Following a series of apparent recent setbacks, Indian pundits are also growing increasingly critical of Mr Modi's foreign policy. Having promised a more robust and active stance, the prime minister has delivered mostly bluster. India's biggest rival, China, continues to make strategic inroads into India's traditional sphere of influence. Iron-fist tactics to squelch unrest in the state of Jammu and Kashmir seem only to have deepened local alienation.

So far, all this has done the BJP little harm. It still dominates politics, despite a slight dip in the polls. But Congress has benefited from a commensurate uptick and its leader, Rahul Gandhi, has cut Mr Modi's lead as preferred prime minister from 35 percentage points to 17. Perhaps even as the BJP succumbs to some of Congress's foibles, Congress is learning new tricks from the BJP. ■

Deforestation in Australia

Chainsaw massacre

SYDNEY

Queensland is cutting down 1,000 rugby pitches' worth of forest every day

MOST deforestation takes place in poor countries. In richer places, trees tend to multiply. Australia is an unhappy exception. Land clearance is rampant along its eastern coast, as farmers take advantage of lax laws to make room for cattle to feed Asia. WWF, a charity, now ranks Australia alongside Borneo and the Congo Basin as one of the world's 11 worst "fronts" for deforestation.

The worst damage occurs in the north-eastern state of Queensland, which has more trees left to fell than places to the south, where agriculture is more established. It has been responsible for over half of Australia's land clearance since the 1970s. Its bulldozers are at present busier than they have been for a decade. They erased 395,000 hectares of forest, including huge tracts of ancient vegetation, between 2015 and 2016—the equivalent of 1,000 rugby pitches a day. As a share of its

Orangutans

Money swinging from trees

BUKIT LAWANG

Harming orangutans also hurts people

THEY move with ease. In the shade of the jungle, a round-bellied orangutan glides towards the ground. Her long limbs give her a gangly appearance, but the flaming strands of her hair are beautiful. Mina is a notoriously bad-tempered ape, who has scratched and bitten dozens of locals on the Indonesian island of Sumatra. But humans harm orangutans far more than orangutans harm humans.

Estimating the number of orangutans is difficult. Researchers have to extrapolate from the number of nests observed. (The apes build new ones to sleep in each night.) A new study published in *Current Biology* finds that the number of orangutans on Borneo, an island divided between Indonesia and Malaysia, declined by some 148,000 between 1999 and 2015, leaving fewer than 100,000. Within the next 30 years, another 45,000 could disappear. The decline has been steepest, naturally, in areas where the jungle has been razed to plant palm-oil trees. But it is areas that are still forested that account for most of the fall in the orangutan population. This suggests that hunting and crueler activities—carcasses have been found maimed and riddled with airgun pellets—are also taking a bloody toll, says one of the study's authors, Maria Voigt of the Max Planck Institute, a research organisation in Germany.

People have long since supplanted other creatures as the greatest threat to orangutans. The tigers which sometimes kill Sumatran orangutans (there are no tigers in Borneo) have become even rarer than the apes. The jungle guides strumming guitars at a bar in the Sumatran village of Bukit Lawang know of just one peer who has seen a tiger in the wild. More than half of the island's forest cover has disappeared since the 1980s.

Local officials still push for more palm-oil plantations, mines and roads. But tourism in Sumatra's Gunung-Leuser

forested area, Queensland is mowing down trees twice as fast as Brazil.

Australia has lost almost half its native forest since British colonialists arrived, and much of what remains is degraded. For a time, it seemed that the clear-cutting might come to an end: in the early 2000s several state governments passed bills to reduce deforestation. But in the past decade these have been wound back in every state. Queensland's land clearance has more than doubled since conservatives loosened its forestry law in 2013, allowing farm-

National Park shows the value of leaving the jungle, and its inhabitants, alone. A night and two days of climbing and crawling in search of orangutans can cost a visitor around \$100. Those leading tours receive a hefty chunk of this and are therefore well-paid by local standards, says Dodi Perangin Angin, who runs a trekking company which employs 13 guides. Tourism is far better for the local economy than palm oil, he reckons.

Eco-tourism can benefit orangutans, too, if controlled. But tourists often get too close to the animals, risking the transmission of disease, or leave rubbish in the forest, says Serge Wich of Liverpool John Moores University. In 2016 he was part of a team which found that there were more than 14,000 apes on the island, far more than the 6,600 or so previously thought. In spite of the revision, this is a minuscule number given the island's vast size (it is bigger than Japan or Germany). And unless local officials begin to grasp the potential of tourism, their numbers are likely to dwindle even more.



A hairy orange meal ticket

ers to "thin" trees by up to 75% without a permit. Neighbouring New South Wales recently enacted a similar rule.

Conservationists blame powerful agricultural lobbies. These retort that controls on land clearance push up food prices and cost jobs. Family farmers lament that trees obstruct the big machinery needed to keep their land productive. They know that empty fields are worth perhaps five times more than those peppered with vegetation. In 2014 a landowner in New South Wales murdered an environment officer ►



Like Congo with eucalypts

▶ who was investigating illegal bulldozing. (Authorities in the state are examining at least 300 cases of illegal tree-clearing.)

Yet clearing land eventually hurts farmers too because, without trees, soil erodes and grows saltier. Deforestation releases carbon dioxide into the atmosphere, spurring global warming, and reduces regional rainfall. Perhaps 45m animals were killed in Queensland's bushland bulldozing between 2015 and 2016. Loss of habitat has brought many species, including the koala, to the brink of extinction. The Great Barrier Reef, which is already suffering from cli-

mate change, is also harmed by the extra sediment washed into the ocean, which can prevent coral from photosynthesising.

Permissive forestry laws seem especially odd given the billions of dollars the government spends planting trees, fighting climate change and conserving native species. In 2016 Queensland's minority Labor government tried to pass a bill to strengthen controls on land clearance once again. It was defeated by a hair. But Labor, which won a state election late last year, has promised to reintroduce the legislation. This time, it holds a majority. ■

ly populated areas, relative to the dusty plains of India's heartland. For decades locals have worried about how to keep out other Indians. That anxiety has taken on an anti-Islamic hue in recent years, with the fear that Muslim Bangladeshis have been settling in the state illegally. The BJP dubbed the election a new "battle of Soraighat", in reference to a 17th-century clash in which Assamese forces defeated an invading army of (Muslim) Mughals.

The BJP has also taken control of two smaller north-eastern states, Arunachal Pradesh and Manipur, by allying itself with local parties and securing defections from Congress. It has set up the North-East Democratic Alliance, along with ten north-eastern parties. Mr Kohli insists this is not an electoral pact, but rather a club to work for the betterment of the region. But Congress has not been invited to join.

Congress is not keen to run on its record in Meghalaya, which it has governed for 14 of the past 15 years. The national government has increased its annual disbursement to the state from 580bn rupees (\$903m) to more than 2.5trn rupees, but there is little to show for it. Young people, graduates especially, yearn for jobs. Everyone agrees that the only adequate road is the national highway from Shillong, the state capital, to Assam. For a wet state with huge potential for hydropower, both clean water and electricity are in woefully short supply. Wildcat coal-mining was brought to an abrupt halt four years ago for environmental reasons, which has left miners fuming. Congress had at least been able to claim its rule was peaceful, a welcome change given that separatist insurgencies have racked the north-east for decades. But after a local politician was assassinated on February 19th, apparently by separatists, law and order has become another cudgel with which to beat the state government.

Rahul Gandhi, the leader of Congress, took a turn at flattering the people of Meghalaya at a rally held in Shillong on February 21st. Traditional Khasi society is matrilineal and Mr Gandhi, surrounded by baton-wielding female commandos, seemed to mean it when he said that the rest of India could learn from minuscule Meghalaya. He also lambasted the BJP for failing to stick up for minorities elsewhere. But he shed no light on Congress's plans for the state. Instead of plumping for Congress or the BJP, many Meghalayans will pick a local party. But given the BJP's knack for coalition-building, that is likely to usher in a BJP-led government. ■

State elections in India

Christians for Hindu nationalism

SHILLONG

Even in unpromising territory, the BJP is a force to be reckoned with

"PRESERVE our tradition and culture," reads the sign at the front of the community hall in the north-eastern Indian state of Meghalaya. It is written in the raspy, clacking language of the local Khasi people, which is more closely related to Khmer, Cambodia's main language, than it is to the most widely spoken languages in India. Yet beneath it, Nalin Kohli, a suave lawyer flown in from Delhi by the Bharatiya Janata Party (BJP), which runs India's national government, is giving a stump speech in Hindi. The BJP, with its centralising, Hindu nationalist ideology, does not seem a natural fit for Meghalaya, whose 3m inhabitants are mostly Christian and fearful of losing their identity in a country of 1.3bn people. It is testimony to the BJP's political acumen that it may end up running the state later this month.

In Meghalaya and nearby Nagaland, where an election will be held on Febru-

ary 27th, and in Tripura, a bastion of communism that voted on February 18th, the rest of India is called "the mainland". Ram Madhav, a BJP leader who works in the eight states of the north-east, has written that the region, "with its extreme diversity, has always eluded a nationalist and integrationist party like the BJP". Meghalayans love to eat beef, for instance, a practice many in the BJP would like to ban, since cows are holy to Hindus. By default, the secular Congress party, which forms the main opposition nationally, has tended to dominate these states.

Two years ago, however, the BJP scored a surprising success in Assam, by far the most populous state in the north-east. Its campaign had two themes: economic development and the protection of native Assamese from an influx of immigrants. Like the rest of the region, Assam is blessed with copious natural resources and sparse-

Corrections: In a column about relations between North and South Korea ("Two cheers for jaw-jaw", February 17th, 2018), we said North Korean commandos had attempted to attack the South Korean president's residence 40 years ago. In fact, the raid was 50 years ago. And in an article about Japanese youth ("Seventh heaven at 7-11", February 17th, 2018) we said that 40% of Japanese are virgins at the age of 34. In fact, that is true only of unmarried Japanese. Sorry.



Fortune-telling in South Korea

Prophets and profits

SEOUL

A \$3.7bn business is beginning to contend with automation

DESTINY is usually said to lurk in heavy drapes of purple velvet, in the wicked glint of a crystal ball, behind a veil of heady incense or in the tuck of a gold-chiffon turban. Your correspondent went in search of hers among a crush of Korean schoolgirls at the “Broken Heart Tarot Club” in booming Hongdae, a university district in Seoul. The café’s façade is an inviting jumble of pink neon signs and glowing graffiti. At the next table, a hip tarot reader spread a deck face-down for two girlfriends in oversized denim jackets, who took turns picking out cards and sipping on their lattes. He looked as cool as them, more rapper than rune-reader, in dark glasses with a chain around his neck.

Interrogating the decorated cards costs 3,000 won (about \$2.75) a question. A tarot reader assesses the character of her clients first. Two flicks of her wrist, and a pair of Queens appears. “You chose the strongest set in the deck,” she says brightly. “Fame is within reach.” Will a move to a new country go smoothly? The Beggar. “The start will be hard, but you can succeed if you ask for help.” Will the Koreas go to war? Death

and The Emperor show up, apparently the tarot incarnations of Kim Jong Un (here a scythe-wielding woman in blue veils) and Moon Jae-in, the leaders of North and South Korea. “Death plays tricks but the Emperor is wise,” the reader assures.

“Broken Heart” is among dozens of fortune-telling businesses on the street, packed between cheap clothes and cosmetics shops. Business is brisk. Other stores offer the Korean arts of face-reading, palm-reading—one entices clients with a detailed mapping of Barack Obama’s raised hand at his presidential swearing-in—and saju. An ancient form of divination, saju analyses the cosmic energy at the hour, day, month and year of a person’s birth from Chinese astrological records and texts. A seer at “Broken Hearts” says she began to study saju two decades ago (she says she found it hard to trust other fortune-tellers), but took up tarot recently to keep up with the times. “The young like it. The cards are pretty, it’s cheap and it’s quick,” she says.

The otherworldly in South Korea will soon be a 4trn won (\$3.7bn) business, pre-

dicts the *Korea Economic Daily*, a local newspaper. Paik Woon-san, head of the Association of Korean Prophets, estimates that there are over 300,000 fortune-tellers in the country, and 150,000 shamans, many of whom provide clairvoyance. Unusually in a country of evangelical Christians and devout Buddhists, it continues to thrive as anything from a bit of curious fun to a dependable guide for making everyday decisions.

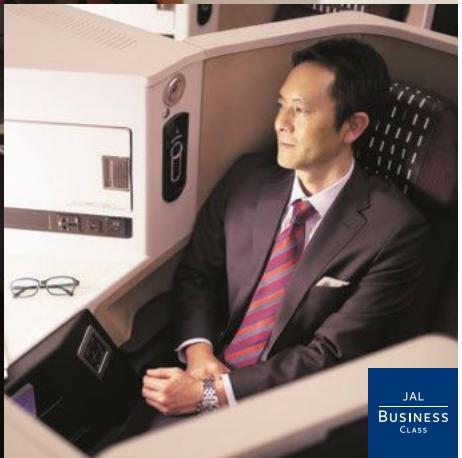
Duo, an online marriage agency, found that 82% of unmarried women and 57% of bachelors surveyed in 2017 had visited saju masters to ask about their love life. The practice survived government campaigns in the 1970s that urged citizens to junk juju and make their own fate; they were, after all, conjuring their own potent magic by building South Korea’s economic “miracle on the Han river”. (The North has other reasons to dislike diviners, who are banned yet sought after; reports have trickled out of the authorities punishing those who make political predictions.)

Now fortune-telling apps for smartphones are beguiling city kids, taking the occult into the otherworldliness of cyberspace. Handasoft, a software developer, has launched 13 apps in the past five years. Its most popular, Jeomsin, introduced two years ago, has been downloaded over 3m times. Every morning it sends users their personalised fortune for the day (other mobile prophecy-providers sell their detailed user data on to marketers, but Jeomsin makes money only from ads). Proffer ➤

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► your palm to the camera or snap a selfie, and another app provides instant face- and palm-reading. Shin Hyun-ho of Jeomsin reckons two or three new apps are being launched every day.

More than two-thirds of those surveyed by Trend Monitor, a local market-research firm, said they see a fortune-teller at least once a year. Many visit between December and February, to see what awaits them in the new solar and lunar years. At Kyobo, South Korea's biggest bookstore chain, as many shelves are devoted to deciphering destiny as to understanding Korea's modern history, with primers including "Your Winning Lotto Number is in Your Dreams". Diviners appear regularly in television dramas, sometimes as fraudsters but often to foreshadow a plot twist. In "The Face Reader", a gifted seer employed by a 16th-century king correctly identifies traitors from their facial traits. It was among the highest-grossing films of 2013.

Andrew Eungi Kim, a professor at Korea University, says soothsayers hold an everyday relevance in South Korea that they do not have in the West. He likens dropping in on one to occasional Sunday churchgoing in the West. The practice is passed on within families—as "one possible way by which to make sense of the world".

Judgment and The Lovers

Big junctures in life are a common time for a celestial steer. Careers fairs at Hankuk University of Foreign Studies, in Seoul, reserve places for tarot readers. Students go to *saju* masters with lists of potential employers to determine those most likely to hire them. Businessmen might go to one to select a propitious date to launch a new venture. New parents routinely visit name-makers, another branch of fortune-telling, to help decide on the luckiest name for their baby. Couples check their compatibility before marriage, and one or both may be advised to change their first names to improve their matrimonial lot. In the past decade 1.5m Koreans have legally taken a new one.

The clairvoyance business has also been able to thrive because fate is not fixed in Korean cosmology. Bad news can be mitigated with charms, often given in the form of an action: take up a religion, take out health insurance, stop eating red meat, do not even think about getting a tattoo. Repeat clients are thus ensured. Some even drop in for a weekly check-up.

As palm lines and facial features evolve with age, so too, it is thought, does fortune. Rather than put a brave face on a luckless situation, a small number of Koreans simply change theirs. Some plastic surgeons have been educating themselves in physiognomy to advise their clients. (In "The Face Reader", rivals to the throne modify the face of a contender to get the king to banish him.) Purists in the face-reading

business lament that their jobs are getting tougher in plastic-happy Korea.

In the posh district of Apgujeong (part of stylish Gangnam) the entrance hall of a prominent *saju* café is plastered with autographs from glitterati. Sotdae Saju Cafe offers clairvoyance with cocktails. Its *saju* master says counselling is the biggest part of his job. "A lot of rich types around here are dissatisfied. Not long ago South Koreans were trying to survive. Now they're trying to be happy," he says. Tae-young, a 30-something Seoulite, says she goes for a reading whenever things get too much, or if something worrisome is on her mind. Some say readings help them to accept whatever unhappy situation they are in.

Few of those who see fortune-tellers take the readings as fact. Many say they offer an additional perspective. In a country



Enlightenment (batteries not included)

where mental troubles are taboo, this is useful. Lim Chaewoo of the University of Brain Education in the city of Cheonan, south of Seoul, says that as modern societies have grown more complex, making decisions has become exacting. During the financial crisis in 2008, American stock traders and insurance brokers, themselves givers of advice, turned to psychics for a steer. They seemed as good as any, in the circumstances.

That *saju* and face-reading are recognised as academic pursuits in Korea also lends them some modern-day credibility. Janet Shin, a *saju* master and newspaper columnist who also lectures at universities, says that her clients include doctors, professors and religious types. Status within the profession is achieved through study and experience, as in other disciplines, rather than bluster. Kwon Hee-gwan, who offers readings from soothsaying tents near Tapgol Park in Seoul, is a firm believer in this. On a recent weekday evening, wearing a navy-blue cardigan and tie, he

delicately examined clients' palms with a bone-handled magnifying glass. Mr Kwon sees as many as 20 faces a day, and has worked on a total of 10,000 in his career. But that is only half the number necessary, he says, to know a client's troubles as soon as she enters his tent.

Some contend that this is not as mysterious as it sounds. Face-readers consider cues like posture, body language and tone of voice in assessing a customer, much as people naturally assess physical appearance to guess someone's emotional state. In pre-industrial Korea, when few people left their place of birth, many thought people's faces were a record of their lifestyles and so in some ways a guide to their fate. Researchers even suggest that palm lines may be a "fossilised record" of a person's earliest moments, because they develop early in the womb. Maybe, then, they hint at a baby's future health.

If computers could process and dissect what contributes to human intuition, might they become the fortune-tellers of the future? In 2016 a computer programme beat Lee Sedol, a South Korean who is among the world's best (human) Go players, by four games to one. Even the clairvoyants had not seen that coming. Already, robots are being taught how to anticipate human actions—in effect, reading the future. Researchers at the Massachusetts Institute of Technology have trained a system to foresee when two actors will kiss, shake hands, hug or high-five by feeding it millions of hours of television dramas. Chinese researchers have trained a computer to distinguish between criminals and non-criminals nine times out of ten.

For many, all this portends a rather fearsome future. But a pair of South Korean artists at LOVOT LAB, a startup, offer a different vision. The pair tinker and exhibit above an old rubber-and-metals workshop in Mulla-dong, a run-down industrial neighbourhood of Seoul. In a corner of their studio, a small white robot sits cross-legged, surrounded by coils of sweet-smelling incense. "Buddha I" (pictured) has been programmed to read faces to detect a few basic emotions including happiness, anger and sadness, and dispenses lighthearted prophecies accordingly.

Hong Hyuns of LOVOT LAB has never been to a fortune-teller. But part of his inspiration came from cracking open a fortune cookie. The prophecy told him to "go east". As he had already decided to move from Chicago to New York, this put him "in a good mood", he says. Many perfectly rational folk have been found to adjust their behaviour, even in tiny ways, after taking advice from cookies. Mr Hong was struck by how many go to have their fortunes read even as they laugh it all off.

The robo-Buddha stirs from its slumber. "You look happy today," it purrs. "Good things will come to you." ■



Regional development

The bribe factory

HARBIN

Debate about how to revive China's north-eastern rust belt holds lessons for the country as a whole

MAO ZEDONG called China's three north-eastern provinces—Heilongjiang, Jilin and Liaoning—the country's “eldest son”. In the Chinese tradition the family's future rests on that child's shoulders. But this one is failing in his duties. Debate rages over what has gone wrong and what to do. Many experts conclude that the regional economy needs to be run a different way. Their analysis has lessons for the national economy, too.

Mao made the north-east the centre of heavy industry. It still contains many of China's largest makers of cars, aircraft and machine tools. In 1978, on the eve of Deng Xiaoping's economic opening, Liaoning, the most populous of the trio, had the third-largest economy among mainland China's 31 provinces. Its GDP was 20% bigger than that of Guangdong, the southern province with the biggest population. But 40 years of rapid national growth have left the north-east lagging behind. By 2016 Liaoning had fallen to 14th among provinces by income and had only one third of Guangdong's GDP. In 1978-2016 its share of China's output fell by more than half.

As long ago as 2003 a worried national government drew up a plan “to revitalise the old north-east industrial bases”. It did so by vastly increasing state investment, which jumped from 30% of regional GDP in 2000 to 60% five years later. Even this was not enough. In 2016 the government ladled out another vast dollop of money.

Three unusual features account for some of the region's problems. First, Mao-

ist planning left it more dependent on state-owned enterprises (SOEs) than other areas. In China as a whole 17% of industrial jobs are in SOEs. In Liaoning the share is 40%; in Heilongjiang 55%. These firms are inefficient and many are unprofitable. Houze Song of the Paulson Institute, a think-tank, calculates that the return on assets of Liaoning's SOEs fell from 3% in the mid 2000s to minus 1% in 2015—ie, they were losing money (see chart, next page).

Second, the region, which has 109m people, is ageing fast, even by Chinese standards. At 39.2 years, Liaoning's median age (the point at which half the population is older, half younger) is the oldest in the country. The north-eastern provinces have a fertility rate—a measure of how many children women are likely to have—below one. The only other provincial-level areas that have such ultra-low fertility are the cities of Beijing, Shanghai and Tianjin.

The north-east is losing its best and brightest. Jiang Ping graduated in 2015 from the prestigious Number 3 High School in Harbin, the capital of Heilongjiang. She, along with 19 of her 47 classmates, left for universities in Beijing. All of them expect to stay in the capital when they graduate. In contrast, all but one of her father's high-school classmates live and work in Harbin. The Harbin Institute of Technology is one of China's top engineering universities. Only 3% of its alumni stay in the province.

Third, the north-east has an unusually strong collectivist tradition. Song Changtie manages a textile firm in the coastal prov-

Also in this section

28 Banyan: How racist is China?

ince of Jiangsu, having lived in the north-east for 30 years. He wrote last year that Chinese people from other regions “cannot imagine how accustomed” north-easterners are to government control. History, he says, explains the difference. The north-east was a puppet state of Japan in 1932-45 and endured autocratic planning for a generation longer than elsewhere.

Still, it is possible to exaggerate the region's peculiarities. Other provinces have failing SOEs. Half a dozen have declining populations. The region is not, on average, poor (see map, next page). And although it is near the bottom of China's league table of growth, the north-east is growing fast by the standards of rust belts globally. According to official figures, its GDP expanded by almost 7% a year in 2011-16, though the Liaoning provincial government admitted to falsifying its accounts for 2011-14, so the official statistics are suspect.

The national interest

All of which makes the question of how to revive the region more than a parochial one. It is, says Andrew Batson of Gavekal Dragonomics, a research firm, “a proxy debate about the future of China: should there be more interventionist industrial policy or more free-market solutions?”

Controversy flared last August with the publication of a 500-page report on Jilin, commissioned by the province from a well-known Chinese economist, Justin Yifu Lin, who was the World Bank's chief economist in 2008-12. Mr Lin argued that Ji-

►

Lin is a bit like a poor developing country, and that it should take the path followed by successful emerging economies elsewhere. He said that would require investment in agriculture, pharmaceuticals and industries such as textiles, home appliances and electronics. Mr Lin noted that this is what China's southern provinces had done, and such industries there were now being displaced by high-tech firms. He said this was giving Jilin (and the north-east generally) a chance to grab them.

His proposal was received politely in official circles, and by a storm of criticism everywhere else. Zhao Gang of the government's main planning agency said Mr Lin had shown that "it's not a problem to develop textiles or technology in Jilin." But Guo Qiang of the Central Party School in Beijing replied that scholars who advise governments are "most unreliable" when they suggest which industries to develop. Sun Jianbo, the founder of China Vision Capital, a fund-management company, was even more to the point. "The north-east's problem," he wrote, "is not industrial structure but institutions and culture."

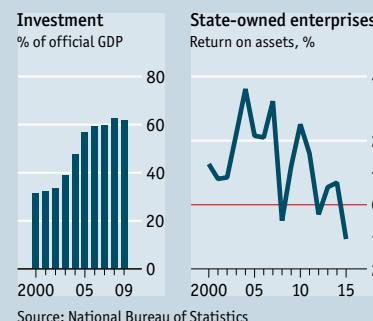
Mr Sun argues that it is wrong to regard the north-east as a poor developing area. He says it is a moderately rich stagnant one. Lacking cheap labour, it cannot compete with, say, Bangladesh in attracting low-cost industries. More important, he argues, the north-east has a lethal combination of corruption and political meddling which makes it hard to attract investment of any kind. Investors shy away, he says, "because business scams, government interference and constantly changing policies are universal in the north-east."

Corruption is indeed rife. It can cost 300,000-500,000 yuan (\$47,500-79,000) to buy a job as a nurse at a state hospital in Harbin. That is roughly eight years' salary, but the bribe is judged worthwhile because a state pension is secure and the job comes with opportunities for kickbacks. In 2016, 45 deputies from Liaoning to the National People's Congress (China's parliament) and 523 members of the province's own assembly were thrown out for bribery. The prime minister, Li Keqiang, complains that entrepreneurs need 200 stamps or licences to start a business in the north-east, a huge number. Xu Long, a trader in Harbin, sums it up: "Elsewhere the crooks steal baby chicks but fatten them up before killing them. In the north-east they kill the chicks right away and then wonder why no one has enough to eat."

Political interference produces arbitrary, even disastrous decisions. Take Dandong, on the border with North Korea. The town is best known as a place to watch for sanctions-busting by the regime in Pyongyang. But it enjoys another distinction, as China's largest private port. In 2005 the municipal government sold most of its stake in the facility. The new owners began

Dollops of disappointing dosh

China, Liaoning province



cautiously expanding it. The city fathers, however, soon threw caution to the wind. Ignoring the fact that they no longer owned the port, they announced in 2011 that "the whole city" would support its development. They showered the owners with tax breaks and cheap land.

There followed a period of breakneck growth in spending on the project, financed by easy money from government-owned banks. Investment by the private firm quadrupled in 2011-15 compared with the previous four years. But the debt ballooned as the port's main business (shipments of coal and steel) collapsed. With new loans drying up, the company ran out of cash and defaulted on two repayments. Some staff have not received wages for more than a year. "Private", in this case, did not mean efficient, or even independent.

The massive increase in the central government's investment in the region has given local officials more economic influence. A car company in Liaoning, called Brilliance Auto, shows what can happen. In

2002 the provincial government took over what was then a thriving concern. It pushed out the founder, cancelled plans to open a new plant near Shanghai and forced the company to buy steel from a steelmaker it itself owns. Three-quarters of Brilliance's revenue comes from domestic sales of sedan cars. But its models have lost money since 2002. The sedan division is mired in debt, a remarkable feat in China's booming car market.

Local governments in the north-east mollycoddle their industrial champions by giving them preference in procurement contracts. But their protectionism has not helped. The Paulson Institute's Mr Song has looked at sales within China of 36 types of industrial products from Liaoning. He finds that their market share has fallen in 30 of them since 2000, most by between a third and two-thirds. In the late 1990s exports from the province were growing at roughly the national rate. Since then, they have been growing only two-thirds as fast. There has been a decisive shift away from openness and trade towards local autarky.

There are a few bright spots. JD.com, one of China's largest delivery companies, is investing 20bn yuan in Harbin, and has put its data-analytics division there. But the broader lessons of the north-east are sobering. It is a place where political connections are more important than efficiency, where local governments have wasted vast quantities of money, and investment-led growth has encouraged local protectionism. At the national level, Mr Xi is making politics paramount, protecting SOEs and keeping government investment high. The moral of the north-east's woes is that these policies do not help to sustain economic prowess. ■



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MON, FEBRUARY 26

Uday Kotak, Kotak Mahindra Bank

Rajnish Kumar, State Bank Group

Sanjiv Mehta, Hindustan Unilever

Rahul Bharti, Maruti Suzuki

Punit Goenka, Zee Entertainment Enterprises

Ajay Bijli, PVR

Sonam Wangchuk, SECMOL

TUE, FEBRUARY 27

Ramesh Iyer, Mahindra & Mahindra Financial Services

Ronnie Screwvala, UpGrad

Ashish Dhawan, Central Square Foundation

Rajdeep Sardesai, India Today Group

Swaminathan Anklesaria Aiyar, Economic Times

Balram Yadav, Godrej Agrovet

Sheelika Ravishankar, Team Indus

WED, FEBRUARY 28

Christian de Guzman, Moody's Investor Services

Ritesh Agarwal, OYO Rooms

Deepak Garg, Rivigo

Ashish Goel, Urban Ladder

Charu Sharma, Pro Kabaddi League

Asish Mohapatra & Ruchi Kalra, OfBusiness

Sashank Rishyasringa, Capital Float



Banyan | Mirror, mirror on the wall

As China pushes out into the world, its racism at home becomes more glaring



THE annual “Spring Festival Gala”, broadcast on the eve of the lunar new year, is the most-watched television programme on Earth. It is also one of the most vetted by the authorities, for it is intended not merely to entertain its 800m-odd Chinese viewers. Less-than-subliminal messaging is designed to showcase how contented all Chinese are under a wise Communist leadership—and, in recent years, how gratefully the world welcomes China’s benign activities in it. So what could one make of an excruciatingly crass sketch in this year’s show that put racist stereotypes of Africans at the heart of the supposed jollity?

The skit’s topic was, for sure, a sketch-writer’s nightmare: celebration of a Chinese-built fast train in Kenya. And if the savannah backdrop and tribal dances with which the scene opened were the stuff of cliché, at least real Africans were used in the making of it. But then a Chinese actress appeared in blackface and African dress, with exaggerated fake buttocks and a bowl of fruit on her head. For no clear reason she had in tow a blackfaced Chinese man dressed as a monkey. The humorous highlight was meant to be when this woman’s daughter missed the prospect of a date with the show’s handsome Chinese host thanks to the unexpected arrival of his (Chinese) bride. Far from being upset for her daughter, the mother didn’t mind because, she exclaimed, “I love the Chinese people! I love China!” The audience were delighted.

Chinese officials often try to portray racism as primarily a Western problem. Yet there is a widespread tendency in China to look down on other races, especially black people. Two years ago a television ad for a laundry detergent showed a young Chinese woman luring a black man closer, triumphantly popping a detergent capsule into his mouth and stuffing him into a washing machine. At the end of the cycle, out came a fresh-faced Chinese man, over whom the woman swooned. Among the tens of thousands of Africans living in a neighbourhood of Guangzhou known as “Chocolate City”, many report racist slights.

The outraged response of many netizens in China to the African skit suggests a growing awareness at home that bigotry is a Chinese problem, too. It may be one that time will help alleviate. After all, America went from bans on inter-racial marriage to electing a black president in a mere four decades. And even those Chinese who acknowledge that China has a problem rightly ob-

serve that it is far from the worst offender. Myanmar burns Rohingya villages, Islamic State tried to wipe out the Yazidis, and Sudan until recently enslaved black Africans. Racism in China, by contrast, is seldom expressed violently.

But a problem it is, and one that is aggravated by the authorities’ efforts to suppress discussion of it (censors raced online to delete criticism of the TV sketch). The Communist Party fears that such debate may undermine its efforts to portray Chinese people as victims of Western racism during the 19th and early 20th centuries—a narrative of humiliation which the party regards as a crucial explanation of why it has the right to rule.

It does not help that long after scientific notions of race were demolished in the West, and social or behavioural classifications of race shown to be imagined constructs, race remains an accepted form of discourse in China—even in academic circles. Frank Dikötter of the University of Hong Kong argues that contemporary notions of race in China began to develop at the end of the 19th century among modernisers, who were inspired by Western intellectual fads such as social Darwinism. As the last imperial dynasty, the Qing, crumbled, the search was on to find a unifier for a sprawling empire, culturally and linguistically diverse, that encompassed Manchu rulers, Tibetan herders, Turkic caravan-drivers, Hunanese peasants, Shanghainese entrepreneurs and colonial subjects in Hong Kong. Neither religion nor language (no standard Chinese existed then) would serve.

Race, then, became the tool to forge an accidental nation out of empire—a project that absorbed Chinese nationalists for much of the 20th century. After the death of Mao Zedong, when academic life began to recover at universities, anthropology was rehabilitated. Its practitioners threw themselves into an orgy of cranial, serological and other tests—supposedly to prove that Tibetans, Uighurs and other officially defined “minority” peoples in China’s borderlands were closely related to a “Han” Chinese majority, and that all shared a common origin. The mythical Yellow Emperor enjoys an approved cult status in China as the progenitor of the Chinese race. Chinese academics remain curiously resistant to an “out of Africa” explanation of human origins.

An all-embracing device

This, says Mr Dikötter, is race put to an inclusionary use: preserving what in effect were China’s imperial borders. Of course, some groups are more equal than others. China’s 55 officially designated minorities are today still depicted in the state’s propaganda in terms remarkably like black people in the minstrel shows that were once popular in the West. They are cheerful, colourfully attired and prone to break into dance or song. Not usually harmful, they are nevertheless in need of raising to a less childlike plane of evolutionary development, the state suggests.

The same applies to Africans, and even other groups along China’s expanding “belt-and-road” network of investment in other countries’ infrastructure. It was Mao in the 1950s who first promoted the mantle of Chinese leadership in Africa—under the guise of class solidarity, but in reality with a whiff of racial tutelage. Today, the paternalism struggles to disguise itself, as in the recent variety show. But when the authorities signally fail to acknowledge China’s home-grown racism, they should not be surprised if their civilising mission goes underappreciated, either from ungrateful minorities in Xinjiang or Tibet, or from those who, in countries that face waves of state-led commercial involvement, complain of Chinese neocolonialism abroad. ■



Climate and national security

Unchanging

NORFOLK, VIRGINIA

One department of the Trump administration thinks climate change is a hoax. Another sees it as a threat to America's security

UNTIL America gets a grand military parade, a drive along the wharf at Naval Station Norfolk, in Virginia, is the next-best thing. Destroyers, missile-cruisers, nuclear-powered submarines and, most fearsome of all, two 333-metre (1,092-foot) Nimitz-class aircraft-carriers, are enough to make Americans' spines tingle and enemies shudder. But the menace that most concerns Captain Dean VanderLey, the chief civil engineer for the navy in the mid-Atlantic region, is one that is undeterred by military might. In the 100 years since the base was first built, the sea level has risen by half a metre. In a major hurricane, he says, while surveying the piers and a road linking them to an airfield, "a lot of this would probably be flooded".

Captain VanderLey is not alone in fretting about the military consequences of climate change. A report published on January 26th by the Department of Defence (DOD) found that more than half of the 3,500 sites surveyed are already reporting climate-related problems (see map). Droughts are leading to water shortages, heatwaves are causing some live-fire exercises to be cancelled and shifting wind patterns are disrupting aircraft sorties.

Then there is the flooding. On February 18th scientists involved in the federal government's National Climate Assessment, a four-yearly exercise mandated by Congress, presented an update to the last re-

port from November, showing that sea levels are rising twice as fast as 25 years ago. In 2009 the DOD found that 128 coastal installations, including 56 naval ones, would be at risk if sea levels rose by a metre. The Navy's sites alone were valued at \$100bn. In 2016 the Union of Concerned Scientists found that nine strategically important bases, including several in the Hampton Roads region around Norfolk, could permanently lose half their land area by 2100 if waters rise by two metres.

Critical outposts abroad are similarly vulnerable. Twenty years from now a new \$1bn radar installed on the Marshall Islands, which helps to shield America and its allies from nuclear-tipped missiles

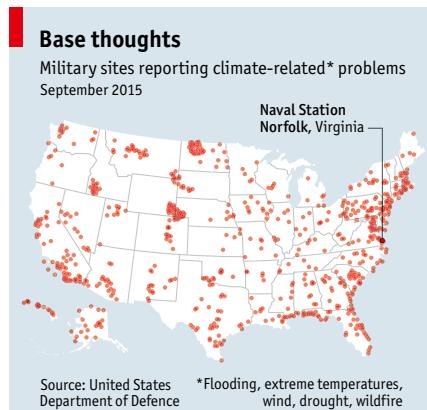
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launched by North Korea, could be under water. Diego Garcia, a staging post on an Indian Ocean atoll crucial for operations in the Persian Gulf, may be submerged too.

President Donald Trump's policies, which include pulling America out of the Paris climate agreement to limit global warming and championing coal, make all this more likely. In the past two months his administration has put his climate-sceptical stamp on the national-security and defence strategies. These documents, which each administration must draw up, lay out a high-level plan for keeping America safe. Under Barack Obama, they listed climate change as a strategic threat to be assessed and countered. Yet in a contradiction that is typical of this White House, other parts of the government are carrying on with planning for a warmer planet regardless.

As global temperatures rise so does the likelihood of extreme weather, with calls for military assistance in disaster relief. Last September the USS *Wasp* helicopter-carrier was sailing from Norfolk to Japan when it was diverted to hurricane-struck US Virgin Islands, Dominica and Puerto Rico. Melting sea ice in the Arctic opens up a new theatre of operations, especially against a belligerent Russia. As it thaws, the Bering Strait could become another strategic choke-point like those of Hormuz (the gateway to the Gulf) or Malacca (which connects the Indian and Pacific Oceans). Some studies have linked global warming to unrest such as the Arab spring. James Mattis, the defence secretary, has called climate change "a driver of instability".

In December, days before he unveiled his climate-changeless national-security strategy, Mr Trump signed a defence bill that called climate change "a direct threat" and required the DOD to report which assets are at risk. He kept his chief climate en-



► voy, George Banks, on the National Security Council. (Unable to gain a security clearance, Mr Banks resigned in February.) The Pentagon betrays no intention of shredding Obama-era rules directing the armed services to assess and counter climate-related weaknesses. It helps that the military bureaucracy is more hulking *Nimitz* than nimble corvette, remarks Ann Phillips, a retired admiral formerly involved in the Navy's climate-planning: "It takes time to turn around."

Bureaucratic inertia is not the only reason why reality has changed less than the rhetoric would imply. As David Titley, another retired admiral now at Pennsylvania State University, observes, Mr Trump is the mirror-image of Mr Obama, who stressed the security implications of climate change but did little to tackle them. Even before Mr Trump took office a year ago, Captain VanderLey's construction budgets never included extra dollars earmarked for climate adaptation (or "resilience" as he prefers to call it, studiously avoiding talk of climate change). In practical terms, Mr Obama's climate cheerleading can sometimes be hard to tell apart from Trumpian neglect.

100,000 tonnes of floating diplomacy

Former officials insist that during the last six years of Mr Obama's presidency, Republican majorities in Congress would simply have blocked measures overtly aimed at combating global warming. Some money was (and still is) buried in the DOD's notoriously opaque budget, they say. The White House and Congress leave the men in uniform lots of room to interpret what counts as a "threat", notes Francesco Femia of the Centre for Climate and Security, a think-tank. Often, climate adaptation is a side-benefit of work motivated by other considerations. Norfolk's four double-decker piers erected since the mid-1990s for \$60m apiece were chiefly designed to ease access to electricity, water and internet cables that could previously only be reached by boat, and to accommodate modern ships' higher decks, explains Joe Bouchard, a former commander of the base. If they also guard against encroaching seas, all the better.

Climate change is one among many threats facing American strategists. Others are more pressing, from North Korean nukes and Chinese island-building to wars in Afghanistan and Syria. But its importance is poised to grow as the Earth warms, so Mr Trump's nonchalance looks myopic. For all its ponderous officialdom, the Pentagon also has an especially clear chain of command. What the man at the top considers important—or unimportant—therefore matters a great deal. Mr Trump might not hobble the armed forces' efforts to deal with the consequences of climate change. But a more farsighted commander-in-chief would be adding to their armour. ■

Guns and protest

Calling BS

WASHINGTON, DC

The planned protests by high-school children could be the start of something

THREE days after Nikolas Cruz walked into Marjory Stoneman Douglas High School in Florida and shot dead 14 students and three teachers, one of his former schoolmates addressed a gun-control rally. "They say that tougher gun laws do not prevent gun violence," shouted 18-year-old Emma Gonzales, barely pausing to wipe away the tears that were streaming down her face. "We call bs!" Her moving speech, in which that line became a refrain taken up by a chanting crowd, was broadcast around the world.

The school shooting, on February 14th, was America's deadliest since 2012 when a gunman killed 20 children, six adults and himself at Sandy Hook Elementary School in Connecticut. But it has been the response of the surviving students, rather than its grim toll, that has kept the tragedy in the news a little longer than usual. The pupils, from Broward County, an affluent area north of Miami, have poured their grief and rage into a new campaign for gun control. In television interviews, speeches and social-media posts they have excoriated politicians who take cash from the National Rifle Association and argue against expanding gun controls. With other activists, they have announced plans for nationwide protests in March.

Why has their response been so forceful? One reason is the age of the survivors.



Politically motivated

The pupils, in their late teens, started their education after a massacre at Columbine High School in Colorado in 1999, in which 13 were killed. That means they have been practising active-shooter drills in the classroom since kindergarten. Seeing a school shooting as an event to prepare for, rather than an awful aberration, seems to have fuelled the students' anger. Though polling suggests that young people are only slightly more in favour of gun-control measures than their elders, those surveys focus on those aged 18 and above. There may be a pre- and post-Columbine divide within that group.

The survivors of the latest school shooting have also grown up using social media, which has helped them channel their rage into a potent hashtag movement, #NeverAgain. And they have, at a formative age, witnessed the visual power of mass protest, thanks to the #MeToo movement and the women's marches of the past two Januaries. Indeed, they have received help from its organisers, as well as other groups, for the "March for Our Lives" planned in Washington, D.C., on March 24th.

What will the teenagers' impressive campaigning achieve? Some politicians seem to have taken note, at least. Marco Rubio, a Republican senator from Florida, has said he welcomes a Democratic bill in the state legislature that would allow Florida's courts to temporarily prevent people from having guns if they are considered a threat to themselves or others.

President Donald Trump, who waited 20 hours before addressing America about the tragedy but is unlikely to have missed the students on the Sunday talk shows, said he backed a bill to improve background checks on those who buy firearms. Then he said more teachers should be armed. The president has ordered the Department of Justice to propose regulations to ban bump-stocks, which can help convert semi-automatic firearms into automatic ones, and which were used by a gunman who killed 58 people in Las Vegas in October. Congress talked about banning them then, but did nothing. In any case, a bump-stock ban would have made no difference in the Marjory Stoneman Douglas shooting, which was carried out with a semi-automatic AR-15 rifle.

More stringent gun controls, of the kind introduced by Australia and Britain after mass-shooting atrocities, are unlikely to come soon. But the national protests the students are planning for next month could gather momentum. A new poll by Quinnipiac University suggested that 67% of Americans back a nationwide ban on assault rifles—a higher percentage than after Sandy Hook. And in Florida, the issue could become prominent in the mid-term elections later this year, especially if, as seems likely, Rick Scott, the state's gun-loving governor, runs for the Senate. ■



Sharing Dreams

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Deportations

Deal or No Deal

LOS ANGELES

What happens if Congress fails to make a deal on DACA by March 5th?

NOEMI LUNA was a teenager when she first realised she was not living legally in the United States. "When you're little you go to school with other kids. You grow up with them and believe you're the same, that you're equal," she muses. But when her peers started getting driver's licences and travelling out of the country her parents, who brought Ms Luna to America from Mexico when she was two years old, explained such things would not be possible for her. She was undocumented.

Deferred Action for Childhood Arrivals (DACA), a policy President Barack Obama implemented by executive action in 2012, changed that. The programme allowed undocumented immigrants brought to America as children to study and work in America legally for renewable increments of two years, so long as they had committed no crimes and met certain educational requirements. Now Ms Luna's future, as well as those of nearly 700,000 other so-called Dreamers, is again uncertain.

In September 2017 President Donald Trump announced he would phase out the DACA programme, claiming that Mr Obama had not possessed a mandate to implement it with no input from Congress. But Mr Trump did not end the policy outright. He gave DACA recipients whose status would expire before March 5th one month to renew it for another two years. Those whose protected status lapsed after that date would not enjoy the same privilege. When their status lapsed, they would be eligible for removal. Politicians took note. Congress would need to reach a legislative solution by March 5th or risk exposing Dreamers to deportation.

Or so they thought. In January a district court judge in San Francisco ordered the Trump administration to continue renewing DACA applications while the underlying legality of ending the programme is worked out. To the surprise of many, instead of asking for a legal "stay" that would have reversed the injunction, the federal government complied. Yet the administration wants to bypass the federal appeals court. It has asked the Supreme Court to review the case directly instead of letting it wind its way through the court system first, as would normally be the case.

The Supreme Court has yet to indicate whether it will take up the case but is expected to do so by February 23rd. On February 13th a New York court issued an order similar to the San Francisco one, mandat-

ing that the administration continue to renew DACA applications. This development makes the Supreme Court's acceptance of the case much more likely, says Leon Fresco, who previously worked on immigration litigation at the Department of Justice and now serves as an immigration lawyer at Holland & Knight, a law firm. If the Supreme Court does accept, the soonest it would rule is early May. If it does not, the case could take another year to work its way through the legal system.

In the meantime, even though March 5th is no longer a hard deadline, some in Congress are trying to find a legislative fix which would render the court case immaterial. Versions of bills shielding Dreamers from deportation have been introduced

more than 20 times since 2001 when the first such proposal was floated, according to LawLogix, a legal software group. Despite enjoying support from Republicans, Democrats and the general public, the bills have floundered. If the court's ruling is unfavourable to DACA and no legislative agreement is reached, the law will return to where it was before 2012, and people who arrived in America as minors will again be subject to deportation. That does not mean they will all be deported. More than 10m people are also eligible for deportation and, short of war or pandemic, nobody has yet devised a method for expelling humans on that scale. But it would reintroduce an arbitrary element to a system that is already an act of self-harm. ■

Public-sector unions

Judgment day

CHICAGO

Unions are confronted with an existential threat

MARK JANUS could be making history this year. On February 26th the social worker from Illinois will be sitting with his two lawyers in the hallowed setting of the Supreme Court as the justices hear one hour of oral arguments in *Janus v American Federation of State, County and Municipal Employees*, which asks whether public employees like himself, who choose not to join their designated union, may still be charged a compulsory "agency fee" to support collective bargaining. Mr Janus argues that the fee violates his First Amendment right to freedom of speech, because it forces him to subsidise an organisation whose bargaining position he rejects.

The court's ruling in the case could determine the future of the labour movement. Though unionism has been in decline for decades, the public sector has remained a stronghold of organised labour. Eighty-four percent of workers today are employed in the private sector; only around 6% are union members, compared with about one-third in the 1960s. Yet of the 16% of employees in the public sector more than one-third are still unionised. For some professionals, such as teachers and firefighters, the share is higher.

The relative strength of public-sector unions and their inveterate support of Democratic policymakers have made them a prime target of Republican governors, especially in the Midwest. Scott Walker, the governor of Wisconsin, risked a recall election in 2012 (which he won) when he brought in Act 10, a law which all but eliminated collective-bargaining rights for 175,000 public-sector employees. Mr

**Labour-saving devices**

Walker went for public-sector unions before he took aim at those in the private sector. In 2015 Wisconsin adopted a "right-to-work" (RTW) law, which stipulates that private-sector workers cannot be forced to join a union, and pay dues, as a condition of employment. The same year, in next-door Illinois, Governor Bruce Rauner, another Republican, asked a federal court to declare agency fees unconstitutional. Robert Gettleman, a judge in Chicago, dismissed Mr Rauner's complaint. But he allowed Mr Janus's suit to proceed. It was pushed by the National Right To Work Legal Defence Foundation (NRTW), a non-profit group, after it realised that Mr Rauner was not going anywhere with his suit. ►

If the court rules in favour of Mr Janus, public-sector unions everywhere in America will no longer be authorised to collect agency fees. Twenty-eight states, including Indiana, Iowa, Kentucky and Michigan, have adopted RTW laws—and some states have done away with collective-bargaining rights for certain public-sector workers such as teachers in Tennessee, municipal employees in Oklahoma and farmworkers in Maine. But in 22 states unions still collect compulsory fees from around 5m public-sector workers. The big question is how many of them would continue to pay if the fee became optional.

Paul Secunda at Marquette University Law School in Wisconsin is convinced that a pro-Janus ruling would have a devastating effect on public-sector unions, as it would deprive them of a big chunk of their income. Thanks to Governor Walker pushing through Act 10 and the RTW law, membership of both public and private-sector unions has plummeted in Wisconsin. According to the Bureau of Labour Statistics, union membership in the state has declined from 14% in 2010 to just 8%.

Their supporters say unions perform essential services for their members, who would be far worse-off without them. According to the Economic Policy Institute, a think-tank, workers covered by union contracts earn on average 13% more than their peers in a workplace that is not unionised. Ninety-four per cent receive access to employer-sponsored health benefits, compared with just 67% of non-union workers, with union employers paying 77% more (per hour worked) towards their employees' health coverage than comparable non-union employers.

Unionised workers get more paid sick days and paid holidays. They are half as likely as their non-unionised peers to be paid less than a state's minimum wage, a situation that can arise in jobs where workers depend on tips. And if the share of unionised workers is high, wages of non-union workers can increase too. In 2014 the Services Trade Council Union (representing housekeepers, lifeguards and other service workers) and Disney World agreed on wage increases for union members at its Orlando theme park to at least \$10 an hour, starting in 2016. Disney subsequently extended the wage increase to all its 70,000 employees in Orlando.

Both sides of the argument expect the Supreme Court to rule in favour of Mr Janus in June. When a very similar case was argued at the court in 2016, the justices tied 4-4 because of the death of Antonin Scalia, the court's chief conservative voice. His replacement, Neil Gorsuch, is expected to side with Judge Samuel Alito and the other three conservative justices. Mr Janus probably never expected to play such an important role in the history of America's labour movement. ■

Winter in Chicago

Dibs etiquette

CHICAGO

Life, liberty and the pursuit of parking

AFTER two relatively mild winters, Rahm Emanuel's ability to manage a snowstorm was put to the test earlier this month when it snowed, with little respite, for nine days. On the worst day of the storm Chicago's mayor cancelled lessons in public schools to minimise traffic. He deployed more than 280 of the city's salt-spreaders, asked residents to check on family, friends and neighbours, kept schools open for children who had nowhere to go and asked libraries to double as places to keep warm.

Unlike his predecessor, Richard Daley, Mr Emanuel did not mention "dibs" in his remarks about the snow, though he has in the past conceded that he believes in "sweat equity". Dibs are a Chicago tradition that divides Chicagoans. If you shovel snow from a parking space and defend it with some old furniture to mark the space, you can claim it for as long as the city is covered in snow. "If someone spends all their time digging their car out, do not drive into that spot," said Mr Daley in a press conference in 2000. "This is Chicago. Fair warning."

Boston, Philadelphia and Pittsburgh have something similar. In fact it seems that snow, a population density of about 1,300 people per square mile and lots of Italian-Americans are the necessary ingredients for a dibs culture. But the unwritten rules governing dibs in Chicago are the most sophisticated.

Temporary ownership of a spot encourages locals to do the job well by scraping the snow all the way to the pavement. Chairs (mostly lawn chairs, the tattier the better) and traffic cones are

the most commonly used dibs. But cut-outs of Leonardo DiCaprio, statues of saints or the Virgin Mary, giant stuffed teddy bears and sparsely dressed mannequins have also been spotted. Not acceptable as dibs are empty cereal boxes, Zimmer frames and cardboard signs with death threats ("Move this and die" is not considered midwestern nice). In Boston, by contrast, pinching a parking space shovelled by someone else may result in a menacing note on your windscreen, if you're lucky.

This winter Havas, an advertising agency, and Lincoln Park Community Services, a charity, persuaded 20 local artists to create dibs chairs for auction on eBay, an online auctioneer, to help the homeless. One created a chair with a skull and crossbones in the shape of shovels. Another simply says "Nope" in red letters. A third appeals to gentler sentiments with a wooden bird-house resting on a branch adorned with the sign, "Please do not disturb the birds".

City officials warned that they would start clearing "dibs chairs, cones and other objects" as the snow melted. Then it snowed again, though not enough to justify continued dibbing. Among the unwritten rules of Chicago dibs is that snow must be plentiful (more than a couple of inches) and the space shovelled must be in front of the shoveller's house. And even though Lefty Out There, another local artist, made a chair for charity inscribed with "If you take my space, I breaka you face", you cannot slash the tyres or threaten someone who, wittingly or not, slides into your space anyway.



This is not a table

Lexington | The new normal

Donald Trump's rule-breaking could leave deep scars



PEOPLE who worry about Donald Trump's presidency worry especially about how he might respond to a national-security crisis. Now they know. American intelligence chiefs have long viewed Russia's campaign to discredit and influence America's elections as a security threat. And the 16 indictments unveiled by Robert Mueller, the special counsel in the case, imply that the threat is more long-standing, sophisticated and effective than was commonly understood. Such clear evidence of foreign interference would normally constitute a moment for the commander-in-chief to reassure an anxious nation that the attack—in an election year, no less—would be repulsed. But that was not Mr Trump's response.

The president made no formal comment on the indictments, yet his Twitter feed suggested they stirred in him a range of powerful emotions. He at first rejoiced that Mr Mueller had not accused him of complicity in the Russian sabotage: "The Trump campaign did nothing wrong—no collusion!" Then he fretted that it was getting so much attention as to cast doubt on his legitimacy. In subsequent tweets the president lambasted the FBI for spending too much time investigating the attack. It could otherwise have prevented a recent massacre of schoolchildren in Florida, he wrote. He then attacked his national-security adviser, H.R. McMaster, for failing to defend him more robustly and Barack Obama for failing to stop the Russians sooner. He claimed never to have dismissed the Russian campaign as a hoax, though he has done so many times. At no point did Mr Trump express any concern for the safety of American democracy.

This was so remiss as to suggest to some that he had just broken his presidential oath, to "protect and defend the constitution". It more obviously illustrated the mundane ways in which Mr Trump is himself undermining the country's democracy, by transgressing the unwritten rules which America, like all mature democracies, has developed to oil the wheels of its governing arrangements and limit the potential for discord. Important presidential norms previously included, for example, civility, respect for the rule of law, paying lip-service to the truth and not trying to extract political advantage from massacres of children. Mr Trump dispensed with that lot in a few tweets. Meanwhile, the failure of so many Republican politicians to criticise his poor behaviour

points to another concern. It argues the damage Mr Trump is doing could be enduring.

Until his political advent, norms were rarely discussed outside academic circles. Americans took them for granted. These days Trump-worriers debate them endlessly. "Like oxygen or clean water, a norm's importance is revealed by its absence," write two Harvard professors, Steven Levitsky and Daniel Ziblatt, in a new book, called "How Democracies Die". They consider two norms most important. One is mutual tolerance, or a willingness to accept competitors as legitimate rivals. The other is forbearance, or an acceptance by politicians of the need to exercise their powers judiciously, to avoid needless confrontation.

Much of Mr Trump's bad behaviour falls foul of the first norm. The president considers any rival, at times including the institutions over which he presides, an enemy to be obliterated. He has meanwhile been somewhat restrained. Though he sacked his FBI director, James Comey, which helped trigger Mr Mueller's investigation, he has not sacked Mr Mueller, as he would like to do.

There is hope, not least because America's political traditions have survived powerful rule-breakers before. Franklin D. Roosevelt tried packing the Supreme Court in his favour. Senator Joseph McCarthy assailed Americans' civil liberties and their credulity. Richard Nixon was a crook. Surveying America's political history, Larry Diamond of Stanford University divines "a general pattern of resilience, punctuated by dark periods of authoritarian temptation." Indeed the two are related; America's democracy has tended to emerge stronger after each moment of testing. After Roosevelt, the Supreme Court's independence was affirmed; after Watergate, Americans embraced transparency. To some degree Mr Trump's rule-breaking is likely to have a similar effect. A handful of states are already mulling new laws to require prospective presidential candidates to publish their tax returns, which would take care of one of his most notable norm-transgressions. Yet in one sense, at least, this dark period looks much gloomier than its recent precursors.

Unrestrainable and unimpeachable

America has not been so intensely polarised by party since the aftermath of the civil war. This is the essential context for Mr Trump's rule-breaking, and the reason why this time might be different. Ever since Newt Gingrich turned politics into war in the 1990s, the Republicans have sought to delegitimise and stymie their opponents. By slandering Barack Obama as a Muslim Marxist they inspired Mr Trump to question his place of birth, by rubbishing climate scientists they prepared the way for the president's wider assault on truth and reason. Egged on by the vituperative conservative media, even some Republicans who disapprove of Mr Trump are wedded to such tactics. There is no obvious reason why they would abandon them after he moves, or is moved, on.

And that might not be for some time, because of the other advantage partisanship affords him—the implacable support of his party. Few Republican congressmen decried Mr Trump's response to Mr Mueller's indictments. Their voters would defend them if they did. By the same token, Mr Trump is probably fretting about the special counsel too much. Whatever dirt he finds, there is little chance of Republican lawmakers abandoning Mr Trump as they abandoned Nixon. If he is defeated, it will be at the polls. Which is another reason why Mr Trump's failure to take steps to prevent meddling is so worrying. ■



Coca in Colombia

See it. Spray it. Sorted

TUMACO

Two anti-drug strategies are at war with each other

JUST one road connects Tumaco, the second-busiest port on Colombia's Pacific coast, to the rest of the country. Beyond its verges are fields of coca bushes, many of them cultivated by poor people. Yuley Alexandra Ruano's crop grows behind a beauty parlour she owns on a patch of land she does not. It is fringed by yucca, plantains and a rotting cacao tree. She and her neighbours have signed up to the government's "comprehensive programme for illicit crop substitution" (PNIS), whose aim is to replace the coca with a profitable legal crop. But bureaucracy moves slowly. Ms Ruano has yet to see new seeds or the money promised by the government to help with the switch.

From her salon in the department of Nariño, she can see that the government is pursuing with more energy the other part of its anti-coca strategy, forced eradication. Every day a Black Hawk helicopter passes, bearing police to a jungle camp in Alto Mira y Frontera (see map). Their mission is to kill the bushes, by uprooting them or by spraying them with herbicide. The government wants to eradicate by force 65,000 hectares (160,000 acres) of coca this year.

The two approaches are supposed to complement each other. The crop-substitution strategy is set out in a peace accord that in 2016 ended more than 50 years of war between the government and the FARC, a leftist guerrilla group. It is part of a

broader project to bring stability and better living standards to swathes of the countryside once controlled by the FARC, which has now become a political party. The government says it reserves forced eradication for industrial-scale plantations controlled by large drug gangs, and for farmers who refuse to participate in crop substitution.

But things are not going to plan. Coca cultivation surged in anticipation of the peace deal, from 96,000 hectares to 146,000 in 2016. Farmers planted more be-



Also in this section

36 Bello: Mexico's young hopeful

38 Coddling counterfeiters in Canada

cause they expected cash from the government to switch to something else. Voluntary substitution is progressing painfully slowly. That is partly because the government has not complemented it with a programme to build roads rapidly and provide services in coca-growing areas.

Some areas vacated by the FARC have been taken over by the ELN, a smaller guerrilla group; drug gangs such as the "Gaitanista Self-Defence Forces", which has its origins in a right-wing paramilitary group; and FARC members who rejected the peace agreement. In January Colombia's president, Juan Manuel Santos, suspended peace talks with the ELN after a series of bombings that killed seven policemen.

Armed groups also target small-scale growers of coca who want to switch crops. Last month in Caquetá, a southern department, ex-members of the FARC forced six officials of the UN Office on Drugs and Crime (UNODC) out of their cars and stole their GPS devices and mobile phones. The agency says the assault was an attempt to stop crop-substitution in that area.

The jump in coca production brought pressure from the United States. In September last year Donald Trump said he might decertify Colombia as a partner in the fight against drugs, putting in jeopardy some of the \$390m in American aid Colombia receives. In February this year he threatened to cut aid to drug-exporting countries that are "laughing" at the United States. These warnings stirred traumatic memories of decertification in 1996 and 1997, when Colombia seemed to be a failing state.

Many Colombians are nearly as worried about coca as Mr Trump. They judge the success of the peace deal by the number of hectares given over to the crop, says Hernando Zuleta, director of the Centre for Studies on Security and Drugs at the Uni-►

versity of the Andes in Bogotá. That is because the cocaine trade financed the FARC.

This is stirring up an election season already roiled by debate over corruption and the economy. Colombia is to elect a new congress on March 11th and a new president on May 27th. The contests pit supporters of the peace agreement against its foes. The agreement is unlikely to be reversed. So the argument has shifted to proxy issues, including the coca surge. Peace-deal sceptics cheer on forced eradication; pro-deal politicians back crop substitution.

Rafael Pardo, the government's post-conflict "high commissioner", thinks peace

is unsustainable unless the government solves the coca problem. That is not because the FARC will return to war, but because coca crops "will always feed a market that is accompanied by violence", he says. Small-scale coca-growers, caught between the security forces and the drug gangs, are among the most vulnerable to it.

Nowhere is Colombia's many-sided drug war more intense than in Tumaco. It has 23,000 hectares of coca fields, more than any other municipality. Nariño, the department of which Tumaco forms a part, is a focal point of fighting among armed groups for control of the drug trade. The

government sent 2,000 more troops to Tumaco in January to contain the violence.

Under pressure from Colombian voters, and perhaps the United States, the security forces uproot fields that are supposed to be set aside for voluntary crop substitution. That provokes clashes with small-scale coca-growers. Last year peasants angry about forced eradication blocked roads in Nariño and other regions for days. Members of an eradication group that took off from Tumaco killed seven unarmed protesters in October.

Since then, riot police have joined the missions. They are tension-filled. In a Black ►

Bello | Mexico's young hopeful

Ricardo Anaya offers the best chance of beating Mexico's left-wing Donald Trump

IT TAKES guts to challenge both Andrés Manuel López Obrador, a messianic, silver-tongued populist, and the residual political machine of Mexico's governing Institutional Revolutionary Party (PRI). Ricardo Anaya is as daring as he is ruthlessly ambitious. Having forged a coalition of his own conservative National Action Party (PAN) and two small centre-left outfits, Mr Anaya argues that the presidential election on July 1st is now a two-horse race between himself and AMLO, as Mexicans call Mr López Obrador, the long-standing front-runner. Several opinion polls support that contention. The question that will hang over Mexico during the next four months is whether, in his sharp-elbowed ascent, Mr Anaya has made too many enemies to unite the disparate majority that dislikes AMLO and thus win the presidency.

On the face of things, this is AMLO's election to lose. Mexicans have rarely been so gloomy or wanted change more. The PRI government of Enrique Peña Nieto is unpopular. Although it achieved important reforms of education and energy, it has failed in fighting violent crime and corruption and improving the economy, the issues that matter most to the public. When the PAN ruled Mexico in 2000-12 it didn't do much better. That means "there's less resistance" to AMLO than in 2006 and 2012 (when he nearly won the presidency), says Jorge Castañeda, a former foreign minister.

In those campaigns he ran as a rabble-rouser bent on returning Mexico to its protectionist, nationalist past. His friends insist that he has mellowed. He has made overtures to business and to Mexico's capitalist north. His pledge to review all contracts issued to private energy companies doesn't mean rejecting them, according to Alfonso Romo, a businessman from



Monterrey who advises him. Mr Romo stresses AMLO's concern for the "forgotten Mexico" of the poor and the indigenous. But AMLO has also opened his tent to allies from reactionary, corporatist parts of the PRI (to which he belonged from 1976 to 1988). He has talked of an amnesty for drug barons. "He can no longer hold the banner of fundamental regime change," says Denise Dresser, a political scientist.

Neither can the PRI's candidate, José Antonio Meade, a competent and respected former finance minister who is not a party member. He makes a virtue of his lack of a political background. But "the scale of the well-deserved repudiation" of Mr Peña makes Mr Meade's task "impossible", says Enrique Krauze, a historian.

It is Mr Anaya who offers the best hope of defeating AMLO. He is only 38. With his crew cut and glasses, he looks like a school swot. He is a formidable debater and political operator who speaks with a laser focus. "This is a very close election between two options for change," he told Bello. "The question...is what kind of change [Mexicans] want." AMLO proposes change "with ideas that are very old, trapped in the past",

he says, while his own ideal is a modern democracy open to the world and to new technology.

For example, AMLO promises to cancel construction of a \$13bn airport now being built near Mexico City. He would reverse the education reform, which holds teachers accountable by evaluations. AMLO doesn't want to turn Mexico into a Marxist dictatorship like Cuba or Venezuela. But he wants to be friends with those countries, says Mr Castañeda. AMLO vows to fight corruption but promises to slash the salaries of senior officials, which is a recipe for graft.

Mr Anaya argues that to impose the rule of law stronger institutions are essential. He wants the attorney-general's office, over which the president has sway, to be fully autonomous. He would fight drug gangs with better intelligence. To tackle poverty he would introduce "gradually" a universal basic income (though voters might prefer more and better jobs).

Mr Anaya seized control of the PAN from more experienced rivals and oversaw its victory in several gubernatorial elections. He says he doesn't defend the mistakes of past PAN presidents, and anyway he represents a coalition. Quite how coherent this coalition of convenience will prove is an open question.

He faces other obstacles. His merciless attacks on the PRI are a double-edged sword. If Mr Meade has no chance of victory, "it's easier for priistas to go with AMLO than this güero [fair-haired boy]", says Mr Krauze. Mr Anaya's biggest difficulty may be that in his single-minded pursuit of the candidacy he has alienated important figures in his own party, starting with Margarita Zavala, the wife of a former president, who is running as an independent. To win, Mr Anaya must be a healer as well as a fighter.



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► Hawk circling a coca field just outside Alto Mira y Frontera, a police officer spots three motorbikes speeding towards it. He suspects their drivers are farmers intent on protecting their crops. As the chopper lands, police jump out, to fumigate and depart before a confrontation can occur. A police commander says anyone who interferes risks being sprayed with glyphosate, even though Mr Santos, deeming the herbicide dangerous, banned aerial spraying in 2015. This month a group of farmers detained 14 riot police for a day in the area.

Such disputes are not supposed to happen. The PNIS is Colombia's first large-scale attempt to deal with coca cultivation as a problem of development rather than a crime. Small farmers like Ms Ruano are supposed to get seeds for alternative crops, such as cacao, expert advice on planting them and a stipend of 1m pesos (\$350) a month for a year. Nearly 30,000 families are benefiting from the programme.

But that is just a quarter of the families that have signed collective agreements, which is just the first step towards qualifying for help. The process is slow by design. UNODC has to verify that the acreage covered by collective agreements is accurate before the PNIS can sign individual ones. Farmers' mistrust of the state, which was absent from coca-growing areas until recently, and the role given to the FARC by the peace agreement in co-ordinating crop substitution also slow things down, says Juan Carlos Garzón of Fundación Ideas para la Paz, an NGO.

While the PNIS process inches forward, the armed forces (including the police) exceeded their goal of eradicating 50,000 hectares by the end of 2017. The offensive has at least placated the United States. In Bogotá on February 6th Rex Tillerson, the secretary of state, praised Colombia's progress but added a warning. "We need to see...the number of acres or hectares under cultivation going down," he said.

The successes may be short-lived. UNODC estimates that growers replant 30% of the area uprooted on average. More important, the government has not made much progress in areas controlled by organised armed groups. As a result, the coca-growing area might well have expanded last year, UNODC says.

It will be up to the next president and congress to determine the balance between helping coca-growers and uprooting crops. Candidates on the left, such as Gustavo Petro, a former mayor of Bogotá, favour the voluntary approach. Conservatives such as Germán Vargas Lleras, a former vice-president, would resume aerial spraying. None of the main right-of-centre candidates has given much support to crop substitution. Unless Colombia's next president gives stronger backing to the voluntary approach, a Black Hawk could soon land on Ms Ruano's doorstep. ■

Counterfeit goods

Marked down in Markham

MARKHAM, ONTARIO

What a "notorious market" says about Canada's approach to product piracy

“LOUIS VUITTON” handbags for the price of a sandwich. “Rolex” watches that cost as little as a t-shirt. You would not expect to find such obvious fakery at a suburban shopping mall in Canada. But deals of this sort are available at the Pacific Mall in Markham, near Toronto, according to the office of the United States Trade Representative (USTR). Its latest report on “notorious markets”, published in January, lists the three-floor mall alongside the Silk Market in Beijing, Tank Road in Delhi and El Tequito, an open-air market in Mexico City, as places where people can buy counterfeit goods. It is the first time a Canadian bricks-and-mortar outlet has appeared in the report, which has been published since 2011. “Requests for assistance from local law enforcement have reportedly gone unanswered,” the report complains.

The United States has long alleged that its northern neighbour is soft on piracy, allowing vendors to sell goods and cultural products that infringe trademarks and copyrights of American and other firms. Canada appears regularly on the USTR’s annual list of countries that are doing too little to protect intellectual property. The USTR estimates that global trade in counterfeit goods is worth \$500bn a year, about 2.5% of total imports. Until now, it has directed most of its complaints about physical retail outlets at developing countries where the rule of law is weak.

By fingering the Pacific Mall, which calls

itself “the largest Chinese shopping mall in North America”, it is turning up the heat on Canada. It is probably no coincidence that the United States, Canada and Mexico are holding talks to revise the North American Free-Trade Agreement (NAFTA), which encompasses the three countries. The United States wants better protection of intellectual property to be part of the new accord.

Its biggest complaint is that border controls in Canada, an important transshipment country, are too lax. In 2014 Canada enacted a law to give customs officers more power to detain shipments and toughened sanctions against people who violate copyrights and trademarks. But after hunting out drugs, guns and illegal immigrants, border guards have little time and money to look for non-Swiss Swiss watches. Over the past two and a half years Canada has detained fewer than 50 suspect shipments, says Lorne Lipkus, a Canadian lawyer who specialises in counterfeiting issues. American customs catch some 30,000 a year.

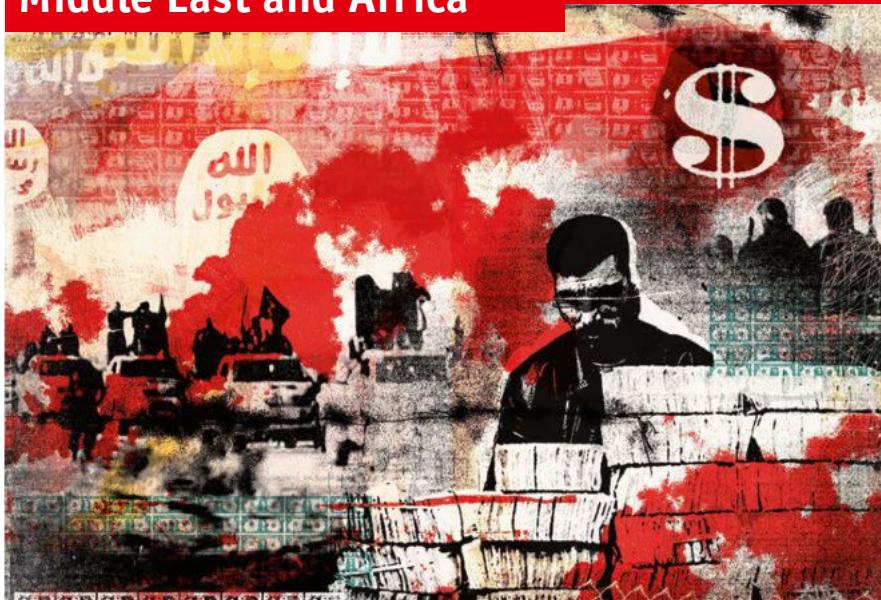
The United States also wants better policing within Canada. Unlike the United States and the European Union, Canada does not have a central law-enforcement team responsible for counterfeiting. The Royal Canadian Mounted Police, the national force, disbanded its unit after the government stiffened the law in 2014.

Local police forces are expected to help, but they lack manpower. Robert Whalen, the specialist for the Toronto police force, learned about counterfeiting while investigating organised-crime gangs, which traffic in tandoori ovens with bogus safety certificates, fake cancer drugs and other impostor products. Even he does not pursue counterfeitors full-time. “If I’m called right now and told there is a store with a whole bunch of counterfeit Louis Vuitton and I get a call five minutes later and [am] told there is a shooting up the street, I’m going to go to the shooting,” says Mr Whalen.

American suspicions of the Pacific Mall, where most sellers and customers appear to be of Chinese origin, are well founded, says Mr Lipkus. “I’ve served hundreds of court orders, cease-and-desist documents, and helped the police execute multiple search warrants there,” he says. The mall’s appearance on the USTR’s list of notorious emporiums may be having more effect. In a statement on February 20th its management said it was “deeply disturbed and disappointed” by reports that vendors were selling fake goods, and would take measures to stop the practice.

On a recent Friday (before the statement) a black “Chanel” handbag was on sale for C\$12.95 (\$10.20). (The real thing lists for C\$5,950.) But that was one of the few fakes on display. Since the USTR’s report big names like Gucci, Burberry, and Louis Vuitton are hidden, says Mr Whalen. If the NAFTA countries agree to update the treaty, the fakes may stay off the shelves. ■



**Terrorist financing**

Islamic State's rainy-day fund

BEIRUT AND GAZIANTEP

The jihadists are stashing millions of dollars as their so-called caliphate crumbles

GONE are the days when the black flag fluttered over a third of Iraq and almost half of Syria. Crushed on the battlefield, Islamic State has lost roughly 98% of its self-proclaimed “caliphate”. Some 70,000 of its fighters (who numbered perhaps 100,000 at their peak) are thought to have been killed. But thousands have escaped. Some have remained in Iraq and Syria; others have slipped into Turkey or hooked up with IS affiliates in Egypt, Libya and South-East Asia. Around 10,000 of the group’s foreign fighters are thought to have left the Middle East.

Those intent on continuing to wage jihad will still have the means. IS has quietly stashed millions of dollars across the region. It has invested in businesses in Iraq, bought gold in Turkey and continued to transfer money to its affiliates. “You wouldn’t believe the amount of money that has gone out of IS’ territory,” says a former weapons-dealer involved in transferring the jihadists’ cash. An Iraqi legislator estimates that IS smuggled \$400m out of Iraq and Syria during its retreat.

Tycoons of terror

IS built up fat reserves of cash as it gained ground in Iraq and Syria. It sold oil from the fields it captured, taxed and robbed the people it ruled and stole perhaps \$500m from Iraqi banks, making it the richest terrorist group in history. In 2015 the caliphate’s GDP was estimated to be \$6bn.

The traditional tools used to starve ter-



rorists of funds by blocking foreign donations were of little use. So the American-led coalition against IS bombed the group’s refineries and oil tankers, destroyed its stockpiles of cash and assassinated its money men. The Iraqi government stopped paying the salaries of government officials in IS territory to prevent the jihadists from taking a cut. The strategy worked, up to a point (see chart). The group’s revenue from oil dropped and it was forced to trim the wages of its fighters. But IS was still able to milk the areas under its control. “It became clear that the most important way to address IS financing was to deprive it of territory,” says an American counter-terrorism official.

The jihadists, though, appear to have anticipated their loss of land. Last March

Also in this section

40 Syria’s war heats up again

40 The conquest of Yemen

41 Ethiopia’s emergency

42 South Africa after Zuma

42 Freemasons in Africa

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the group mandated the use of its own currency in eastern Syria, an order it later extended to currency dealers and money-transfer shops. This allowed IS to hoover up Syrian pounds and American dollars. In Iraq it has bankrolled hundreds of exchange houses. Dozens of these even took part in the Iraqi central bank’s currency auctions in 2014 and 2015, allowing the group to convert Iraqi dinars into dollars, before the government at last cracked down on them.

Currency dealers in Turkish cities that border Syria say IS has been moving large sums of money out of its caliphate since early last year. The money flows through the *hawala* system, an informal web of money-transfer offices that is cheap, fast and almost impossible to regulate. The network of *hawala* shops in Syria and Turkey has expanded since the start of the Syrian war, allowing refugees, weapons-dealers, oil-smugglers and rebel groups to move cash in and out of the country.

Transactions involving IS cash, sometimes millions of dollars, can take weeks to complete. The largest are often too big for a single *hawala* shop to process on its own, so several dealers in Turkey, Europe, Lebanon and the Gulf are involved. The money is difficult to trace. *Hawala* dealers use the encrypted mobile-chat application WhatsApp to communicate with each other. They rarely keep detailed records of transactions or the names of customers.

Much of the cash has ended up in Turkey, where intelligence officials believe it is being stored by individuals for future operations, invested in gold and used to keep IS sleeper-cells active. “You only need \$500 a month to feed and house a cell of two or three people,” says Ahmet Yayla, the former head of counter-terrorism for the Turkish police. Investigations into the deadly attack on a nightclub in Istanbul on January 1st 2017 revealed that IS had established ►

► about 100 safe-houses in the city, where police found more than \$500,000.

IS has also laundered its cash reserves by investing in legitimate businesses around the region. In Iraq it has used middlemen to buy farms, car-dealerships, hotels and hospitals. Most of the intermediaries are driven by profit rather than ideology, says Renad Mansour of Chatham House, a British think-tank. Many are tribal leaders or businessmen who have worked with the jihadists before, smuggling oil, weapons, goods and people.

Weak institutions and rampant corruption make it hard for Iraq to tackle the problem. Several ministries have tried to block terrorist financing, with little success. Politicians also benefit from the black market. Would-be whistleblowers fear that IS has spies inside the government.

IS also retains the ability to generate cash. It may use its businesses to siphon funds meant for rebuilding the region's wrecked cities. Extortion, smuggling and kidnapping will remain profitable, as the group shifts its focus from capturing territory to waging an insurgency. New and old money will keep the jihadists in business for years to come. ■

Syria's civil war

Hotting up again

BEIRUT

The war in Syria is growing bloodier and more complicated

THE UN Children's Fund says it no longer has words to describe the suffering in Syria. In an unusual move, the agency released a blank statement to express its outrage at President Bashar al-Assad's latest onslaught. On February 18th his regime, with Russian support, began pounding Eastern Ghouta, a suburb of Damascus, with artillery, air strikes and barrel bombs. Hundreds of people have already been killed. The regime appears to be mustering troops ahead of a possible ground assault.

Far from winding down, Syria's almost seven-year civil war is heating up and growing more complicated. The collapse of Islamic State (IS) has freed local and foreign powers, which were loosely aligned against the jihadists, to pursue other objectives. Some have turned their guns on each other. Observers see echoes of Lebanon's civil war, which also drew in foreigners and dragged on for 15 years. But the war in Syria has already been far more bloody.

The territorial demise of IS has allowed Mr Assad to focus on the final pockets of resistance to his regime in western Syria, the most populous part of the country. In December he sliced off a chunk of Idlib,

which had been under rebel control. He has now set his sights on Eastern Ghouta, which the regime attacked with chemical weapons in 2013 (and perhaps more recently). Mr Assad's tactics are as familiar as they are chilling: besiege, starve and bomb civilians until the rebels surrender or grow too weak to resist. Homes and hospitals have been destroyed. Supplies of medicine, fuel and food are dangerously low.

The same strategy worked for the regime in Aleppo, Syria's second largest city, which was held by rebels until 2016. Its fall marked one of the biggest turning points of the war. From then it has seemed increasingly certain that Mr Assad will remain in power.

Now he is growing more assertive. Pro-government militias have moved north into the Kurdish enclave of Afrin, where they hope to help Kurdish forces beat back an incursion by Turkey, which opposes Kurdish efforts to create a semi-autonomous zone on its border.

There is a growing risk of new clashes involving the many external powers that have been drawn in to Syria: Russia and Iran, which back the regime; America, which arms and supports the Kurds; Turkey, which has intervened to repel them; and Israel, which is alarmed by the prospect of Iran and its Lebanese ally, Hezbollah, implanting themselves in the Golan Heights. "With the fight against IS receding and the elimination of any serious threat to the regime's survival, the conflict is more than ever defined by the struggle among regional and international actors," says Randa Slim of the Middle East Institute, a think-tank in Washington.

Some have already come into direct conflict. On February 7th American-led forces killed scores of Russian mercenaries who were fighting alongside pro-regime forces in eastern Syria. On February 10th Israel intercepted an Iranian drone in its airspace, prompting it to strike the base in Sy-



More misery in Eastern Ghouta

ia from which it was controlled. After an Israeli jet was hit by Syrian anti-aircraft fire and crashed, Israel launched more such attacks in Syria.

Mr Assad and his backers will probably defeat most of the rebels in eastern Ghouta and elsewhere. But that may only mark the start of a new phase in the conflict, one defined more by the machinations of foreign powers. The war is likely to keep burning for some time. Syrian civilians will continue to bear the brunt of the fighting. "We are dying and starving. But where is the world? Where is the UN?" asks Ahmad Khansour, an activist in Eastern Ghouta. "All it does now is issue blank statements." ■

The conquest of Yemen

Gobbling up southern Arabia

GHAYDA AND SEIYUN

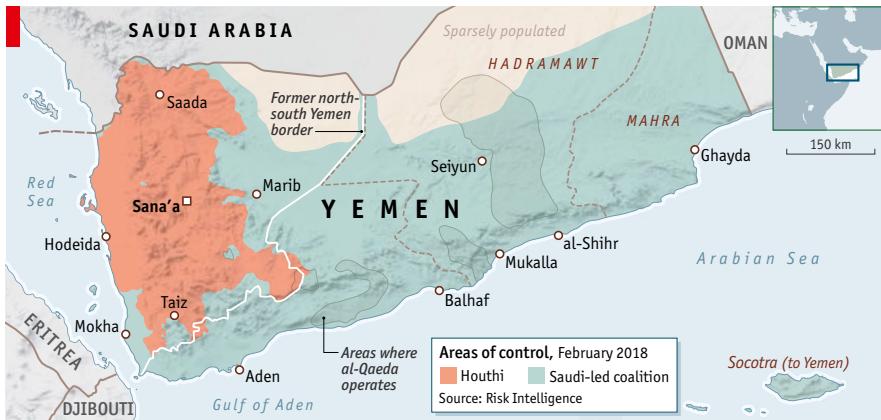
Saudi and Emirati forces are pushing deep into war-battered Yemen

BRIGHTLY painted dhows bob on the waves of the Arabian Sea. Fishermen auction the morning's catch of swordfish, tuna and manta rays. Sardines dry in the sun, fodder for the camels that pad through the street. Life used to be simple in the port of Ghayda, the capital of Mahra governorate, tucked in Yemen's far east.

The arrival of soldiers from Saudi Arabia and the United Arab Emirates (UAE) is complicating things. Abd Rabbo Mansour Hadi, Yemen's president, invited them into the country to repel Houthi rebels, who pushed him out in 2015. The Houthis control about a fifth of the territory. Saudi and Emirati forces hold much of the rest. But as their grip tightens, Yemen fractures.

Saudi and Emirati officials say their deployments across the country are part of their war effort. But join the dots and Saudi Arabia's positions match the incense trade route that long ran overland from the Indian Ocean to Arabia. The kingdom appears to be carving a new corridor to the coast. Meanwhile, the UAE's actions in Yemen appear part of a larger strategy to gobble up ports along some of the world's busiest shipping routes.

The Saudis, operating out of Ghayda's airport, which they took in November, have bought favour with tribal sheikhs in the east and south by dispensing weapons, cars and Saudi passports. They aim to block Iranian arms shipments at the seaport. In Seiyun, to the west, they train fighters loyal to Mr Hadi. They are also working closely with Ali Mohsen, Yemen's vice president, and his allies in Islah, an Islamist movement, to rebuild Yemen's army, which the Houthis routed when they took the capital, Sana'a, in 2014. ■



The UAE has been even more active. Early last year the Emirates Red Crescent launched a humanitarian mission in Ghayda—by August the Emirati army had taken over the mission. The UAE has captured a string of southern ports, such as Mukalla, Aden and Mokha. It controls Yemen's only gas-liquefaction plant, at Balhaf, and an oil-export terminal, at al-Shihr. The strategic island of Socotra looks increasingly like an Emirati base. The UAE also runs two military camps in the remote Hadramawt region, where its troops have trained some 25,000 local fighters.

In securing the ports, say analysts, the UAE's goal is to enhance the position of its own port at Jebel Ali, the region's largest, either by stifling competition or directing traffic in its direction.

Many welcome the Saudis and Emiratis. "Forget such outmoded notions of sovereignty," says Abdellahi Tamimi, an official in Hadramawt. "We can all profit from trade." The UAE is financing hospitals and a new power plant in the energy-starved region. Officials in Seiyun hail a new counter-terrorism force, trained by the Saudis, as a bulwark against al-Qaeda. Locals also say Emirati-trained fighters are more disciplined than Yemeni soldiers and fleece them less at checkpoints.

But others fear a creeping loss of control. The Saudis and Emiratis run their own detention centres and keep local officials in the dark. Smugglers in Mahra complain of a loss of business, as the newcomers crack down. Many in the region speak Mahri, an ancient Semitic tongue, and fear that the Gulfies will impose Arabic. The handing out of passports causes alarm. Socotra has 60,000 people and Mahra perhaps 160,000. In theory both could be annexed.

Meanwhile, tension is increasing between Saudi and Emirati proxies. While Saudi Arabia seeks to stand up the old northern-based army under Mr Mohsen, the UAE trains fighters from the south, many of whom would like to re-establish South Yemen, which merged with the more populous north in 1990. Emirati-backed separatists took control of Aden last month. Some believe the move had

Saudi assent and is part of a divide-and-rule strategy by the two Gulf states.

The many new Gulf-backed militias are accelerating Yemen's fragmentation. Tribal leaders are exploiting the chaos. Pretenders claiming to represent the *duwailat*, or principalities, that made up the British protectorate of Aden are dusting off old flags. A self-declared council led by Abdullah al-Afrar, who calls himself sultan of Mahra and Socotra, has vowed to resist the Saudi-led "occupation". "We fear Yemen will never be united again," says Mr Afrar. ■

Ethiopia's state of emergency

Back to the iron fist

ADDIS ABABA

Protest, repress, reform, repeat

THE well-heeled residents of Legetafo are not used to demonstrations. The town on the eastern edge of Ethiopia's capital, Addis Ababa, is home to politicians and businessfolk. Although nearby towns in the region of Oromia, which surrounds the capital, have been hit by anti-government protests since late 2014, these streets have remained mostly quiet.

Yet this month demonstrations broke out there too, as people joined a strike to force the ruling coalition to release more political prisoners (in addition to the thousands it has already freed since the start of the year). "Almost everyone" took to the streets, says Zenebe, a local restaurant-owner. Things quickly turned ugly. People set up roadblocks and burned tyres. The army responded with tear gas and bullets. Faced with spreading protests and ethnic attacks on Tigrayans (who are about 6% of the population but dominate politics), the government announced a state of emergency, giving itself wide powers to ban protests and arrest people.

The declaration appears at odds with recent signs that the ruling Ethiopian Peo-

ple's Revolutionary Democratic Front (EPRDF) was willing to allow more democracy. In August it lifted a ten-month-long state of emergency, imposed after protests in 2016. But rather than signalling a retreat from reform, the new state of emergency appears to have been triggered by the resignation the day before of Hailemariam Desalegn, the prime minister.

Hailemariam said he was bowing out to allow for "reforms", but his departure has opened up a succession struggle within the EPRDF, which has governed Ethiopia since it first seized power as a band of rebels in 1991. It is made up of four ethnically based parties. The Tigrayan People's Liberation Front (TPLF), which represents Tigrayans, has long dominated the coalition. But the TPLF's power is weakening. The Oromo People's Democratic Organisation (OPDO), which represents the largest ethnic group in the coalition, was seen for years as a puppet of the TPLF. Under Lemma Megersa, its charismatic new leader, it has rebranded itself as a quasi-opposition party. It now wants to take the helm, backed by a belief among Oromos that it is their turn to have one of their own in charge. A number of members of the coalition suspect that people within the OPDO are encouraging street demonstrations to strengthen their hand in the succession struggle.

The emergency regulations may buy the coalition time to agree on a new prime minister and implement reforms. But they also pose a delicate problem for the OPDO, which has taken to repeating many of the demands of the protesters, including a call for the release of political prisoners. Over the coming days it will need to explain to angry youngsters in Oromia why it appears to have acquiesced again in the suspension of their political rights. If OPDO MPs vote in favour of the measure when parliament meets over the coming fortnight, there may be even more anger. ■



Cry freedom

South Africa after Zuma

The hangover

JOHANNESBURG

Cyril Ramaphosa needs to dish out tough medicine

SOUTH AFRICANS had only a few days to celebrate the resignation of Jacob Zuma and the swearing-in of a new president, Cyril Ramaphosa, before the hangover set in. A new budget hiked taxes, cut public spending and reminded people how big a mess Mr Zuma left behind.

The budget was presented by Malusi Gigaba, a finance minister whose appointment by Mr Zuma almost a year ago sparked protests against what was seen as a hostile takeover of the Treasury, a department that had stayed professional even as corruption and incompetence flourished elsewhere in the government. Embarrassingly, Mr Gigaba's budget was marred by the release of a high-court ruling that he had lied under oath in his previous job as minister of home affairs (and photos of him playing "Candy Crush" on his iPad in parliament). Mr Ramaphosa kept him on until the budget so as not to unsettle markets. He may not last much longer.

Mr Ramaphosa's most urgent task is to kick out of his cabinet the cronies and hacks put there by Mr Zuma. This is harder than it sounds. Fire too many and he risks splitting the ruling African National Congress (ANC), some pundits worry.

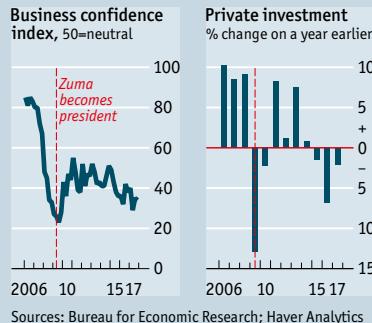
At the same time, he must risk upsetting voters by taking the fiscal measures necessary to avoid a downgrade of South Africa's debt, which would see it kicked out of the major bond indices used by international investors. The budget includes an unpopular increase in value-added tax to start shrinking a yawning fiscal deficit. Even so, a big increase in spending on university education means that public debt is forecast to keep rising until 2023, when it is expected to peak at about 56% of GDP.

Mr Ramaphosa may not be able to act much more boldly, particularly in cutting the wage bill for civil servants. This consumes nearly 35% of the budget, and 14% of GDP, a jaw-dropping figure even by the standards of the OECD, a club mainly of rich countries, where the average is closer to 11%. Public-sector workers are heavily unionised, and the ANC relies on unions to send people door-to-door canvassing for votes at election time.

Too much austerity would risk sparking public-sector strikes. Instead, Mr Ramaphosa hopes to attract investment and spur the economy so that South Africa can grow its way out of its debt crisis. He has a lot of work to do. Although growth is picking up this year, it is still forecast to come in

Zuma's years of gloom

South Africa



Sources: Bureau for Economic Research; Haver Analytics

at a sluggish 1.5%, barely above the rate of population growth.

However, Mr Ramaphosa can reasonably expect a post-Zuma bounce. Goolam Ballim, an economist at Standard Bank, reckons that if South Africa had had a better economic manager than Mr Zuma for the past nine years, its GDP would be as much as 25% larger. One reason was that firms held back from making all but the most essential investments so long as Mr Zuma was in charge. Now, under the business-friendly Mr Ramaphosa, they might

see things differently. "I see a flood of investment being unleashed," Mr Ballim says. Even more would flow if Mr Ramaphosa were to scrap a mining charter that scared off investors by forcing companies to hand over shares to black owners.

In time, Mr Ramaphosa may have to pick a fight with unions to help lift the rate at which South Africa's economy can grow. Currently, unions have immense power: for example, they can impose minimum wages on whole industries, forcing firms that cannot pay them to close. Mr Ramaphosa would be wise to change labour laws that discourage companies from taking on new workers because it is so hard to fire them. Such reforms would make it easier for the unemployed, who are 36% of the workforce, to find jobs. But they would enrage the unions and the South African Communist Party, the two other members of the ANC's electoral alliance.

With such a daunting in-tray, Mr Ramaphosa is eager to court popularity. Unlike his predecessor, who whizzed around in a motorcade, he has been taking a regular 5am walk, joined by dozens of well-wishers. One ANC official accompanying the president complained to the local press that he had never woken up so early. ■

A fuss over Freemasons

Fist bumps and rolled-up trousers

DAKAR

First they came for the Freemasons, then they came for Rihanna

IT WAS too much of a coincidence for the members of "No to Freemasonry and Homosexuality", a coalition of religious groups. Emmanuel Macron, France's president, Rihanna, a pop star, and several hundred African Freemasons were all due to visit Senegal around the same time this month. The group decided that sinister forces must be at work, no doubt plotting against the country.

Every year dozens of Masonic lodges from across Africa come together to discuss the issues of the day. This year, for their 26th shindig, the Freemasons booked a plush hotel in Dakar, Senegal's capital. On the agenda were worthy topics such as education, freedom, governance and economic development. But the hotel, rattled by the conspiracy-minded protesters and worried about violence, cancelled the event.

Still, the brouhaha has shone a light on how Freemasonry, a secretive movement that originated in 16th-century European guilds, has taken root on a continent where finger snaps and fist bumps are more common than secret handshakes and rolled-up trouser legs. David Harrison, a researcher of Masonic history, says the movement spread from

European countries to their African colonies when settlers set up lodges.

After independence some Africans continued to practise Freemasonry, but many were driven underground. Masons say that theirs is a fraternal order of men who believe in a creator (the Great Architect) and do good works. But because this is a secret society, they are widely viewed with suspicion; in Africa, because of their association with former colonial masters, perhaps even more so. Alexandre Cleven, a former grand master of the Regular Grand Lodge of Belgium, says the way Freemasons are treated in different countries is an "excellent barometer of human freedom". He estimates that there are 10,000 African Freemasons (out of about 3m worldwide). Lodges can be found in Ghana, South Africa, Liberia and various parts of Francophone Africa.

After taking on the Freemasons, the protesters in Dakar turned on Rihanna, who was to share a stage with Mr Macron and Macky Sall, Senegal's president. Mr Sall did not back down. The event was a success, extracting pledges from donors of more than \$2.3bn for children's education. Some might be well spent on teaching the virtues of tolerance.



Also in this section

44 Italy's centre-right hopefuls**44 Redress for war crimes****45 Eco-activism in Russia****46 Charlemagne: A very European coup**

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France

A form of hell

PARIS

The unrewarding life of a French prime minister

SEVEN months after their prime minister was appointed in May 2017, fully 35% of the French could not name him accurately in a poll. Next to the hyper-visible President Emmanuel Macron, who hosts global business chiefs at the Palace of Versailles one week and is on the phone every other to Donald Trump, the tall, bearded Edouard Philippe cuts a discreet figure. So much so that he is variously identified in polls as Philippe Edouard, Gérard Philipe (a former actor), or Louis Philippe (a former king). Confusion about Mr Philippe's name, though, prompts a bigger question: what is the point of him?

France is unusual in having a two-headed executive, devised by Charles de Gaulle in 1958 when the previous parliamentary system had proved unstable. The Fifth Republic's constitution established a particularly strong executive presidency. But according to precedent the president is meant to stick to big visions and foreign affairs, leaving the prime minister, whom he names, to deal with the grind of daily policymaking. When the president is an energetic, sleeves-rolled-up sort, this division of labour is hard to sustain.

In many ways, the link between Mr Macron and Mr Philippe looks friction-prone. Before the first round of the presidential election in 2017, they had only met three times. The young president was formerly a minister in a Socialist government; the sardonic prime minister belonged to

the centre-right Republicans. Mr Macron has a reputation for fiddling with details. In a political thriller he co-wrote, Mr Philippe described Matignon, the prime minister's office, as "a form of hell".

There have indeed been moments of confusion. Last summer Mr Macron stole the limelight by summoning lawmakers to a joint sitting of both houses of parliament at Versailles, the day before a major speech by his prime minister. In that address, Mr Philippe announced that some of Mr Macron's promised tax cuts—notably in the wealth tax and the council tax for modest earners—would be postponed by a year. Days later, after charges of backtracking, Mr Macron decided otherwise.

Against the odds

Yet, over time, the president and prime minister seem to have found a way to make their odd relationship work. On labour reform, for example, Mr Macron laid down the broad rules. Mr Philippe and his labour minister then did the hard slog of negotiations and arbitration, spending their summer in some 100 meetings with union leaders, before unveiling a new labour law last year. On education reform, Mr Macron defined the outline, leaving Mr Philippe and his schools minister to hold ongoing discussions with teachers. Three-fifths of the French think the executive duo have got the balance right, according to a poll in December.

"The main job for a French prime minister is not to upstage the president," says one observer wryly. Working for a head of state nicknamed "Jupiter", Mr Philippe does not seem in danger of doing this. He does none of the grand events. When Mr Macron decided to hold a ceremonious and filmed signing of the labour law, White House-style, the prime minister was absent. "Basically, it's a thankless job," says somebody close to Mr Philippe. Most French prime ministers leave office drained and politically weakened. Of the 22 politicians who have occupied the job since 1958, only two—Georges Pompidou and Jacques Chirac—have gone on to become president, and neither did so immediately after leaving Matignon.

It may help their improbable bond that Mr Philippe, his friends insist, does not covet Mr Macron's job. Evicted from his party for jumping ship, he has no parliamentary base of his own, and relies on Mr Macron's solid centrist majority. An amateur boxer, Mr Philippe confessed to a "panicky fear" when he realised he might be offered the prime ministership. The pair are of the same generation, Mr Philippe being seven years older than his 40-year-old boss. Each man was also formerly close to Michel Rocard, a centre-left Socialist ex-prime minister, whom Mr Philippe backed in his youth before switching to the political right.

The real test of their tie, though, will be over tricky legislation that is now looming, particularly a new immigration bill that was presented to cabinet this week. Many of Mr Macron's deputies are uneasy about its harsher provisions. Asylum-agency officials have been on strike. Mr Philippe may be about to learn the hard way that the real function of a French prime minister is to let the president take the credit when things go well, and to deal with the trouble when it all goes wrong. ■

Italy

Jokers in the pack

BARI

A tiny new party may determine the future government

RAFFAELE FITTO is a man in a hurry. The black limousine with darkened windows hurtling through the gathering darkness hits 160kph (100mph) as it rushes him to his next campaign stop. With barely two weeks to go before Italy's general election, Mr Fitto has just inaugurated his party's headquarters in Bari, the regional capital of his native Puglia, the "heel" of Italy's boot, in the deep south. Yet the party he leads, which was founded only in December with the odd name of *Noi con l'Italia* (Nci, roughly: We're with Italy), could make a crucial difference to the outcome of the vote on March 4th.

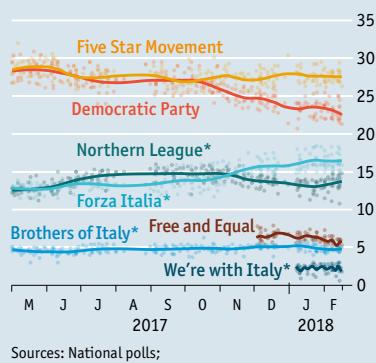
The main pollsters agree that the only electoral alliance with a chance of winning an absolute majority in the next parliament is the one forged on the right by Silvio Berlusconi, a former prime minister. Vowing to clamp down on illegal immigration and introduce a flat-rate income tax, Mr Berlusconi and his allies have gained in the polls as the centre-left Democratic Party (Pd), led by another former prime minister, Matteo Renzi, has lost ground. If none of the contenders wins an outright majority, a broad coalition, perhaps led by the incumbent prime minister, Paolo Gentiloni, an urbane and competent man who seems broadly acceptable to almost everyone, may be the only way to make Italy governable. But the right still has a chance.



Berlusconi's slender chance

The final scores

Italy, general election polling
Selected parties, %



The last polls published before a pre-election gag rule came into effect on February 17th all implied a hung parliament. But under Italy's new electoral rules almost 40% of the seats will be decided on a first-past-the-post basis, the rest by proportional representation (PR). And, points out Antonio Noto of Noto Sondaggi, the national percentages given by the polls are only really useful for predicting the PR section of the ballot. Analysing the most recent polling data, Salvatore Vassallo of the University of Bologna has concluded that the right was ahead in so many winner-takes-all constituencies that it was likely to gain a slender majority in the Senate (the upper house), and was, perhaps astonishingly, a mere four seats short of doing the same in the Chamber of Deputies (the lower house). That, however, ignores yet another variable: the 30% of Italian voters who remain undecided. Soundings by Mr Noto found less than one in six of those leaned to the right.

Mr Berlusconi's Forza Italia party enjoys support throughout the country, but the polls suggest only about 17% of decided voters back it. For victory, it depends on allies with strong regional bases, who are expected to do well in first-past-the-post seats in their core areas: the Northern League with around 13%; the Brothers of Italy, a small party with neo-fascist roots that is strong around Rome; and, in the south where the pollsters agree this election will be decided, the Nci. An alliance of tiny groups, mostly led by former members of the once-dominant Christian Democrat party whose symbol features prominently in its logo, the Nci is the joker in the pack of this election.

For Mr Fitto, the right's only real opponent in the south is the anti-establishment Five Star Movement (M5s). The Nci's strong point is that, unlike the M5s, its candidates are well-known to their electorates. They are men—mostly men—who have held office locally and can depend on goodwill built up over years, even de-

cades, of distributing jobs and contracts to local people in the needy south.

At Corato, a town of fewer than 50,000 inhabitants where the Nci's candidate was mayor for ten years, he and Mr Fitto, who was governor of Puglia, drew a crowd of well over 500 on a freezing night. Candidate-recognition is especially important in the first-past-the-post contests. The Nci is contesting 34 seats, of which Mr Fitto reckons they can win half. In the PR section of the ballot, parties need 3% of the national vote to qualify for entry into parliament. But even if the Nci failed to reach the 3% threshold, its votes would then go to the rest of the alliance.

Mr Fitto dismisses such talk. "The polls show we're almost at 3% and we've barely started campaigning," he says. Even at just 3% the Nci would gain another 18 seats, giving it 30-40 of the 945 in the two houses of parliament. That may seem insignificant. But Italy's next government could well have a wafer-thin majority and ex-Christian Democrats—natural centrists and often ideologically flexible—are renowned for the ease with which they shift their allegiances and the skill with which they exploit their position, close to the fulcrum of Italian politics. One Nci bigwig kept Romano Prodi's last fragile, centre-left government on tenterhooks for months before helping to bring it down in 2008. Another one changed his affiliation no fewer than five times in the last parliament.

"We could be decisive for everything," says Mr Fitto. ■

War crimes

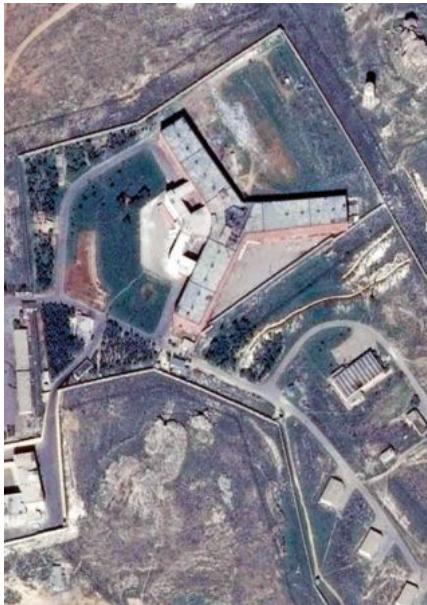
A plea for justice

BERLIN AND KARLSRUHE

Refugees tortured in Syria's civil war are seeking redress in German courts

SHAPPAL IBRAHIM knew they were coming for him. As soon as the Syrian security forces began repressing anti-government protests he had helped to organise in the spring of 2011, the Kurdish activist went underground. But the goons soon caught up with him. What followed was nearly two years of horror, most of it in Saydnaya, a notorious military prison outside Damascus. "They made me stand naked in my cell for hours, beat me and tortured me with electric shocks," he says. "There was never enough to eat, and only three or four hours of sleep a night."

Unlike countless others, Mr Ibrahim made it out: he was released as part of an amnesty in May 2013 and fled to Germany via Iraqi Kurdistan. Along with other Syrians who suffered a similar fate, he has now offered to testify to the office of Germany's ►



Scene of the crimes

► federal prosecutor in Karlsruhe, in the hope that his torturers will one day face justice in German courts. Working with the European Centre for Constitutional and Human Rights (ECCHR), a pressure group in Berlin, and Anwar al-Bounni and Mazen Darwish, two lawyers who spent years in Syrian prisons before escaping to Germany, the refugees have lodged criminal complaints against several high-level officials for crimes against humanity. Their statements are adding to a stack of evidence that prosecutors began compiling in 2011. At first, the investigation looked into violence against peaceful protesters. Later, they started looking at war crimes and opened a separate file for crimes committed by so-called Islamic State (is).

Mr Ibrahim and his fellow activists are turning to the German judiciary because there is little chance that their torturers will be prosecuted elsewhere. The justice system in Syria is run by the people who tortured them. Syria is not party to the International Criminal Court (icc), and a UN Security Council resolution that would have given the ICC a mandate to investigate war crimes in the country was blocked by China and Russia in 2014. German authorities have assumed the mandate to prosecute based on the principle of universal jurisdiction, which holds that a state may act in the most serious crimes against international law even if neither the perpetrator nor the victim is a national of that state. Germany has some of the best-developed institutions in the world for investigating and prosecuting such crimes, including a specialised war-crimes unit.

Even so, the chances of getting justice remain slim. German law does not provide for trial in absentia, and most of the accused wisely do not travel outside Syria.

Lake Baikal

One step forward, another one back

IRKUTSK

Victories and problems in the quest to clean up the world's deepest lake

ON AN early winter morning, with temperatures below -20°C and a fierce wind whipping off the water, Vasily Sutula, the stern, moustachioed director of a nature reserve on the shores of Lake Baikal, happily surveyed a dozen young volunteers. The youngsters declared the day *dubak*, slang for a freeze deeper than the standard Russian word for cold, *kholod*, can convey. Yet they had come to work nonetheless. Coats zipped, they set off for the forest to clear dead trees.

The volunteers' presence is just one small sign of shifting tides in the battle for Baikal, which holds a fifth of the world's unfrozen fresh water. Environmentalists won a big victory with the closure in 2013 of the Baikal Pulp and Paper Mill (BPPM), a belching behemoth that had dirtied the waters for decades. Yet even as the pollution from the mill has waned, tourist flows have waxed, creating new pressures on an ecosystem that UNESCO warns is "under significant stress". Encouragingly, veteran activists note that environmental awareness has been steadily rising, especially among younger generations brought up to view the lake as a treasure to be protected. "First of all, we see that it concerns the kids now," says Mr Sutula, who has headed the reserve for nearly 20 years.

Signs of the shifting attitudes can be seen all along the lake. "When we started volunteering in 2009, few understood what it was and why we were doing it," says Natalia Tugutkhonova of the Great Baikal Trail, the group that organised the outing at the Baikalsky Reserve. Former BPPM employees now help make eco-friendly paper from algae. Even the local chapter of the Black Bears, a Russian bikers' club, has joined the green campaign, launching patrols along the lake against "piggishness".

Even where a defendant can be tracked down, proving responsibility for crimes that took place thousands of miles away is difficult. Some of those who should really be tried for war crimes wind up with a terrorism conviction instead. That happens both because authorities tend to be more worried about active terrorists than about war criminals, and also because it is easier to prove that someone joined a terrorist organisation than that he ordered or took part in torture. Only a handful of Syrian war-crimes cases, all involving small-time members of is or anti-government militias (some of whom are German citizens), have

To preserve the lake, environmentalists still have their work cut out. The number of tourists visiting Irkutsk Oblast, the main entry point to Baikal, has tripled in the past decade, from some 500,000 to over 1.5m last year. To serve the newcomers, hotels and campgrounds have "popped up like mushrooms after the rain", says Oleg Timoshkin, a biologist at the Russian Academy of Sciences in Irkutsk. Many lack systems to process the waste they generate, and so dump it into the lake.

Nature has also bristled at the influx of outsiders. Specialists reckon that human run-off contributed to the lake's latest crisis: the sudden and widespread appearance of a new form of algae, spirogyra. Hundreds of tons of the slimy stuff have been infecting the pristine waters and washing up in clumps on the shore. Researchers worry that it may have devastating effects on a delicate ecosystem that is home to over 3,500 plant and animal species. "No one knows where the limit is," says Sergei Shapkaev, a local ecologist. "No one knows what kind of immune system Baikal has."



so far made it to trial, though a further 30 or so may soon do so.

The witnesses and their lawyers hope that some bigwigs will eventually be caught. For now, they know their work is of largely symbolic value. One aim is to keep the issue in the public eye and to prepare the ground for future prosecutions by the ICC or a special tribunal, if geopolitics changes in a way that allows this, says Alexandra Lily Kather, a legal adviser at the ECCHR. Mr al-Bounni adds that he wants the torturers not to feel safe. "And we want to tell our friends who are still in prison that they shouldn't give up hope." ■

Charlemagne | A very European coup

Who runs the EU? The European Parliament thinks it has the answer



WHAT is the best way to enrage a European diplomat? (This is not an attempt at a joke.) You could suggest that his or her government pay more into the European Union budget, or accept a diktat from Brussels to take in more refugees. Urging a speedier cut in national budget deficits rankles in some countries; pressing for more defence spending irritates others. But this week, at least, the most reliable method for inducing puce-faced rage in the Brussels diplomatic corps has been to utter the word *Spitzenkandidaten*. It falls upon them like a curse.

This frightening-sounding German word translates as “top candidates”, and refers to a method of choosing the president of the European Commission, perhaps the most powerful job in the Brussels firmament. It works like this. Before the election to the European Parliament, the chamber’s political groupings—glomerations of national parties from across the EU—each nominates a candidate for the commission post. They agree that they will approve no one but one of those candidates, whichever can command a majority of the parliament’s seats. The system was applied, chaotically, for the first time in 2014. After a row with some national leaders—notably David Cameron, then Britain’s prime minister—the centre-right European People’s Party (EPP), which won most seats, engineered the commission job for its candidate, Jean-Claude Juncker. The parliament is now gunning to repeat this trick for next year’s European elections.

Why so controversial? For its advocates, this process eases the EU’s democratic deficit by bestowing on voters indirect power to select the commission president. European elections tend to centre on national concerns and fail to excite voters (turnout in 2014 was 43%). *Spitzenkandidaten* are a step towards turning them into something worthy of the name. For its detractors, including most European leaders, the whole business is an illegitimate power grab by the parliament that undermines elected governments and possibly breaks EU law. It also thins the ranks of candidates for the commission job, because sitting heads of government will not turn themselves into lame ducks by declaring an interest six months before the election.

Leaders point to the EU’s rule book, which gives them the right to propose candidates for the commission presidency to the parliament. That used to mean dealmaking between government

heads behind closed doors, ensuring that those national governments remained in charge of the Brussels machinery. But the parliament in turn notes that the rules give it the final power of approval. These tensions will play out when the EU’s 27 leaders (minus Britain) assemble for a summit in Brussels on February 23rd. They will have to decide whether they have the energy to take on the parliament next year over institutional arcana.

Why on earth does any of this matter? First, because it exacerbates the tensions between the commission’s two roles (it is a sort of hybrid between an executive and civil service). Mr Juncker likes to boast that his is a “political commission”. Germany, and others, see a glaring contradiction between this claim and the commission’s supposedly impartial role in policing budgets, the single market and state-aid rules. Neither Angela Merkel, Germany’s chancellor, nor Emmanuel Macron, the French president, likes the *Spitzenkandidaten* system (though Mrs Merkel accepts it). The commission renders itself impotent if it loses the trust of the EU’s two most important countries.

The campaign in 2014 was too hasty for genuine political differences to emerge between Mr Juncker and his main opponent, Martin Schulz, a German social democrat (and serial election-loser). But next year may well be livelier. What if a *Spitzenkandidaten* wins on a ticket of tearing up fiscal rules? Misgivings over the politicisation of the commission will have been heightened by Mr Juncker’s decision this week to appoint Martin Selmayr, his scheming chief of staff, as secretary-general of the commission: a powerful bureaucratic job for a divisive figure.

Macron v the blob

Mrs Merkel, whose Christian Democratic Union is the largest member of the EPP, does not seem up for the fight. But for Mr Macron the European Parliament’s parties are as ripe for disruption as the ones he blew up at home last year. The EPP, he notes acidly, is supposed to be the home of European Christian democracy yet finds space for heathens like Silvio Berlusconi and Viktor Orban. (You might make a similar case for the liberal ALDE group, which bundles Euro-federalists with deep sceptics while flirting with Italy’s anti-establishment Five Star Movement.) These groups, he believes, warp Europe’s political currents rather than channel them. By strengthening their grip on the EU’s machinery, *Spitzenkandidaten* undermine European democracy. Mr Macron has pointedly refused to align his La République en Marche party with any of the parliament’s groupings.

For some, these arguments are enough to ditch the whole idea and revert to the secretive methods of the past. But Mr Macron’s point is different. If you want genuinely European elections, he argues, go the whole hog. Draw up Europe-wide constituencies, so that voters in Portugal choose from the same slate of candidates as those in Lithuania. Candidates for the commission job could head those tickets, rather than being chosen in opaque fashion by meaningless political groupings.

Many will balk at such a radical reinvention. Mr Macron’s “transnational list” proposal was shot down by the European Parliament itself two weeks ago. But his ideas have the virtue of consistency. *Spitzenkandidaten* are a thin form of EU democracy, the margarine à la bruxelloise to Mr Macron’s full-fat European butter. Yet as in 2014, when the parliament’s manoeuvring caught governments napping, its very European coup stands little chance of being overturned next year. As one diplomat sighs, “We might end up having to accept it one way or the other.” ■



Options for Brexit

Norwegian lessons

BRUSSELS AND OSLO

Theresa May's government is firmly against the Norway model for Britain's trade with the European Union. Yet it offers many advantages, even for Brexiteers

THE dilemma is acute. In an unexpected referendum result, voters decide by the narrow but decisive margin of 52-48% against European Union membership. The government promises to honour the outcome. But the EU is the country's most important market, and most businesses are keen to have unimpeded access to it. How to square the circle?

This question faces Theresa May as she prepares to make a speech on Britain's desired post-Brexit trade relationship with the EU. But it also describes Norway in November 1994, when its voters rejected a plan to join the club. Unlike Britain, however, Norway had a fallback: the European Economic Area (EEA). It then included seven countries that were in the European Free Trade Association (EFTA) and not the EU, but still wanted to participate in the EU's single market.

That group shrank when Austria, Finland and Sweden chose to join the EU instead, and Swiss voters also rejected the EEA. It now comprises only Norway, Iceland and Liechtenstein—"a minnow and two tadpoles", one Eurocrat says. Yet almost 25 years on, Norwegians seem happy with the deal. Business is content. Polls find strong support for staying in the EEA against only 20% for joining the EU. Successive governments have agreed not to

reopen the European issue. To borrow a phrase from David Cameron, Mrs May's predecessor, the Norwegians have given up "banging on about Europe".

Many British Brexiteers were once also keen on the EEA option. It keeps the economic benefits of single-market membership, but dumps the political baggage of ever-closer union and a would-be superstate. Moreover, the EEA model for Britain is one the EU would be happy with. As far as Brussels is concerned, it works. Norway is treated as a friend—unlike Switzerland, which in place of the EEA has a laborious set of bilateral deals. The EU hates the Swiss set-up, because it is not dynamically updated to changed single-market rules and there is no agreed dispute-settlement mechanism. Diplomats in Brussels are clear that the Swiss model is not on offer to the British (many say it would not now be given to the Swiss). Besides, it excludes most financial services.

But most Brexiteers now agree with Mrs May in rejecting the EEA model. Although the government's own analysis shows that it would be the least costly form of Brexit, it crosses many "red lines" drawn by Mrs May. EEA members are rule-takers, not rule-makers, say Brexiteers; Norway is a "fax democracy", which receives its orders from Brussels. EEA membership, they say,

Also in this section

48 Customs controls

50 Bagehot: The divided kingdom

would be Brexit in name only, making Britain a vassal state. They argue that only a clean Brexit that abandons the single market, the customs union and the ECJ would be consistent with the June 2016 referendum result, which demands that Britain take back control of its laws, its borders and its money. Most Remainers are also against the EEA, as they prefer full EU membership (though Stephen Kinnock, a Labour MP, and Stephen Hammond, a Tory one, are actively promoting the Norwegian option). It is a compromise that by its nature is nobody's first choice.

In from the cold

Yet there is something odd about this. Norway is a thriving democracy; indeed, the Economist Intelligence Unit, our sister company, ranks it as the world's most democratic country. It is competitive and rich (a huge sovereign-wealth fund helps). If EEA membership were so awful, why would the country embrace it? That question suggests it is worth looking more closely at how the EEA works.

The concept of the EEA goes back to the European Commission presidency of Jacques Delors in the late 1980s (see timeline on next page). This was the moment when, under British inspiration, Europe's barrier-free single market was being ➤

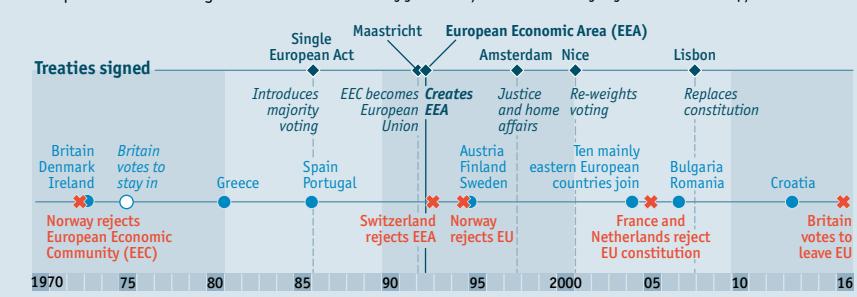
created. Mr Delors and his advisers quickly saw the advantage of extending the project to the club's biggest external market, the seven EFTA members. A former trade negotiator, Paal Frisvold, describes in a new book* the negotiations that then took place. As he explains, there was even a plan that the EFTA countries should be given a common decision-making role for single-market regulations, as well as the right to appoint judges to a new EEA court that would police the system.

In the event this last idea was quashed, because the ECJ vetoed the creation of a rival court. In Brussels the EEA soon came to be seen as a transitional arrangement, a waiting room for countries that had yet to persuade their voters to support EU membership. As the old adage has it, nothing endures so long as the provisional.

Critics say the EEA is a replica of the EU minus voting rights. Yet this misunderstands its institutional structure, which is more akin to a mirror. In place of the European Commission and the ECJ, the EEA has the EFTA surveillance authority and the EFTA court. There is a joint committee of

A European journey

European treaties and agreements ● Country joins EEC/EU ✕ Country rejects membership/leaves



EU and EEA countries, accompanied by regular summits and parliamentary meetings. Unlike the EU, though, the EEA is purely intergovernmental, not supranational. Decisions are taken unanimously, not by majority vote, giving the three non-EU members a theoretical right of veto over draft laws.

The EFTA court is not the same as the ECJ, either, even though it too is based in Luxembourg. It has three judges, one for

each EEA member. It is heavily influenced by ECJ judgments, but it is not obliged to follow them to the letter. It operates mainly in English, not French. Its rulings are advisory, not mandatory; they do not have direct effect and the court does not have the ECJ's powers to fine governments that do not comply. This is why the British government has talked favourably of the model of the EFTA court as a dispute-settlement mechanism after Brexit. Indeed, its outgoing (Swiss) president, Carl Baudenbacher, has openly pushed the idea that Britain should sign up to his court.

EEA members are obliged to accept the four freedoms of movement of the EU's single market, including the free movement of people. They are, however, outside the EU's much-criticised common agricultural policy (in fact they subsidise their farmers even more egregiously than the EU does), as well as its common fisheries policy. Nor are they bound by the EU's justice and home-affairs structure, though they largely choose to participate.

The EEA treaty also has a number of safeguards for members. Besides their theoretical veto rights, Articles 112 and 113 spell out that any EEA country may take emergency measures in response to serious economic, social or environmental difficulties. Liechtenstein has exercised this right to put in place controls on migration from EU countries, which the EU has accepted because it is a microstate. Yet Norway and Iceland have never tried to invoke these articles, seeing them as a nuclear option that would invite retaliation.

As for the charge that Norway is a rule-taker, in 2012 a report by an official committee chaired by Fredrik Sejersted, then an academic and now Norway's attorney-general, concluded that although the EEA worked well, it did raise concerns over the democratic control of its laws. But since most single-market decisions are taken by majority vote the same could be said of the EU, as Brexiteers have long argued.

Moreover, the real question is how much informal influence countries have. Ulf Sverdrup, director of the Norwegian Institute of International Affairs, a think-tank, says the EEA has created a "platform

Customs controls

He who pays the toll

SVINESUND

Norway's experience suggests it will be difficult to avoid a border in Ireland

THE most visible evidence of the European Union's single market is its dismantling of border controls. Norway is in the single market, except for some agriculture and fish. And unlike Britain and Ireland, it is in the Schengen passport-free travel area. Yet as it is not in the customs union, Norway has border controls and its exports must be checked to comply with EU rules of origin.

In December Theresa May promised to have no physical infrastructure or checks and controls on the border between Northern Ireland and the Irish Republic. Yet she wants to leave the single market and customs union. Brexiteers claim the Irish border can be kept invisible by smart technology, number-plate recognition and a system of authorised economic operators and trusted traders.

Such ideas draw hollow laughs from seasoned customs officers at Svinesund, on the border between Norway and Sweden. A high degree of sophistication and trust makes this one of the world's most porous frontiers. Most cars whizz through unchecked, with many heading for the region's largest supermarket in search of alcohol, cigarettes and sugary drinks, which are taxed more heavily in Norway than Sweden. In theory there is a limit to what they are allowed to bring back, but in practice it is tricky to enforce.

When it comes to lorries, though, controls are firmly in place. Norway's customs service, known as Toll, has expanded in the past two decades. The average lorry takes around four minutes to clear customs and few are pulled in for full inspection. But every one stops at Svinesund, which handles over 70% of all commercial traffic across this border. The mostly eastern European drivers, few of whom speak English, let alone Norwegian, then queue to have their papers checked. This summer a trial of an automated electronic system will begin in Orje, north of Svinesund, but even here most lorries will stop.

Kristen Hoiberg, the customs boss at Svinesund, says his officers rely on intelligence and instinct in deciding when to check vehicles. Svinesund usually has 100 confiscated cars in its car park; Mr Hoiberg says he destroys 500,000 litres of smuggled alcohol each year. He reckons it takes two years to train recruits, and ten before they know how best to spot drug-smugglers or frauds involving VAT refunds. Yet Britain is due to leave the EU in 13 months' time. And only 40 or so roads cross the Norway-Sweden border, compared with some 275 crossings in Northern Ireland. No wonder many think the promise to avoid any Irish border must mean a softer Brexit.

► of trust" that gives Norway more say than many people realise and has served as a route to fuller co-operation in many non-economic areas.

Its diplomatic mission to the EU in Brussels is by far Norway's largest. Its site is the closest of all to the European Commission's Berlaymont headquarters. Norwegian diplomats say they are fully involved in the early stages of drafting regulations in fields like energy, the environment or veterinary standards (veterinary and phytosanitary rules make up 40% of the single-market rules Norway adopts). This influence is more useful than the formal right to vote, which seldom happens on such technical matters. The commission even employs a few Norwegian officials. And Norway keeps tabs on laws passing through the Council of Ministers and the European Parliament, where it is not represented, by relying in part on Nordic solidarity.

This is not to say that Norway has no problems with the EU. Not being in the room when single-market laws are adopted can catch it out. It was forced to modify its rules for central-heating boilers because it was not consulted over an EU law. Its initial opposition to an EU directive to liberalise postal services almost led to a bust-up. There was even an argument over Norway's public ownership of the waterfalls that produce hydropower, but the Norwegians managed to keep that tradition.

Fish, which are increasingly important to Norway as its oil starts to run out, are another big problem. Norway and Iceland have been much better than the EU at managing fish stocks. But both must sell into the EU market. Brussels has at times blocked imports of Norwegian salmon on anti-dumping grounds, though Norway has then referred the dispute to the World Trade Organisation. In another case, Norwegian salmon was barred from using the EU's eco-labelling system, despite observing its standards, because the relevant directive had not been fully incorporated into EEA law. More significant for an industry that today relies mainly on fish farms is the EU's high tariff on processed fish, which means that much Norwegian fish is exported raw to Poland, which gains from the value added in processing.

Some Norwegian firms also fret because the country is not in a customs union with the EU. This means their exports must comply with the EU's rules of origin. It also requires Norway's border with the EU to be policed (see box on previous page). Being outside the customs union does, however, allow Norway and other EEA members to strike their own free-trade deals; EFTA has often proved nimbler at this than the EU. Individual countries can do the same. Iceland has a free-trade deal with China, as does non-EEA Switzerland.

Then there is the issue of paying into the EU budget. Norway hands over around

three-quarters of Britain's net contribution per person. Yet few payments go via the general EU budget. Some cash is tied to research or educational programmes like Horizon 2020 or Erasmus student exchanges. The rest goes to poorer countries in eastern Europe as "Norway grants", controlled from Oslo, not Brussels. In a rich and generous country, such payments are largely uncontroversial.

This bird hasn't flown

Could Britain join the EEA? Even more important, could it seek to modify it to satisfy some of the Brexiteers' goals?

These questions are tackled in a forthcoming book by two academics at Arena, a European institute at Oslo University.** Among Norwegian officials, however, the notion of Britain in the EEA is not popular, even if they would be reluctant to veto it. Norway worries about being pushed aside as top dog and about the risk of Britain upsetting the balance of the system.

A different option might be to construct a British version of the EEA. Given Britain's size and the broader nature of its economy, this might make sense. Any deal between Britain and the EU is likely to have bespoke elements of its own. And if there were a British version of EEA membership, it would be easier for both sides to tweak it.

One obvious tweak would add a deeper system of co-operation on foreign and security policies. As an active member of NATO that also has a border with Russia, Norway works closely with the EU on such issues as sanctions. But Britain is far more central to European security. Mrs May was surely right to call in her recent speech at

the Munich security conference for a comprehensive treaty that preserves as much as possible of Britain's present relationship with the EU in foreign policy and domestic security, and to demand institutional flexibility from Brussels to allow this.

A trickier option would be to try to return to the original Delors vision by giving Britain a more formal say in single-market laws. It would be hard to offer this to the British but deny it to other EEA members. But the relative weight of the British economy and its clout in such areas as financial services would make it odd to legislate without at least some prior consultation. Yet in areas ranging from chemicals and pharmaceuticals to food safety and agriculture, EU rules have become global ones that most businesses will wish to follow in any case.

Another idea might be to graft a customs union on to a British EEA deal. This has been called for by the biggest British business lobbies. It would make it easier to avoid a hard border in Ireland. But it would make it impossible for Britain to do free-trade deals in goods with third countries. The freedom to strike deals in services, however, would remain.

The most difficult issue of all is free movement of people. Some advocates of the Norway option argue that Articles 112 and 113 could be used to create an emergency brake that ends free movement, citing the example of Liechtenstein. Yet it is fanciful to expect the EU to let Britain stay in the single market but reject the principle of one of its four freedoms, not least because some other countries would surely ask for the same deal.

Britain in an EEA-type arrangement could, however, adopt various migration policies that others already have. These range from a registration system for EU nationals to restrictions on property sales to a policy of expelling those who cannot find jobs within six months. And in any event, the number of EU migrants into Britain, especially from central and eastern Europe, is already falling sharply.

A bespoke EEA deal for Britain should also be seen in the context of the changing nature of the EU. As the euro-zone core pursues deeper integration, even as some countries stand aside, the entire European project is evolving into a multi-speed, multi-tier creation. The three EEA members will no doubt stay in an outer tier that suits them. Had Britain voted to leave in its first referendum on Europe in 1975, it would surely have followed its fellow EFTA members into the EEA. It seems perverse now to reject the option out of hand. ■



Sunlit uplands

* "Towards Europe: the Story of a Reluctant Norway". By Paal Frisvold. Peter Lang, December 2017

** "Squaring the Circle on Brexit: Could the Norway Model Work?" By John Erik Fossum and Hans Peter Graver. Policy Press, forthcoming

Bagehot | The divided kingdom

Britain needs to work much harder on making a success of devolution



THE one thing that everybody agreed on after Britain's divisive vote to leave the European Union was that the country was far too centralised. Both Leavers and Remainers recognised that Brexit was partly a vote against London's dominance. Journalists, most of whom had thought Remain would win in a walk, confessed that they knew nothing about large chunks of their country. Theresa May promised to reach out to people who felt left behind. Editors ordered their minions to visit the provinces.

Today the problem of centralisation is worse than ever. Westminster and Whitehall are even more inward-looking. Mrs May's policies for helping the left-behind have not buttered a single parsnip. A few lonely journalists are continuing to make good on their promise to get out more. But most newspapers are more interested in the drama in Downing Street (and Brussels) than in the fate of the regions. One of the many paradoxes of Brexit is that a movement that was driven by frustration with London-centric politics has made politics even more London-centric.

Andy Burnham, who was elected Labour mayor of Greater Manchester in May 2017, when the government created six regional mayoralties, spends his life grappling with this paradox. He believes that Brexit was as much a revolt against Westminster as against Brussels. He also argues that devolution is the best way of making government more intelligent, as well as more accountable, because it shortens the feedback loop between problems and solutions. He is as well-equipped as anyone to negotiate between London and the regions, having held three national cabinet posts under Gordon Brown, including health secretary, and having served as Jeremy Corbyn's shadow home secretary. He also has deep roots in the north. He won his job with 63% of the vote, and likes nothing more than talking about his education at a Catholic comprehensive in Liverpool and his love of Everton football club. Yet even this amphibious creature, part professional northerner, part Westminster insider, is having trouble getting himself heard above the Brexit hubbub.

As mayor, Mr Burnham is advancing on three fronts. He acts as ambassador for his region and, indeed, for England's regions in general (this week he was in Brussels along with other English mayors to talk about Brexit). He co-ordinates activities that have historically been fragmented between competing local councils.

And he focuses resources and attention on a handful of defining issues: education, particularly skills; regional development, particularly transport; and homelessness. He is especially vocal about homelessness, donating 15% of his £110,000 (\$154,000) salary to homelessness charities.

One of the striking things about Mr Burnham's city is the number of billboards bearing the legend "End homelessness". Another striking thing is how many rough sleepers there are. Rough sleeping has actually got worse since Mr Burnham became mayor, rising by more than 20% over the past year, but it is not for lack of trying. Mr Burnham points out that homelessness is a national problem that is caused by a noxious combination of insecure jobs and insecure private rental accommodation. It has been rising across Britain. He also points out that homeless people naturally gravitate to cities. Manchester's problems can be seen in Brighton and London.

Mr Burnham is doing admirable work in co-ordinating the tangle of charities through his new Homelessness Action Network. He also recognises that the problem is driven by behavioural issues as well as housing shortages. Manchester is experimenting with halfway houses that not only provide rough sleepers with accommodation, but also help them put their lives back together by teaching them to stick to regular routines and connecting them with training programmes.

Advocates of devolution have always argued that it would be self-reinforcing—the more problems that mayors could solve, the more pressure they would be able to put on the central government to devolve more power. Mr Burnham has discovered that local problem-solving applies in a surprising area: terrorism. His mayorship has been defined more than anything by the bomb that went off in the Manchester Arena last May, murdering 22 people, 17 days after he was elected. The bomber had grown up in Manchester. Mr Burnham worries that Britain's national security agencies are overwhelmingly London-focused, when the roots of domestic terrorism are often local. The best way to deal with Manchester's problems is to tap local knowledge and design local solutions, he says.

Magnetic south

This is not to say that the new mayor is wholly negative about Conservative-run Westminster and Whitehall. He points out that Philip Hammond, the chancellor, earmarked money for northern transport in his most recent budget. He singles out Greg Clark, the business secretary, and Sajid Javid, the housing secretary, for praise. But he thinks that devolution is not delivering as much as it should. He criticises Justine Greening, the former education secretary, for acting as a "block on progress", particularly when it came to devolving control over adult education. He worries above all that Mrs May is incapable of telling a compelling story about the case for devolution.

That is an understatement. The problem is not just the story but the reality. The political class is still heavily concentrated in London. Jeremy Corbyn presides over the most London-centric Labour Party ever. Seven of the shadow cabinet represent seats in London, three of which border Mr Corbyn's own seat of Islington North. The Treasury hijacked devolution as a way of devolving responsibility for making cuts, while keeping the power to make policy. Mr Burnham complains: "There is no point in bringing power back from Brussels only to hand it over to London." So far, it looks as if that is exactly what is going to happen. ■



Lead poisoning

Painted into a corner

BALTIMORE AND NAIROBI

Rich countries are still dealing with the horrible legacy of lead paint. Poor ones are still making the stuff

ABOUT a year ago a letter from Baltimore's health department brought Michelle Burnside, a therapist who works with disabled children, dreadful news. The amount of lead in her three-year-old daughter's blood was 15 micrograms per decilitre ($\mu\text{g}/\text{dL}$), triple the level that prompts intervention. Tests then revealed lead all over the dilapidated house that Ms Burnside rented. It was in the paint peeling off the walls, the window frames and in the plumbing, too. Ms Burnside moved her family out. But she fears what the future may hold: one of her older children was poisoned at a similar age and now has a learning disability.

Half a million American children have "elevated" levels of lead (at least $5\mu\text{g}/\text{dL}$) in their blood. This cut-off is just a reference, a signal that a child is exposed to a source of lead that health authorities must then identify. Almost any amount is potentially harmful. Children come into contact with the metal in dust, soil and water. But in America and Europe most of the lead found in children comes from old paint.

In poorer parts of the world, the problem is newer. On Ngong Road in Nairobi, Kenya's bustling capital, the traffic is hemmed in by craftsmen building and selling furniture, plant pots, giant metal ani-

mals and children's climbing frames, in garish greens, reds and yellows. Perhaps a dozen small shopkeepers sell paint, varnish and hardware to the artisans, as well as to passing trade. None has any idea if the paint contains lead. "We don't know what is in it," says Lillian Njeri, who runs Kamwaka Hardware. "It is just paint."

It would be difficult for customers to find out. This year Kenya introduced regulation to reduce the amount of lead that manufacturers put in paint. And some began to get rid of the metal in advance, says Victoria Mukami of Crown Paints, the biggest supplier in the country. But there was no recall of previously made products, so it is likely that much of the paint on sale on Ngong Road still contains lead. A study last year by the Centre for Environment Justice and Development, a Kenyan charity, found that 33% of paint on sale in the country contained more than 10,000 parts per million lead, over 100 times the trace amount that is acceptable under the new regulations.

It has long been known that lead is poisonous. But until the middle of the 20th century it was thought to be harmful only if ingested in large quantities, and its usefulness was sufficiently alluring to overcome concerns. Lead is easy to extract from the ground, malleable and resistant to cor-

rosion—qualities that meant it was the material of choice for everything from municipal water pipes to jewellery to food tins. It made paints shiny and more durable, and their colours brighter. Leaded petrol, invented in the 1920s, gave oomph to car engines and made them quieter.

But this convenience came at a cost. In the 1970s eight in ten American children's blood contained at least double the "elevated" level of lead that now prompts the authorities to intervene. In 1980 the average Australian child contained similarly high amounts. By then, medical studies had made it clear that even smaller amounts could damage children.

Conspicuous consumption

The damage is now clearer still. An analysis of international studies published in 2005 found that a lead level of $10\mu\text{g}/\text{dL}$ in young children lowers their IQ by six points when measured a few years later, equivalent to missing more than a year of school. And the IQ loss is just the tip of the iceberg, says David Bellinger, an environmental health expert at Harvard University. A person exposed to lead as a child may be very intelligent, he says, but lack the ability to focus and plan.

Glimpsing this harm, Western countries began to ban lead paint in the 1950s and to restrict the amount of lead in petrol in the 1970s. By the late 1990s leaded petrol ►

► was phased out almost everywhere in the rich world. As a result, lead levels in children dropped precipitously.

Yet problems linger. High levels of lead in drinking water are a recurrent issue, often caused by disinfecting chemicals that corrode old plumbing. Spikes of lead in municipal water supplies—like in Flint, Michigan in 2014—therefore tend to be geographically concentrated. Problems with paint are more widespread. According to a national housing survey conducted in 2011, one in seven homes in America contains exposed lead paint. In a malicious twist, flakes of lead paint taste sweet, which makes them attractive to foraging toddlers.

To make matters worse, removing lead paint properly is hard work. On a sunny autumn day in Baltimore, a crew from Green and Healthy Homes Initiative, a charity, is doing just that. First they take out the windows, replacing them with non-lead ones, before stripping paint, cracked in the telltale alligator-skin pattern, from the porch, stairs and doorframes. All the workers have passed a special training course on dealing with lead paint, and they wear thick plastic bodysuits when removing it. Larry Brown, the softly-spoken crew chief, explains that the area around the house is covered with plastic sheets to contain the noxious lead dust.

It is an expensive process. Cleaning up a typical house costs around \$11,000. But this figure pales in comparison with the lifetime costs that accrue for a child poisoned by lead. These include spending on medical treatment, special education and, sometimes, crime due to the behavioural problems that can be caused by lead poisoning. They also include the cost of lost productivity. Pew Charitable Trusts, a charity, claims that each dollar invested in removing lead yields at least \$17 in savings.

In rich countries the problem largely afflicts the poor. As Ruth Ann Norton, president of the Green and Healthy Homes Initiative, drives through Penn North, a hardscrabble neighbourhood in Baltimore, she points out street after street where her charity has stripped lead from houses. But in poorer countries it comes with rising affluence. Sara Brosché from IPEN, a group of environmental health charities, notes that as people earn more, they begin to decorate their houses.

Unfortunately, they often do so with lead paint. Last year IPEN published a review of studies of paints sold in developing countries. In 35 of the 55 countries cov-

ered, most house paints contained lead. In 22 countries more than a quarter of paints had extremely high levels of the metal.

Most of the offending tins are sold legally, since few developing countries have banned manufacturers from putting lead in paint. On February 16th Kenya became only the fourth sub-Saharan African country to introduce a ban on doing so (joining South Africa, Cameroon and Tanzania). After a decade of prodding by campaigners, India passed similar legislation in 2016. Even if it may not be rigidly enforced, a ban ensures that people know about the problem, says Perry Gottesfeld of Occupational Knowledge International, an American lobby group.

But it does not solve it entirely. In Pakistan and Kenya the paints with the highest amount of lead in the IPEN studies were labelled “lead-free”. By and large, paint-makers in developing countries continue to use lead-based pigments, resins and other ingredients because they do not know the metal is harmful, says Mr Gottesfeld.

Thankfully, once people are made aware of lead's dangers, switching is straightforward. The same manufacturers that make lead paints also tend to make lead-free ones, which suggests they already have access to the necessary technology for the shift. And a report by IPEN published in 2014 notes that in many countries where lead paint is bought, comparable lead-free brands are often sold at a similar price, meaning switching to lead-free production should have little impact on costs.

There is also evidence that paint manufacturers are open to persuasion. Shajir Ahmed, head of Elite Paint, a firm in Bangladesh, says his company decided to remove lead from all its products after the health effects were discussed at a meeting of his local paint-makers' association. It took three years for Mr Ahmed's firm to

make the shift. Although a few of its products ended up costing a bit more, he says he is happy with the change. He takes pride in being the first paint company in Bangladesh to be certified as lead-free.

In several countries, including Bangladesh and the Philippines, lobbying by health charities has proved remarkably successful. They have teamed up with paint-manufacturers' associations to educate their members about the dangers posed by lead, and to organise workshops about how to switch to lead-free alternatives. Paint makers were willing converts to the cause, says Mr Gottesfeld. One of the most enthusiastic advocates for the introduction of a lead-paint ban in the Philippines was Boysen, the country's biggest paint firm, which began to remove lead long before regulation was introduced.

This union of paint manufacturers and charities has produced impressive results. The share of lead paints sold in the Philippines fell from 69% in 2015 to 24% in 2017. Charities say the success could be easily imitated in other developing countries, because a handful of big manufacturers tend to have a lion's share of the market. Boysen, for instance, reckons it sells 60-70% of all paint in the Philippines. Crown Paints has said it has 65% of the Kenyan market and 50% of that in Uganda.

A dash of colour

Sadly these are bright spots in an otherwise gloomy picture. In 2009, at a UN global health assembly, every country committed to phase out lead paint by 2020. Since then, only a dozen have introduced bans—bringing the total number of countries that have them to 68. For centuries, people have known about the damage lead does, yet still exposed others to it. Until that changes, the number of victims will continue to grow. ■



Chipping away at the problem

Foreign internship: We are seeking a summer intern to write about foreign affairs for *The Economist*. The internship will be London-based, will last for three months or more, and will pay £2,000 per month. Anyone is welcome to apply. Applicants should send an original unpublished article of up to 600 words on any issue in international politics or foreign affairs, a cv and a cover letter to foreignintern@economist.com. We are looking for originality, wit, crisp writing and clarity of thought. The deadline is April 3rd.



Social media

Facebook unfriended

SAN FRANCISCO

Russian meddling is only one challenge facing the social-networking giant

IN ITS early days Facebook embraced the motto “move fast and break things” to describe its engineers’ strategy of rapid innovation. “Move slowly, and try not to break anything else” seems to be its new creed. In the last year Facebook has contended with several controversies, including charges that it helped spread false news, unwittingly facilitated Russian meddling in the 2016 election and fanned political polarisation (see briefing). After denials of responsibility and little action, Mark Zuckerberg, its boss, has talked of “fixing” Facebook in 2018. It will be a huge task.

Russia’s alleged manipulation of Facebook users will harm the company. On February 16th special counsel Robert Mueller filed conspiracy and fraud charges against 13 Russians for interfering in America’s 2016 election; Facebook was mentioned no fewer than 35 times as a place where Russian trolls swayed Americans through targeted political advertising and curated posts.

The indictment is also evidence that Facebook was not transparent in reporting the extent of activities that occurred on its platform. Last autumn it said it had determined Russian content reached around 130m Americans, and that Russian trolls had spent a mere \$100,000 on ads during the 2016 election. Those figures seem too low. The Russian troll farm described in Mr Mueller’s indictment probably had an annual budget of around \$70m and would have spent heavily on Facebook ads and content. American politicians may press

the social-media firm for more information and also haul executives before Congress again to give testimony, especially as concerns mount about foreign interference in upcoming elections in 2018 and 2020—big distractions for a firm contending with several other significant challenges.

Controversies around Russian meddling, fake news and hateful speech on social media have not yet dented Facebook’s advertising revenues. But it seems likely that shrill and angry posts on the site, and bad press about social media, are playing a part in chilling usage of the core Facebook platform. Mr Zuckerberg’s approach to fixing it has been to tweak what posts users see, prioritising “meaningful interaction” over “meaningful content”, which has resulted in people seeing more of their friends’ updates and fewer news stories.

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But that does not go nearly far enough, says John Battelle of NewCo, a digital publisher.

Last month when Facebook reported earnings, it announced a decline in daily active users in America and Canada for the first time and estimated that, globally, users were spending around 50m fewer hours per day on Facebook. Such a drop translates into users worldwide spending around 15% less time on Facebook year over year, reckons Brian Wieser of Pivotal Research Group, an equity-research firm.

In America, Facebook is steadily losing users under the age of 25 (see chart). Youngsters are spending more time on other apps such as Snapchat, and Facebook-owned photo-sharing app Instagram, where their parents and grandparents are less likely to lurk. While Instagram and the two messaging apps that Facebook owns, Messenger and WhatsApp, help insulate the firm, “core” Facebook still accounts for at least 85% of the firm’s revenue. Americans and Canadians are by far its most valuable audience, with an average revenue per user of \$86, four times more than the global average. If users continue to engage less with Facebook’s core network, it could cause advertisers to leave over time.

Yet most analysts and investors are still exuberant about future prospects for Facebook, which with a market value of \$521bn is the world’s sixth biggest publicly traded firm. They may be underestimating some of the risks the firm faces. One challenge, which has been highlighted by the Russia controversy, is its sloppiness. For a company whose sales pitch to advertisers is that it offers precision, targeting and transparency superior to traditional media, including television, it is remarkable that it has struggled to track the movement of ad dollars and content on its properties.

Either its algorithms have become so complex and opaque that executives have failed to keep up with them, or they have deliberately chosen to “slow walk” their ➤

Also in this section

54 Corporate tax in America

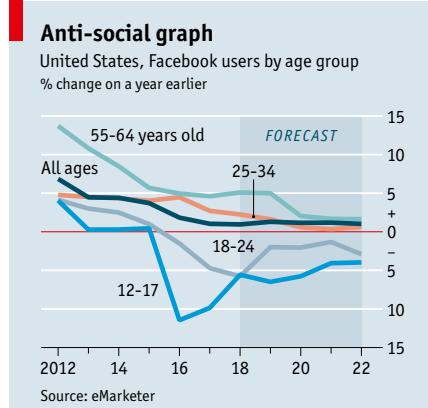
55 Europe’s flourishing gunmakers

55 Magnit and the Russian state

56 Merck and the pharma business

57 Foreign startups in China

58 Schumpeter: The Santander experiment



audit of foreign spending on Facebook. Neither explanation is flattering. The company this summer will introduce a feature to allow users to see who is behind a political ad and also to view every ad a particular buyer has purchased. But that is around nine months after it was proposed.

A second challenge is that Facebook's costs are growing significantly. In 2018 expenses are expected to rise by around half, to \$23bn, while gross revenue will grow by about a third, to \$54bn, according to BMO Capital Markets, an investment bank. Today Facebook has around 14,000 workers overseeing security, safety, compliance and community operations, twice as many as a year earlier, and that figure is likely to rise as more countries require it to find and remove objectionable content.

Facebook is banking that future growth will come from luring more advertising spending away from television, but this will require investment in video content to the tune of billions of dollars. Meanwhile growth rates for digital advertising are bound to slow. This is particularly true in America, where digital's share of total ad spending—which today stands at 44%—outstrips the percentage of time people spend on digital versus traditional media.

A third risk, and the biggest, is new regulation. Politicians have hardened their attitudes toward Facebook. It has swallowed up smaller rivals and has few friends among the political elite. Regulators could scuttle new deals, impose new restrictions on data-sharing between Facebook's various apps, or fine it for anticompetitive behaviour and privacy violations. This is especially likely in Europe, but even at home watchdogs may get fiercer.

In the meantime Facebook will have to grapple with regulations that limit its ability to track consumers. In May a new data privacy law, the General Data Protection Regulation, comes into effect in Europe requiring firms to gain explicit consent from users to follow them around the web and share their information. The regulation could slow growth in digital advertising in Europe overall. It could also threaten some of Facebook's ad products, such as a tool that lets advertisers find their own customers on the social network.

Facebook has faced adversity before. Many doubted if Mr Zuckerberg could even build a business early on, and then whether he could manage the transition from desktop computers to mobile phones. He proved the naysayers wrong.

These days analysts and investors appear to have suspended doubts about his company. Support from the market may offer reassurance. Facebook's shares have fallen by only 8% from their peak at the start of February. But too many cheerleaders will not help it confront its biggest challenge, that of reinventing its core product, and repairing its reputation. ■

Corporate tax in America

The devilish detail

Tax reform is benefiting domestically focused firms most

IT'S always a lot of fun when you win," President Donald Trump enthused after his tax package was approved by Congress in December. Company bosses nodded along. The centrepiece of the reform is a drastic cut to the corporate-tax rate, from 35% to 21%, taking it below the rich-country average. Although its impact is partly offset by some revenue-raising measures, the congressional Joint Committee on Taxation estimates that American business will gain around \$330bn from the reform over the next ten years. Yet within that are sizeable variations in terms of which firms and industries benefit most.

The biggest winners are more domestically oriented companies. These typically face higher effective tax rates than American companies with a big presence overseas, which do business in lower-tax countries. Bosses are also evaluating other new measures. So-called "full expensing", for example, helps those with big spending plans by allowing them to deduct investment costs up front. But using debt will become less attractive, as interest payments are no longer fully deductible.

Some firms experienced high volatility in their earnings for the final quarter of 2017 thanks to the treatment of so-called "deferred tax assets". These are past tax losses carried forward to set against future tax bills, and such assets have shrunk in value because of the lower corporate-tax rate. Other firms that hold deferred liabilities enjoyed big one-off gains.

Of the 150 S&P-listed companies that have so far released estimates of their effective tax rate for 2018, telecoms and consumer-focused companies (which often have a big American presence) expect to have gained the most, says Ramaswamy Variankaval of J.P. Morgan, an investment bank (see chart). AT&T, a telecoms giant, predicts a rise in cashflow of \$3bn in 2018, or nearly a fifth of cashflow last year.

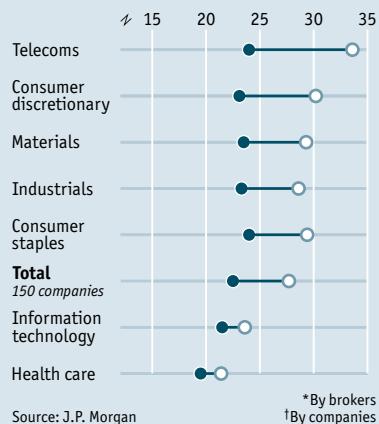
Multinational firms do benefit from a lower American headline tax rate. They will also pay a much lower tax rate, of 15.5%, on foreign cash that is repatriated. Yet while they were previously taxed only when the money was brought home, now they must cough up and pay tax on all of their \$3tn stockpile of foreign cash over an eight-year period.

Other changes to the treatment of foreign income are more controversial. The new "base-erosion anti-abuse tax", or BEAT, applies to all big firms operating in

Big winners and little winners

United States, effective 2018 corporate-tax rate, %

Estimates in: Nov 2017* Jan/Feb 2018†



Source: J.P. Morgan

*By brokers

†By companies

America and targets cross-border payments to foreign affiliates, such as royalties on intellectual property. Firms must now add such services back into their American corporate earnings, and pay a 10% tax (after 2018, until when a 5% rate applies) on this broader base—if it exceeds the standard calculation of 21% on a narrower base. Another new tax charge applies only to American firms that have "global intangible low-taxed income" or GILTI—returns on intangible assets, such as patents or software, parked abroad.

Both BEAT and GILTI were intended to prevent companies from dodging tax by stashing intellectual property and other intangibles in tax havens, notes Jennifer Blouin, from the University of Pennsylvania. But, as drawn up, they are much broader, she says, and could capture all foreign affiliates, even if they already pay high tax rates, such as those in Germany. That has irked some European firms.

With bureaucrats still transcribing the hastily drafted legislation into rules for business, firms cannot yet be sure of their total impact. But many technology and pharmaceutical companies, even though together they hold the most cash abroad, anticipate slightly lower tax rates as a result of the reforms, says Mr Variankaval. Even Apple, which booked a \$38bn tax payment on its \$250bn mountain of foreign cash (it has yet actually to pay it), expects a net benefit. In contrast, some other firms, such as IBM and General Electric, expect slightly higher tax rates in 2018 than they paid last year, as the wider tax base offsets the lower headline rate.

Unsurprisingly, the reforms appear to negate the benefits of "inversion", or setting up abroad for tax purposes. Valeant and Allergan, both drugmakers domiciled abroad, expect higher tax rates. It is too early to tell, though, if the tax changes will succeed in shifting supply chains and intangible assets back to America. ►

Europe's flourishing gunmakers

Trigger happy

PARIS

Firms in Europe prosper from Americans' love of firearms

IT WAS a blunder by Heckler & Koch, a big German gunmaker. On February 15th the firm apologised for a "mistake" after its American subsidiary posted a Valentine's image showing a handgun surrounded by ammunition arranged in the shape of a heart. The image went out to social media shortly after a deadly school shooting in Florida.

The post was also a reminder that although Europeans often criticise lax firearm-ownership laws across the Atlantic, the region's firms are increasingly present in America's market for small arms—defined as revolvers, pistols, rifles and shotguns. Americans buy far more such weapons than any other nationality and their appetites have been growing steadily. This year they are likely to buy 14.5m such firearms, notes Jurgen Brauer of Small Arms Analytics, a consultancy. Europeans have proved adept at grabbing a sizeable portion of all this.

Foreign firms' share of American firearms sales rose from 10% in 1980 to a peak of 45% in 2007, before dropping to 33% in 2016. The lion's share of these

came from Europe, which accounted for three-quarters of the 3.7m imported handguns in 2016, for example. Austria alone, home to Glock, exported 1.3m handguns to America.

European firms are also producing more small arms inside America. Beretta, of Italy, relies on American sales for over half of its revenues. It opened a factory at Gallatin, Tennessee, in 2016. Sig Sauer, a big Swiss-German firm, has produced weapons in America since 1990 and opened a big factory in New Hampshire in 2014. Glock, which supplies two-thirds of American police forces, has a production site in Georgia. FN Herstal, a Belgian maker of small arms mostly for military and sporting use, is owned by Wallonia's government and has operations in South Carolina. As well as making rifles it is lifting output of pistols for civilians.

Some European companies appear to be as keen as American rivals to lobby lawmakers on gun-ownership regulation. Glock said it gave over \$100,000 in 2016 to branches of the National Rifle Association (NRA). The NRA has acknowledged the Beretta family as a high-ranking donor for giving more than \$1m over the years, granting them the title of "ring of freedom".

America's acceptance of foreign gun brands is well-established. Mr Brauer notes that Sig Sauer accounted for 12.3% of pistol sales in 2016, and Glock 7.8%; respectively they are the third- and fourth-biggest sellers of pistols. What explains Europe's success? It has technically capable firms with long histories and skilled workers. Glock innovated with its early use of polymers to make lighter handguns. It and Sig Sauer entered America's civilian market after first supplying police and armed forces there. As in the luxury industry, European guns are sold on their excellent design and quality. Then there is their lethal force.



Beretta hits its sales target

► It is also too early to gauge how the winners will spend their gains. According to Americans for Tax Reform, a lobbying group, 377 companies have announced pay awards linked to the tax reform, including AT&T and American Airlines. Most are bonuses that amount to a small part of the total gains, leading sceptics to attribute the announcements to clever public relations. A few firms have gone further, announcing permanent wage increases or new investment projects. But these were probably in the pipeline anyway, given im-

proving demand, says Matt Gardner, from the Institute on Taxation and Economic Policy, a think-tank.

That said, most analysts do expect the lower corporate-tax rate to make investing in America more attractive in the longer term. But if the past is any guide, argues Ms Blouin, repatriated earnings will mostly be returned to shareholders. Last week Cisco, a tech company, said that was precisely what it would do with most of the \$67bn it was bringing home. Like Mr Trump, investors, too, are in for some fun. ■



Magnit and retailing

Last checkout

MOSCOW

One of Russia's most successful private entrepreneurs sells to the state

IN THE Russian business community Sergei Galitsky served as a rare example of a self-made billionaire who rose with relatively little state help and outside the natural-resources trade. He built his retail company, Magnit, from scratch into Russia's largest network; it has more than 16,000 stores. Rather than moving to Moscow, he kept his headquarters in his hometown of Krasnodar, where he also founded a football club. On February 16th he made a telling exit, announcing he would sell nearly all of his shares in Magnit—29.1%—to VTB, a state bank.

That Mr Galitsky (pictured, above) decided to sell is the result of a tough business cycle and some strategic mistakes. More remarkable is that he found a buyer not on the domestic private markets, or from among foreign investors. Selling to a public-sector bank reflects the growing role of the state in the Russian economy. Russia's federal anti-monopoly service puts its share at 70%. Yet the retail sector had largely been insulated from the trend. Now the Magnit deal could become "a landmark for Putinomics", wrote Tatiana Stanovaya of Moscow's Center of Political Technologies this week, marking the expansion of the state into a sphere where private competitors had reigned. Businessmen make mistakes, she noted, "but in market conditions this doesn't automatically lead to the sale of assets to state structures".

Mr Galitsky got his start selling household chemicals and cosmetics in the mid-1990s before expanding into groceries and retail. Magnit kept prices low, focusing on working-class customers, and ventured into far-flung towns and small cities that ►

► large retailers typically avoided because of the complex logistics involved. The strategy paid off. Magnit is Russia's largest retail network in terms of stores. The Boston Consulting Group said that between 2009 and 2013 it created the most value of any retail network globally.

Yet recent years have been rough for Magnit. Russia's recession in 2014-16 hit consumers hard. Though the economy returned to modest growth in 2017, Magnit's profits fell by over one-third. x5 Retail Group, its main competitor, has overtaken it in terms of revenue. Magnit's share price had been plunging, and the company will not pay dividends this year. Mr Galitsky says his vision began clashing with investors' wishes. "If investors want changes, they should get them," he said.

Pending anti-monopoly approval, VTB will pay 138bn roubles (\$2.4bn), a 4% discount at the time of purchase. Investors took the news glumly; on the day of the announcement Magnit's shares fell by 10% in London, and nearly 8% in Moscow. Many worry that VTB lacks the expertise and attention to manage Magnit's complex retail

business effectively. Western sanctions on VTB add another set of risks. In addition, by buying a stake of less than 30%, VTB avoided a legal obligation to offer buyouts to minority shareholders. "It's a slap in the face to all investors," Aleksei Krivoshapko of Prosperity Capital Management, a minority stakeholder, told *Vedomosti*, a Russian business daily.

For VTB, Magnit offers an attractive equity-investment opportunity. It aims to spend several years rebuilding Magnit before reselling its stake. "We're not going to stay in the asset forever," said Andrei Kosatin, the bank's chief executive. VTB also announced a partnership to merge Magnit's transport and logistics operations with the Russian postal service.

The sale means the end of an era for Mr Galitsky, though it may be for the good. "When you're under constant stress, sometimes you think a nightmare ending would be better than a nightmare without end," he told a business school in 2016. He will exit as chief executive and resign his board seat, keeping only 3% of the firm. He will give his new free time to youth football. ■

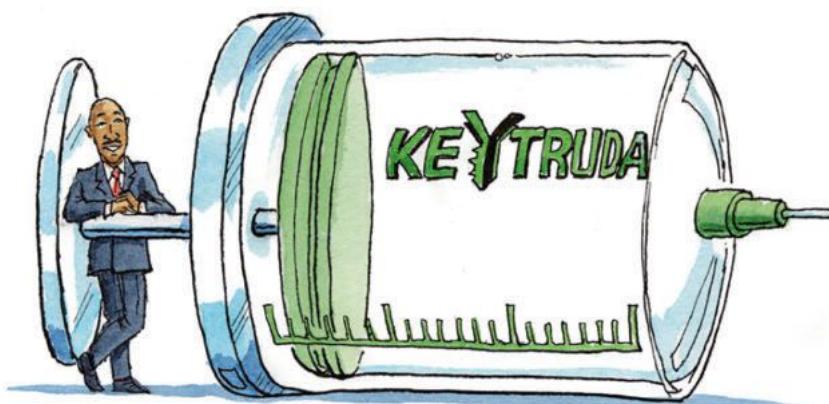
tol-Myers Squibb (BMS), was having success in trials of immuno-oncology drugs, and it fired the starting gun on the drug MK-3475, as it was then known. Using an innovative trial design, the firm pushed the drug through testing as quickly as possible. It won status as a breakthrough drug worthy of speedier approval from the regulator in 2013. By 2014 Keytruda (pembrolizumab) had reached the market to treat advanced melanoma, beating BMS's rival drug, Opdivo (nivolumab), by months. It sold well, reaching \$1bn in cumulative sales by the second quarter of 2016.

The real commercial prize, however, was lung cancer, from which the industry makes a lot of money. Here Merck made another crucial decision, which was to use a "biomarker", a way of choosing the patients most likely physically to respond well, which increases the likelihood of a successful trial outcome. The downside of the approach is that, once approved, a drug can only be given to patients who have that marker—which will crimp sales.

That problem became clear as Merck and BMS chased a series of approvals for their drugs to be used in lung cancers—initially as a second treatment choice and then as a primary treatment. The limitation resulting from Keytruda's need to test for a biomarker helped Opdivo outsell it. But a turnaround came when Keytruda showed in mid-2016 that it was effective in trials that used it as a first treatment on a common type of lung cancer. Meanwhile, Opdivo, not using a biomarker and tested on a broader population of patients, failed (the lack of a biomarker made it harder to show that it improved survival rates).

In 2017 Keytruda's sales almost tripled and surpassed \$3.8bn. In the most recent quarter its sales nearly caught up with those of Opdivo. Merck's fortunes now rely heavily on its wonder drug. Vamil Divan, an analyst at Credit Suisse, a bank, predicts that Keytruda sales will be about \$10.7bn in 2030—not bad for a firm with annual revenues of \$40bn. But the caveat is that this estimate lies in the middle of a whopping \$4bn range of possible outcomes. The firm also does well in vaccines, making \$6.5bn last year, and has a robust animal-health division. Yet sales of its cholesterol drugs, Zetia and Vytorin, have plunged thanks to competition from generics, while two lucrative diabetes medicines Januvia and Janumet, are likely to be threatened by newer medicines.

Keytruda has new competition. Firms such as Roche and AstraZeneca are also rushing to deliver their own versions of immuno-oncology agents. Moreover Merck's keen focus on oncology, and on one drug in particular, makes analysts worry that the firm is not sufficiently diversified. Yet it is pushing on regardless. Last year it agreed to pay AstraZeneca, a British pharma firm, up to \$8.5bn to develop and ►



The pharma business

Making Merck work

A pharmaceutical company bets big on a cancer drug

WHEN Ken Frazier, chief executive of Merck, an American pharmaceutical giant, started his job in 2011, he had a hard decision to make. The firm had promising new drugs—such as Januvia, for diabetes, and Gardasil, a vaccine against cervical cancer. But the pharma industry was struggling with dismal returns on R&D and investors were questioning if companies were overspending on science. Some surrendered and started buying in drugs instead. But Mr Frazier opted to carry on backing his labs and promised publicly to

spend on R&D for the long term, not for the stockmarket's immediate gratification.

An opportunity to implement the pledge soon arrived. Merck's merger with another pharma firm, Schering-Plough, in 2009, had brought it an obscure new cancer drug. At first Merck's scientists were unimpressed and relegated the drug to a list of assets to be licensed out. There was widespread scepticism at the time about whether drugs that attacked cancer using the immune system would work.

Then the firm noticed that a rival, Bris-

► commercialise its cancer drug Lynparza (olaparib), which seems likely to work well alongside Keytruda. It also acquired an immuno-oncology biotech firm, Rigontec, in September for \$554m. The company says it is creating "a pipeline within a product", arguing that it is diversified but in many different types of cancer.

Merck's confidence recalls the period when it was one of the most admired firms in America; the Apple or the Amazon of its day. Its innovation in cholesterol-lowering drugs and HIV medicines in the 1990s gave it a reputation as a company that made society, as well as people, better.

After the millennium it took a series of blows. In addition to patent expiries came the news that its drug Vioxx, used to treat osteoarthritis, also increased the risk of cardiovascular disease. These left it risk-averse for years. But under Mr Frazier, Merck appears to have regained its focus. Fighting cancer makes historic sense. Rising cancer rates, after all, are partly the result of lifespans extended by its earlier generations of blockbuster drugs. ■

Foreign startups in China

Go east, young founder

CHENGDU

Chinese cities are competing with each other to woo overseas entrepreneurs

WHEN Maria Veikhman, founder of SCORISTA, a Russian credit-scoring startup, was considering expansion abroad, China immediately came to mind. She believes the scope there is vast, for two-fifths of Chinese have no credit records. Ms Veikhman settled in Tianfu Software Park, a state-owned incubator in Chengdu, capital of Sichuan province where city authorities "offer almost everything for free". Complementary facilities range from office space, basic furniture and logistics services to detailed guidance on entrepreneurial methods.

Chengdu aims to catch up with Beijing, Shanghai, and Shenzhen, which at present are in a different entrepreneurial league—together they have over a hundred unicorns, or private startups worth over \$1bn. The south-western city allocated 200m yuan (\$30m) in 2016 to an innovation-and-startup fund for overseas founders, and hands out up to 1m yuan in cash to well-capitalised foreign startups and joint ventures. If the founders are "top international talents", such as Nobel laureates, the incentive soars to 100m yuan. Last March Chengdu's Hi-Tech Zone opened an office to provide startup services for expats, including corporate registrations. Some 3,000 foreigners now work there, many

operating their own businesses.

Other cities are making similar moves. Beijing and Zhejiang have opened well-funded centres for overseas entrepreneurs. The authorities may be particularly keen on attracting venturesome "sea turtles", meaning foreign-educated or foreign-born Chinese, but they help non-ethnic Chinese too. Shanghai and Wuhan, the capital of Hubei province, are planning new facilities for winners of international startup competitions held in China. In at least ten provinces, new immigration policies are easing the visa process. Foreigners graduating from Chinese universities can apply for two- to five-year residence permits marked "startup". If they meet certain criteria, expatriates working for young firms can apply for permanent residence. In Zhongguancun, a tech hub in Beijing, 353 expatriates have been issued with "green cards" since 2016. A state-owned incubator there, Zhongguancun Inno Way, in 2017 incubated 878 startups; 121 of them were founded by foreigners or by sea turtles.

Three big hurdles still stand in the way of foreign entrepreneurs. Despite cities' efforts to smooth immigration, for many founders visas are still hard to come by. Ms Veikhman has been refused a visa for months with little explanation, and has to shuttle between Moscow and Chengdu each month. Tight internet control also cuts the efficiency of starting a business. Overseas entrepreneurs must work hard to adapt to the internet environment inside the "great firewall" where Google, Twitter and many other services are blocked.

Notwithstanding the cash on offer from Chengdu and other cities, raising proper finance also remains problematic. Capital controls make it difficult for venture-capital firms that use yuan to invest in foreign entities; they usually have to enter a joint venture with a Chinese citizen. Local investors tend to prefer backing fully Chinese enterprises.

Yet the country's other attractions are

potent. "Even a niche market in China is a huge one," says Greig Charlton, a former British banker who has run 247tickets.com, a ticket-purchase website, in Shanghai since 2014. Thanks to the promise of online ticket-booking in China, a relatively inexperienced entrepreneur like Mr Charlton has the opportunity to work with some of the world's biggest concert-promoters.

A deep pool of talent is another lure—the reason why, for example, App Annie, a market data and insights provider co-founded by a group of European entrepreneurs in Beijing, maintained its R&D centre in Beijing even after it shifted its headquarters to San Francisco. When Stuart Oda, a Japanese entrepreneur, co-founded Alesca Life, a Beijing-based agricultural-technology company, he found young Chinese executives far more willing to take a risk with a startup than Japanese ones were.

Low labour costs as well as preferential land and taxation policies also help startups. In the internet realm prominent examples of those founded by foreigners in China are Qunar.com, a popular travel portal, and Tudou.com, which merged with Youku, another startup, in 2012 to become China's biggest video-streaming platform. Qunar.com was co-founded by Fritz Demopoulos, an American. A Dutch serial entrepreneur, Marc van der Chijs, co-founded Tudou.com.

What explains the warmth towards overseas entrepreneurs? Lin Tao, a senior official of Chengdu's hi-tech zone, gives a simple answer. Chengdu wants to turn itself into a cosmopolitan city like New York and London by 2025, and "the gathering of global talents is a precondition", he says. Another entrepreneurial type, Steven Tong, chief executive of Startupbootcamp China, cites the government's desire to develop cutting-edge technologies. It also wants to promote a favourable view of China, he notes, and that is far easier to achieve with startups than with established multinational companies. ■



The coffee's on us

Schumpeter | The Santander experiment

Europe's banking champion took a unique approach to globalisation. Has it been vindicated?



TAKING a business onto the global stage is hard. Doing it with banks can be suicidal owing to their complexity and leverage. For over 100 years an assortment of adventurers and visionaries have almost always tried one of two approaches. Either they spread firms thinly over scores of countries and focus on servicing big companies and facilitating trade. This is the way of Citigroup and HSBC, and the path that China's big lenders are racing down. Or they focus on investment banking from hubs; think of JPMorgan Chase or Deutsche Bank in New York, Hong Kong and London. Both blueprints have often resulted in buckets of tears.

In the 1990s a "third way" emerged from provincial Spain; creating a global retail bank with a deep presence in many countries, allowing true economies of scale. The pioneer was Santander, a middle-weight bank from the Bay of Biscay. Today it is the king of the euro zone: the bloc's largest lender by market value, with 133m clients, mainly in Brazil, Britain, Mexico and Spain. Its lofty position in Europe's league table demonstrates that its approach has, on balance, worked.

Santander is run by Ana Botín, an optimistic character who took over from her father, Emilio, on his death in 2014 (the Botín family no longer has a significant stake in the bank but its reputation helped her win the top job). He had used guile and charm to expand by means of acquisitions worth \$80bn in total, first in Spain, then across Latin America and in Britain, where it bought Abbey in 2004. As the financial crisis struck in 2007 Santander seemed well-positioned to weather it. It did not run a big investment bank and had just made an opportunistic acquisition of ABN AMRO's arm in Brazil, giving it heft there for the first time.

But the past decade has turned into the banking equivalent for Santander of the Japanese game show "Endurance", in which contestants face an incredible sequence of tortures. Spain's property crisis created a mountain of bad loans which peaked only in 2014. Brazil's economy shrank in 2015 and 2016, and, although it has stabilised, the country faces a rumbling political crisis. In 2016 Britain voted for Brexit and its currency plunged. Now Mexico faces an uncertain future with the renegotiation of NAFTA. In total these four economies account for 79% of Santander's profits.

The pessimistic way of thinking about this is to look at the bill. Since 2008 Santander has recorded a cumulative \$139bn of bad-

debt charges, more than any bank except Citi and Bank of America (which were bailed out) and double the sum at ICBC, the biggest bank in China, the economy with the most dud loans. On top of that, slumping currencies have wiped out a fifth of profits.

A more charitable view is that despite all this Santander never made a quarterly loss. Because it mainly lends to individuals and small firms, often in countries with high real interest rates, it charges borrowers more. Its loan book has yielded an average 8% in the past decade, compared with 6% for 15 big global peers. It is run efficiently and has not faced huge fines or sudden trading losses. As a result its cumulative operating profits (before the bad-debt charges) were \$261bn over the past decade: another staggering sum, higher than those of any bank other than JPMorgan Chase and Wells Fargo, America's two mightiest. Gigantic operating profits have allowed the bank to absorb massive losses.

Survival is a low bar, though. Has Santander rewarded its shareholders? Its shares have outperformed the European industry, but so what? Its return on equity (ROE) is a soggy 7%, reflecting \$32bn of goodwill from all the acquisitions. It is hardly a superb performance. Still, the bank's shares trade in line with its book value, suggesting returns will improve. And in a parallel universe, had Santander stayed at home in Spain, it would have done far worse given that its profits there sank by 77% from peak to trough.

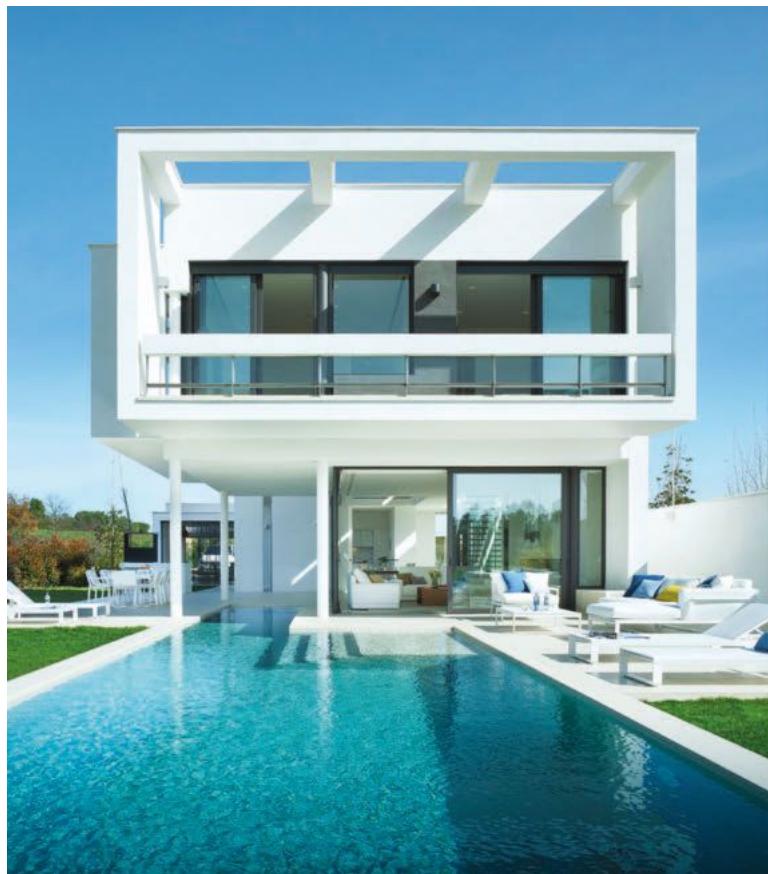
For Ms Botín, this is mostly water under the bridge. What matters now is demonstrating it still makes sense to run a geographical conglomerate. Here the signs are better. Excluding goodwill, return on tangible equity (ROTE) is already a passable 10%. And Santander does seem to outperform its local peers. Schumpeter has constructed a "synthetic twin" of the bank, based on the combined performance of the local banks in its markets, weighted by Santander's geographic mix. Its ROTE is an inferior 8.5%.

Since taking charge Ms Botín has built up capital, brought bad debts under control in Brazil and done several midsized deals to boost the bank's position in various markets—in June it bought Popular, a troubled midsized Iberian lender. But her big idea has been to focus more on organic growth. Only 13% of the bank's customers use it as their main bank; by lifting this figure Santander would earn more fees. In Brazil and Mexico roughly 60% of the population still do not have bank accounts, an opportunity.

Technology is key on both fronts. In Spain Santander is ramping up a digital sister bank called Openbank, with mobile products and its back-office in the cloud. In Brazil and Mexico it has launched Superdigital, a mobile-payments service for the unbanked. This drive to create a large, loyal, cross-border digital customer base mirrors what big emerging-market fintech companies, such as Ant Financial in Asia, are doing. The prize is higher market share and lower costs. If technology can be used to improve underwriting, it could lower bad debts, too.

133m reasons to do better

It is unlikely that another global mega-bank will be built using Santander's "third way". Most countries have got nervous about foreigners buying their big lenders. Yet Santander's unique legacy means it remains one of banking's most interesting experiments. It straddles the rich world and the emerging world, where many digital innovations happen. It has no big investment bank to distract it. And it has the most customers of any bank outside China and India (Citi is next, with 110m). Could Santander become the first global bank to earn a high ROE because it actually has better products? The industry has been waiting for over 100 years. ■



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OPEC and Russia

A bigger gig

Led by Saudi Arabia, OPEC mulls a long-term alliance with Russia to keep oil prices stable

OIL bears beware. On February 20th Suhail al-Mazrouei, OPEC's rotating president and energy minister of the United Arab Emirates, said the 14-member producers' group is working on a plan for a formal alliance with ten other petrostates, including Russia, aimed at propping up oil prices for the foreseeable future. If it comes to anything, it could be OPEC's most ambitious venture in decades.

The result will not be, he insists, a "supergroup". The notion of Saudi Arabia and Russia joining forces as the Traveling Wilburys of the oil world may be a bit jarring. It remains an idea in "draft" form. But whatever its chances, it attempts to shift a belief widely held by participants in oil markets: that non-American oil producers are helpless against the shale revolution.

That belief has strengthened because of a renewed flood of American shale production in the latter part of 2017 after prices of West Texas Intermediate climbed above \$50 a barrel. The International Energy Agency (IEA), the industry's forecaster-in-chief, says America could overtake the two biggest producers, Russia and Saudi Arabia, this year. Such countries, it added, faced the "sobering thought" that America's rise to the super league was reminiscent of the first wave of shale growth that ended with an oil-price crash in 2014.

The shale resurgence comes at a delicate time for OPEC, Russia and the rest. It is

largely their actions that have pushed up prices. In 14 months they have come close to their goal of curtailing oil production in order to return the oversupply of global crude to its more manageable five-year average (see chart). They still have about 74m barrels to go. As yet, Mr Mazrouei says, there is no "exit strategy" for when the agreement is reviewed in June.

Fareed Mohamedi, chief economist at Rapidan Energy Group, an American consultancy, likens their task to central bankers unwinding ultra-easy monetary policy. They risk spooking the markets if they send the wrong signal. So the proposal of a pact lasting into the foreseeable future is a way to reassure the market that the grown-

ups will continue to regulate supply. "They're saying, 'Daddy is back.'"

A shift is under way in relations between Saudi Arabia and Russia, the two leaders of the OPEC/non-OPEC cabal. They appear to have set aside a mistrust, bordering on enmity, that was exacerbated by their support for opposing sides in the Syrian civil war. "The Russia-Saudi relationship is real. 'Put a ring on it', to quote Beyoncé," says Helima Croft, an oil analyst at RBC Capital Markets. She says both countries need high prices to soothe tensions at home.

Since King Salman of Saudi Arabia visited Moscow for the first time in October, the two countries' oil ministers have frequently popped over to each other's capitals. Mr Mohamedi says Muhammad bin Salman, the Saudi crown prince, needs oil at \$70-80 a barrel to keep the economy steady as he enacts reforms, in particular the partial privatisation of Saudi Aramco, the state oil company. He believes Russia can help with that. Vladimir Putin, Russia's president, who faces elections in March, sees eye-to-eye with Prince Muhammad.

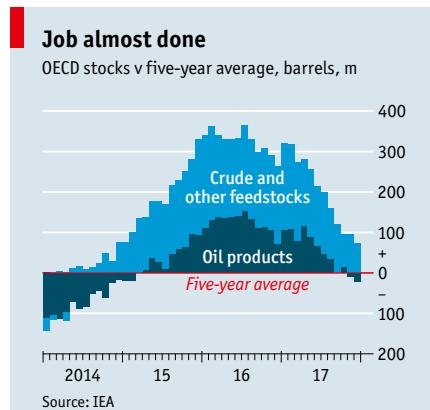
Furthermore, the two countries are discussing unprecedented investments in each other's oil industries. A Russian sovereign wealth fund is considering buying shares in the Aramco listing. Aramco is mulling a stake in a vast liquefied-natural-gas project in the Russian Arctic.

The possibility of long-term co-operation between the two countries to support oil prices also has a defensive logic. Not only is rising American oil production a threat, but in the coming decades demand for oil is expected to wane as it is replaced by cleaner sources of energy. This could cause a race to the bottom as big producers try to sell their oil before it becomes worthless. Restraining production is a way to ➤

Also in this section

- 61 Buttonwood: Long-term returns
- 62 Metal-import bashing in America
- 62 HSBC changes the guard
- 63 Continuity at the Bank of Japan
- 64 Bribery and corruption in Latvia
- 64 Religion and poverty
- 65 Switzerland goes crypto
- 66 Free exchange: Moral hazard

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▶ postpone such feral competition, at least until Russia and Saudi Arabia can wean their economies off oil.

But the perils of such a strategy may outweigh its benefits. If it works, and prices rise sharply above \$70 a barrel, it will flush out yet more production in America and other big producing countries such as Brazil, as happened before 2014. That would reinforce what the IEA calls the risk of history repeating itself. So OPEC and non-OPEC producers would need strategies to keep prices from rising too high as well as falling too low. Bassam Fattouh of the Oxford Institute for Energy Studies, a think-

tank, says that might require joint investment approaches, which are "extremely difficult, if not impossible".

If prices tumble, countries would need to cut production further. In OPEC's history Saudi Arabia has reluctantly played the role of swing producer, regulating its output to keep the market in balance. A successful long-term arrangement would need Russia and OPEC members to share more of the burden, which they have mostly been loth to do.

A further concern is Saudi Arabia's OPEC strategy once Aramco sells shares to investors. Mohamed Ramady, the author

of a new e-book, "Saudi Aramco 2030", says that relations between partially privatised oil companies and their governments become strained when the interests of governments clash with those of shareholders. "Privatising Aramco could then become a double-edged sword for the kingdom," he writes.

At present, Saudi Arabia's rulers appear to believe that the risks are worth taking. They may have more to fear from a restive population at home than shale producers abroad. But they underestimate the risk of shale, and overestimate their own ability to manage the market, at their peril. ■

Buttonwood | All in the best possible taste

Investing in the finer things of life

BONDS, shares and Treasury bills are all very well, but in the end they are just pieces of paper. They are not assets you can hang on the wall or display to admiring neighbours. Many rich people like to invest their wealth in more tangible form; property, of course, but also collectibles such as art, fine wine and classic cars.

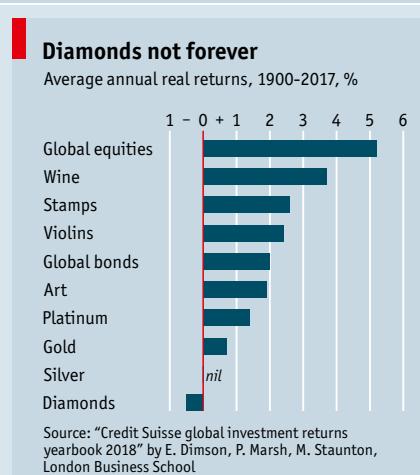
Is that wise? Elroy Dimson, Paul Marsh and Mike Staunton of the London Business School (LBS) have run the numbers for their annual analysis of the financial markets in the Credit Suisse global investment-returns yearbook. Some of these assets have done rather better than others (see chart). Fine wine delivered the best returns; surprising to cynics who might assume that, in the long run, the value of wine vanishes as it turns into vinegar. Really old wine often has historical resonance. A bottle of Chateau Lafite Rothschild from 1787 was sold for \$156,450 in 1985 because it was thought to belong to Thomas Jefferson.

Estimating the returns from these assets, after costs, is tricky. Indices covering art or musical instruments are much less comprehensive than those covering shares. There may be an upward bias inherent in collectible returns, as successful works are more likely to survive.

Transaction costs, if valuables are sold at auction, may be 30-40%. But these are the kind of assets that tend to be held for many decades (and passed between generations) so the annual cost burden may compare reasonably with equities, which are traded much more frequently.

Then there are the costs of insurance. If people want to keep a Stradivarius at home, theft is a big risk; robbery with violins is a serious crime, after all.

But tax is a potential advantage for collectibles. Financial assets come with income streams that have historically been



taxed at marginal rates of 40% or more. Art and stamps generate no income stream and incur tax only when they are sold. The academics calculate that, after tax, collectibles have generated higher returns than equities for British investors since 1900.

On top of that, investors may get an "emotional return" out of owning these assets, which may be as much a hobby as an investment. Anyone who has met an owner of a classic car will know they can display spaniel-like devotion to their vehicles.

What about the largest asset that many people hold—their home? The total value of global property was around \$228trn at the end of 2016, against \$170trn for equities and bonds. The academics are highly sceptical of a recent paper* that claimed housing has enjoyed equity-like real returns with less risk. They think this is an example of Twyman's law: "If a statistic looks interesting or unusual, it is probably wrong."

In terms of rental income, they say the study made "heroic" estimates of the effect of agency fees and voids (periods when the property is empty). When it comes to

the level of house prices over the decades, the LBS academics say that a number of downward adjustments need to be made. The most significant is that the quality of the housing stock has improved. Over the past century homeowners have spent a great deal of money on extensions, central heating, indoor plumbing and so on. When all the adjustments have been made, the real return on housing has probably been less than on equities but more than on government bonds.

Perhaps the most surprising finding in the yearbook is that gold and silver have both done worse than cash and bonds over the past 118 years, despite high inflation during much of that period. In fact, gold performed best in real terms (although only as well as Treasury bills) when there was sharp deflation. Gold did substantially outperform T-bills during high-inflation periods, but this hedge comes at a long-term cost.

In the long run, equities have been the best-performing asset class, with a global real return of 5.2% since 1900. But that does not mean investors should assume those high returns will continue.

The prospective return on shares is equal to the real return on riskless assets (such as T-bills) plus a risk premium. That premium is now around 3.5% a year, the LBS trio think. As the real return on T-bills is currently negative, that suggests a real return on equities of around 3%. The LBS academics made a similar forecast about low returns in 2000. The real return on shares since then has been 2.9%. If the professors are right again, more investors will be tempted by Bordeaux and Bugatti.

* The Rate of Return on Everything 1870-2015 by Óscar Jordà, Katharina Knoll, Dmitry Kuvshinov, Moritz Schularick and Alan Taylor

American trade

Steel yourself

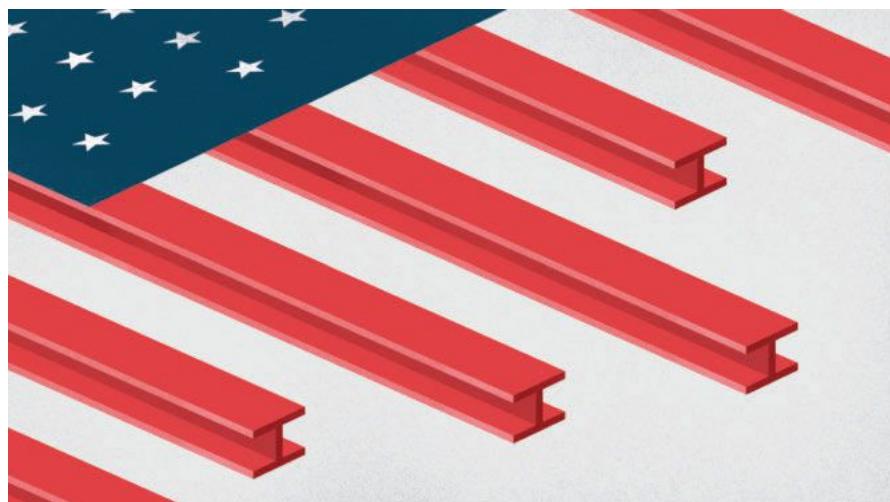
Protectionist measures to cut imports of steel and aluminium would be costly

TEN months ago the Trump administration took aim at steel and aluminium imports, giving itself a year to decide whether they threatened national security and, if so, what to do about it. On February 16th it concluded that America is indeed under threat. The president has until mid-April to choose whether to respond.

The reports handed to Donald Trump by the Department of Commerce, which led the investigations, describe America as effectively under siege. Its steel industry might struggle to respond to a crisis similar to the second world war, they fret, as foreigners are filling a third of American demand for steel, even as 28% of national capacity lies idle. The share of primary aluminium (the kind smelted from ore, rather than recycled metal) that is imported is 91%, and 61% of local smelting capacity lies cold. Doubters can point out that the Department of Defence requires a tiny slice of American steel supply, and that America's largest supplier for both metals, Canada, is an ally (see chart).

The authors claim to see the bigger picture. America's economic security is at stake. The recommendations aim to cut metal imports by an amount equal to 12% of current American demand. That would reduce idle capacity to 20%. Three options are presented: a broad tariff; a stiff and similarly broad quota; or a mixture that would hit some countries with a harsher tariff and leave the rest with a larger quota.

Each would have nasty side-effects, not mentioned in the report. The suggested tariffs of 24% on steel and 7.7% on aluminium would unite exporters to America in fury, and spark swift retaliation. Price hikes to cover the tariffs could threaten jobs in industries such as construction, oil and gas,



and car manufacturing. Many more Americans are employed in these industries than in making steel and aluminium.

The second option—a quota equal to 63% of steel imports in 2017, and 86.7% of aluminium imports—would guarantee that imports fell by the intended amount. Exporters to America might even be able to raise prices (which is why exporters generally prefer quotas to tariffs). But uniform barriers would hit Canada hardest, which seems odd, given that China is the main cause of global overcapacity in both metals. The report on aluminium notes that Canada is “highly integrated with the US defence industrial base and considered a reliable supplier”. The one on steel includes pleas from otherwise-ardent protectionists to spare Canada. (American and Canadian steelworkers share a union.)

The third option presented to Mr Trump seems more strategic. For steel, it would put tariffs on imports from only some countries, including Brazil, China and South Korea. Others, including Canada, Mexico and members of the European Union, would be let off with quotas equal to their exports to America in 2017. Only China, Hong Kong, Russia, Venezuela and Vietnam would be hit by tariffs on aluminium. But there is a trade-off. To hit the target of firing up 80% of domestic capacity, the tariffs would need to be swingeing.

And even a loose quota for some exporters would create problems. The report suggests allowing importers to apply for exemptions, on national-security grounds or if they could not source products domestically. But bureaucrats were quickly overwhelmed with such requests when George W. Bush imposed tariffs on steel in 2002. If quotas are filled first-come, first-served, then exporters rush to get in quickly, and imports surge. Metal turned away by America will go to other countries, hurting their local producers in turn and perhaps triggering more protectionism, as happened with the tariffs of 2002.

The worst harm may be to neither

America nor the countries it trades with. American law grants the president discretion to impose whatever protectionist measures he sees fit. Not international law: any of the three options would be challenged at the World Trade Organisation. The only defence would be that it was essential to America's national security. If lawyers in Geneva accepted that, other countries might argue the same. If they did not, America might just rip up the rules on international trade and walk away. ■

HSBC changes the guard

Asia bound

Despite a solid inheritance, John Flint has work to do

YOU spend 38 years at a mighty global bank, the last seven as chief executive. As boss you clean up a stinking mess, the legacy of ill-conceived acquisitions and shoddy practice. You shell out billions in fines and legal costs. You shed businesses and cut jobs by a quarter. You build a solid capital base. You maintain dividends. On your last day, you announce decent results, with revenue growing after five years of shrinkage and profits up nicely. The market's parting gift to you? The share price falls by 3%.

Analysts had expected better from Stuart Gulliver's final report as boss of Britain's HSBC, the world's seventh-biggest bank by assets, on February 20th. They were surprised by charges for impaired loans to two companies, thought to be Carillion, a failed British contractor, and Steinhoff, a troubled South African retailer, and miffed that HSBC put off buying back more shares. That, the bank said, must wait until it has raised \$5bn-7bn of “additional tier-1” capital (debt that switches to equity) ▶

Metal-bashing

US imports, 2017*, tonnes, m



Sources: US Census Bureau; US Department of Commerce; IHS Global Trade Atlas Database

*Year to October annualised

► in a crisis).

Nevertheless, the bank that Mr Gulliver hands over to John Flint, another HSBC lifer (28 years and counting), is in fair shape. The balance-sheet, at \$2.5trn, is roughly as big as it was when he took over at the start of 2011. But it is safer. Risk-weighted assets (RWAS) have shrunk by more than 20%. The ratio of equity to RWAS, a key measure of capital strength, is a robust 14.5%. Investment banking, which accounted for half of profit in 2010, now contributes 28%, a bit less than retail banking and wealth management, the division Mr Flint used to run, and corporate banking.

Mr Flint also inherits two other things. One is a bank freed of some long-standing legal snares. Most recently, in December a five-year-old deferred-prosecution agreement (DPA) with America's Department of Justice, imposed after Mexican drug gangs laundered \$881m through HSBC, expired and charges were dropped. The DPA had included a fine of \$1.9bn and close, continuous monitoring by regulators.

The other is a big bet on Asia, where the Hongkong and Shanghai Banking Corporation was born—in Hong Kong in 1865. In 2015 Mr Gulliver announced among other things an investment in the Pearl River Delta, a Chinese economic hotspot. The bank has 24 teams supporting Chinese businesses abroad, 20 of them in cities along the routes of China's Belt and Road Initiative, an infrastructure plan that seeks to improve trade links. Asia already accounts for three-quarters of profits.

With Mark Tucker, the newish chairman and a former head of AIA, a big Asian insurer, Mr Flint is likely to follow Mr Gulliver's eastward course. Last year Mr Tucker succeeded Douglas Flint (no relation to John) with whom Mr Gulliver formed a successful double act.

Mr Flint has said he will lay out his plans in a few months. They may reflect a review of HSBC's North American business, which accounts for 16% of assets but just 8% of profit, and which in 2007 gave out the first loud distress signal of the financial crisis, having seen subprime mortgages turn sour. Manus Costello of Autonomous, a research firm, thinks buying an asset manager would be wise. A wave of recent deals indicates the importance of scale in that business, in which he says HSBC ranks only 45th in the world.

The new boss has other work to do. HSBC's legal woes are not entirely over. This week it noted that investigations into possible tax-dodging by clients, notably at its Swiss private bank, could yet entail penalties of \$1.5bn or more. Also troubling is that return on equity, the banking industry's main measure of profitability, is a mere 5.9%. Mr Gulliver had set a target of more than 10%, a mark last reached in 2011. Rising interest rates should at least put wind into Mr Flint's sails. ■

The Bank of Japan

Kuroda ain't over

Japan's central bank chooses continuity over tradition

GOVERNORS of the Bank of Japan (BOJ) tend not to linger long in their post. Twenty-two people have headed the institution since 1914, compared with 16 at the Federal Reserve and 12 at the Bank of England. The last time a BOJ governor won a second term was 1961, when Japan's economy was growing by over 11% and inflation was over 5%. As Richard Werner, the author of "Princes of the Yen", a history of the central bank's failures, points out, by tradition the job alternates every five years between a candidate backed by the finance ministry and a "true-born" BOJ insider.

This tradition will be broken by the re-appointment of Haruhiko Kuroda, who was nominated for a second term on February 16th. If he completes it, he will become the longest-serving governor in the BOJ's history.

With luck that might be long enough for him to reach the central bank's elusive inflation target of 2%, a goal set five years ago which he had hoped to meet by 2015. Although the BOJ has bought assets lustily with freshly created money, core inflation, excluding fresh food and energy, was only 0.3% in the year to December. Mr Kuroda hopes that low unemployment will eventually force firms to raise wages and prices, which will in turn raise expectations of inflation in the future, reinforcing its momentum. The yen should also help. Although it has strengthened by about 4% this year on a trade-weighted basis, it remains much cheaper than it was in the summer of 2016.

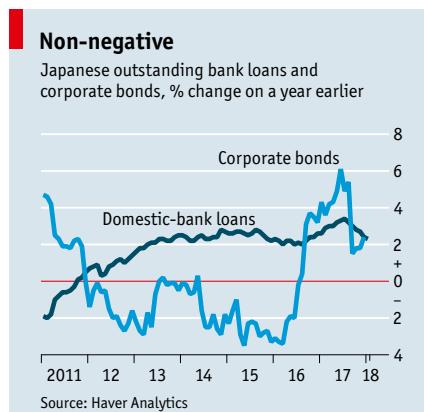
The window for success may close rather earlier than 2023, however. The government plans to raise Japan's consumption tax from 8% to 10% in October next year. Mr Kuroda supported the last such increase in April 2014, arguing that Japan's public fi-

nances needed help and Japan's recovery could withstand the blow. That proved to be a mistake. The central bank's monetary easing failed to prevent a sharp drop in demand, partly because Japan's private sector proved surprisingly willing to hold, rather than spend, the extra money Mr Kuroda created. But that willingness to hold safe assets (whether money or sovereign bonds) means Japan's enormous public debt remains surprisingly easy to sustain. The government may try to offset the next tax increase by raising social spending at the same time. But the increase still poses a threat to Japan's economic momentum.

Mr Kuroda also worries that his policy of negative interest rates, announced in January 2016, may eventually turn counterproductive. The cut in rates raised the value of long-term assets held by Japan's banks, improving their balance-sheets. But this one-time benefit must be set against an ongoing cost: negative rates hurt the margin that banks earn between the interest rates they charge their borrowers and the lower rates they pay for their funding. Since banks have not been able to pass on negative rates in full to their depositors, their funding costs have fallen less than their loan rates. This narrower margin could erode their financial standing and eventually inhibit their lending.

There is, however, "no evidence that such a thing is happening in Japan", Masazumi Wakatabe, an economist at Waseda University in Tokyo, told Bloomberg, a news agency, in December. The improvement in the economy has increased the creditworthiness of borrowers, obliging banks to write off fewer bad loans. And bank lending grew apace after negative rates were introduced in January 2016 (see chart), even as firms have taken advantage of low borrowing costs to issue more of their own bonds and commercial paper.

Mr Wakatabe's view that the BOJ should not "exit" too soon from easing seems to be shared in high places. He was also nominated on February 16th to serve alongside Mr Kuroda as one of his new deputy governors. The other deputy will be Masayoshi Amamiya, a central-bank insider known as "Mr BOJ", who has worked to implement Mr Kuroda's policies. Many think Mr Amamiya could eventually succeed Mr Kuroda as governor. He might even be the bank's first boss since 1989 to inherit inflation above 2%. That would be a welcome break with recent tradition. ■



Corruption in Latvia

Laundry list

Claims of financial crimes stain Latvia's banking system

ILMARS RIMSEVIKS, for 17 years the governor of Latvia's central bank, had been due to retire next year. Instead, he is facing calls to resign. On February 17th Latvia's anti-corruption authority detained him on suspicion of demanding bribes of at least €100,000 (\$123,000). That sparked international concern. Mr Rimsevics is a member of the governing council of the European Central Bank (ECB) and privy to the most sensitive monetary-policy decisions.

The prime minister, Maris Kucinskis, says the allegations are so serious that Mr Rimsevics must stand down. But he is staying put. Released on bail on February 19th, the central bank chief says the allegations are a set-up to punish him for cracking down on lax practices. He also says he has received death threats.

Latvia's outsized and ill-regulated offshore banking industry has been a headache since the country regained independence in 1991. During the global financial crisis ten years ago, Parex Bank, the largest independent bank in the region, collapsed, prompting a budget-busting bailout—and the rescue of the Latvian economy by the IMF and the European Union. Mr Rimsevics played a leading role in resisting calls to abandon the peg which tied the lats, then the national currency, to the euro. That preserved Latvia's credibility, but at a huge cost. The economy contracted by 25%; unemployment soared above 20% and a tenth of the population emigrated.

Latvian officials have repeatedly argued that the industry has cleaned up its act. But the facts tell another story. Several Riga-based banks were alleged to have moved money stolen in a tax fraud perpetrated by Russian officials on Hermitage Capital Management, an investment fund that specialises in Russia, in 2008. The evidence came from Sergei Magnitsky, a lawyer, who was later imprisoned in Russia and died in custody. Leaks in 2014 exposing the "Russian Laundromat", whereby \$20.8bn was moved illicitly from Russia, suggest that dirty money flowed through Moldova and Latvia to 732 banks in 96 countries. Many foreign institutions have refused to conduct transactions with Latvian banks since.

Most recently, America's Treasury said last week that ABLV, one of Latvia's largest banks, had "institutionalised money-laundering", notably in sanctions-busting transactions with North Korea. Customers fled, withdrawing €600m. After a six-day hia-

Religion and poverty

Both God and Mammon

Protestantism might be good for the wallet, after all

CAN religion make people wealthier? In 1905 Max Weber, a German sociologist, argued that it had happened in Europe. Protestants did not invent capitalism in the 16th century, he suggested. But, by discarding monastic asceticism and embracing the notion that diligence and self-improvement are pleasing to God, they became particularly good at it.

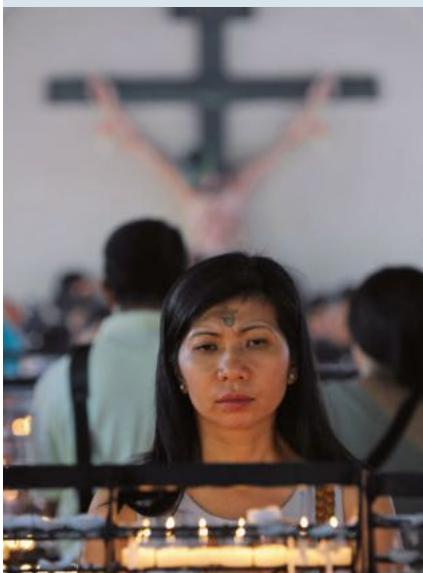
Weber's idea is unfashionable these days, partly because so many non-Protestant countries have become rich and partly because of a cause-and-effect problem. Were Protestants truly better at business, or were ambitious, business-minded people drawn to Protestantism? One way of settling that question is through a randomised controlled trial of religion. A National Bureau of Economic Research working paper released on February 19th reports on an experiment

in the Philippines that suggests Weber was onto something.

International Care Ministries (ICM), an evangelical charity, tries to help the Philippines' poorest people through a series of weekly 90-minute lessons on business, health and religion. In the fifth week, for example, instructors teach about saving money, respiratory diseases and the sin of living outside God's rule. Because the course is composed of modules, it can be chopped down. Working with three economists, Gharad Bryan, James Choi and Dean Karlan, ICM tried delivering different bits of the course in different villages. Some got the whole package, others got just business and health advice, and still others heard only preaching. A control group got nothing.

Six months later Innovations for Poverty Action, an independent research outfit, checked up on them. Not surprisingly, those who were preached at had become more religious (though Catholics, who accounted for seven out of ten recipients, mostly stayed formally Catholic). They were not more satisfied with their lives, and had become a little gloomier about their economic status. Yet their incomes had increased by 9.2% compared with the others. Because the sample is so large—more than 6,000 households—that is significant.

Mr Karlan of Northwestern University suggests the Bible lessons might have pushed people to think about their futures, and encouraged them to take more control over their lives. (They earned more largely because they took on cash jobs.) He is not sure, and is doing a follow-up study to see, if the income effect endures. For now, anyone recalling nudges from grandma urging wakefulness through tedious sermons should consider that she may have been right.

**Spirit and flesh**

tus, the ECB froze the Latvian bank's payments on February 19th. Customers' debit cards stopped working.

Bank regulation is not Mr Rimsevics's direct responsibility, though he is responsible for nominating the officials supposedly in charge. The penalties levied have been strikingly mild. An audit of the banking system prompted by the Russian Laundromat case led to just €640,000 in fines being levied on three banks. For comparison, last July a court in Paris fined Rietumu, another large Latvian bank, €80m for money-laundering.

Some regard the allegations against Mr

Rimsevics as suspicious. On February 20th the Latvian defence ministry called them a smear operation "from outside" (ie, Russia), aimed at portraying Latvia as a badly run, untrustworthy ally. Sceptics noted that the bribes he allegedly demanded are modest compared with the graft that has made billionaires of some crooked Russian businessmen.

The ABLV case also highlights weaknesses in European banking regulation. Though the bank is under ECB supervision, it is national governments that enforce anti-money-laundering rules in the EU. One of them is Latvia's. ■



Digital currency

Tales from the crypto-nation

ZUG

A banking centre seeks to reinvent itself

ON A clear day, sunset over Lake Zug is magnificent. Snow-dusted mountains cut through the orange glow above and are mirrored in the lake below. "Zug is our spiritual home," says Jeremy Epstein, from Washington, DC, who has just taken 40 foreigners to tour the small Swiss town south of Zurich. They came not for sunsets, though, but to find out how Zug has become known as "crypto-valley"—meaning the home of many firms dealing in cryptocurrencies and related activities.

Switzerland's famous banking secrecy is falling to a global assault on money-laundering and tax evasion. But financial security remains in demand. The country should seek to become the "crypto-nation", said the economy minister, Johann Schneider-Ammann, last month. Zug aims to be the capital of that nation.

To that end, Switzerland is maintaining loose rules for crypto-businesses, even as other countries are tightening theirs. An industry is developing to store tangible crypto-assets, such as the hard drives on which cryptographic keys are stored, offline in cold, dry, secret sites complete with rapid-response teams. Where better than a decommissioned military bunker in the Swiss Alps? In Zug, friendliness to cryptocurrencies is in evidence all around. "Bitcoin accepted here" stickers adorn the city hall and several shops, including the wine merchant's. In 2016 Zug became the first place in the world to accept bitcoin for some public services. Residents can get a blockchain-based digital identity.

About a quarter of last year's global to-

tal of \$5bn in initial coin offerings (ICOs, a form of crowdfunding whereby investors are issued with digital tokens) was raised in Switzerland, estimates PwC, a consultancy. Of the ten largest ICOs, four were in part based in Zug.

The town decided early on to attract crypto-entrepreneurs, for example by allowing companies to incorporate based on bitcoin wealth, rather than insisting that it be converted into fiat currency. Taxes have long been low. After the second world war the former fishing village cut its corporate-tax rate to 8.5%. The rate is still competitive, at 14.6% compared with Zurich's 21%.

Snowball effect

The crypto-chapter of Zug's history began in earnest in 2013 when the Ethereum Foundation, a non-profit to support the development of the eponymous blockchain, based itself there. More crypto-firms followed. Now, having dealt with 150-odd of them, the local tax authorities are experts, as are the accountants and lawyers.

Two years ago Lakeside Partners, which runs a business centre in Zug, housed just five blockchain-related companies, of a total of 30. Now the number is 70 out of 90. "They landed like flying saucers," says the mayor, Dolfi Mueller. At first he was unsure that the invaders would benefit the town, but "curiosity and being open to the world have brought us much wealth in the past."

Switzerland's decentralised government, direct democracy and history of libertarianism are all essential to Zug's success. These contrast with rival hubs such as

Hong Kong and Singapore, and appeal to fans of blockchain technology, which underlies most crypto-currencies and is essentially a distributed ledger maintained collectively by some users. There are practical benefits for crypto-entrepreneurs, too. The federal government takes a light approach to regulation in general, and to new technologies in particular. Cantons have wide latitude in how they deal with companies. A fintech licence, expected to become available next year, should make life even easier for fintech startups.

A final draw is a reputation for security and safety—including from governments. "You can have all the armoured walls in the world, but if your vault is in China or Singapore and the government says, 'I'm seizing your assets', there's nothing you can do," says Niklas Nikolajsen of Bitcoin Suisse, a financial-services provider. "That would never happen in Switzerland."

Regulators elsewhere see it as their job to protect consumers from dubious new crypto-currencies. But Switzerland's take a more bracing approach. "Our consumers should have the freedom to invest in exotic instruments, even gamble," says one official. Jörg Gasser, the state secretary for international finance, has little doubt that, if and when the bitcoin bubble bursts, investors will ask for regulation. But, he says, the sector must not be regulated to death.

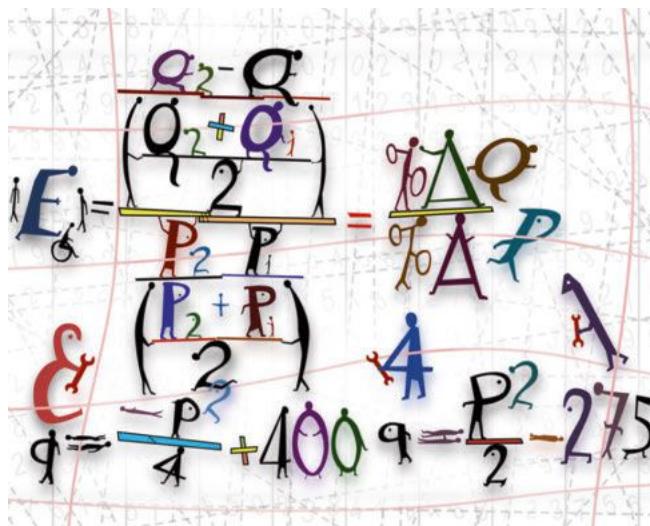
That does not mean anything goes. His priority, says Mr Gasser, is to protect the integrity of Switzerland as a financial centre. The national regulator, FINMA, is investigating several ICOs for possible breaches of regulations, including anti-money laundering rules. On February 16th it issued guidance on how it would apply existing market legislation, and warned that some tokens would be treated as securities and have to follow stricter rules. A working group has been assembled to look at which rules, if any, ought to apply to ICOs. The aim is to increase legal certainty and ensure that, in the words of a press release from the State Secretariat for International Finance, a government department, "Switzerland remains an attractive location in this area."

Crypto-entrepreneurs took the measured tone as indicating that Switzerland is still keen on their business. Indeed, as the sector matures, places that offer some regulatory protection or licensing should benefit, says Joey Garcia, a lawyer at Isolas LLP, who has just helped develop a licensing system in Gibraltar, a rival crypto-centre.

While crypto-companies are growing, physical hubs with well-crafted rules and a critical mass will continue to seem attractive. But crypto-currencies' intrinsically decentralised nature means that eventually the benefits of being part of a cluster may weaken. Unless Zug continues to court them, only the vaults carved into the Swiss granite will stand the test of time. ■

Free exchange | Moral hazard

Economists cannot avoid making value judgments, however much they might wish to



AMID the name-calling and bluster that mar many fights between economists are a few common tactics. Belligerents may attack the theory used to support a claim, or the data analysis used to quantify an effect. During the debate over President Donald Trump's tax bill, to take a recent example, economists bickered over which side had more credibly calculated the economic effect. They did not, for the most part, argue about whether it was morally acceptable to pass a regressive tax reform after years of wage stagnation and rising inequality. To do so would strike many economists as entirely un-economist-like. Yet economics has not always been so shy about moral philosophy. As well as "The Wealth of Nations", Adam Smith wrote a "Theory of Moral Sentiments". Great 20th-century economists like Paul Samuelson and Kenneth Arrow also took questions of values very seriously. Their successors would do well to take several pages from their books.

Modern economists have attempted to strip value-judgments out of their policy analyses. Policies are judged on how they are likely to affect economic variables such as income and its distribution, and how those changes would affect overall welfare. If the models suggest that one policy choice—a top tax rate of 40%, say, rather than 50%—leads to greater welfare than another, that is usually good enough for an economist.

This approach is enormously valuable. It disciplines thinking, produces useful information and makes it easier to build professional consensus about what is known and which questions remain unanswered. Though cost-benefit analysis is not perfect, is often the best route to getting informed experts to agree.

Used in isolation, however, it can lead to trouble. In a paper presented at the annual conference of the American Economic Association (AEA) in January, Matthew Weinzierl, of Harvard University, notes that the world is too complicated to be modelled with anything like perfect accuracy. Many knock-on effects from policy shifts are unknowable beforehand. He suggests that in the absence of perfect foresight, policymakers could turn to social principles or rules that have evolved over time. These may reflect accumulated knowledge about some choices' unintended consequences. He gives an example. Governments might choose to increase redistribution based on evidence that high inequality

creates feelings of envy, and envy reduces the welfare of the non-rich by making them feel worse. Yet survey evidence suggests that people are largely opposed to redistribution that is motivated by envy. Validating envy through tax policy could prove socially corrosive, in a way that economists' models fail to capture.

Put differently, Mr Weinzierl contends that economists should take moral concerns more seriously. That is something close to professional heresy. At the AEA conference Alvin Roth, a Nobel prizewinner, delivered a lecture on his life-saving work in the field of market design. To donate an organ, one must share a blood-type with the recipient. Someone who would be willing to donate a kidney to a friend or family member might be stymied by a difference in blood-type. Mr Roth circumvented this problem by developing matching markets, in which one person donates to a compatible stranger and in turn receives another stranger's compatible organ for use by the donor's ailing loved-one. Such swap groups can include scores of donors and recipients, who might otherwise have died awaiting a transplant.

Yet demand for healthy organs vastly outstrips supply. Were it legal to buy and sell organs, many more people might donate, helping to alleviate the deadly shortage. Moral qualms generally discourage governments from legalising the trade. This is an example of what Mr Roth calls a "repugnant market", one which is constrained by popular distaste or moral unease. Repugnance, he laments, tilts the political playing field against ideas that unlock the gains from trade. He recommends that economists spend more time thinking about such taboos, but mostly because they are a constraint on the use of markets in new contexts.

These social rules also contain insights. In a paper discussing the organ trade Nicola Lacetera, of the University of Toronto, argues that there may be important reasons for moral objections to repugnant activity, and costs to abandoning such objections. Though studies show that telling people that payment encourages organ donations increases support for legalising payments, other examples work in the opposite way. Giving women information about the health and safety benefits of legalising prostitution seems to reduce support for legalisation—perhaps because women worry about the consequences of applying a cost-benefit approach to areas relating to their status within society.

Do the right thing

Not all economists avoid ethical considerations entirely. Jean Tirole, another Nobel prizewinner, devoted a chapter of his recent book, "Economics for the Common Good", to "the moral limits of the market", for example. He says economists should respect society's need to set its own goals, then help devise the most efficient ways to attain them. But, as Beatrice Cherrier of the Institute for New Economic Thinking argued in an essay addressing Mr Roth's lecture, these questions are fundamental to economics. The hard sciences deal much better with the ethical implications of their work, she says. And moral concerns affect human behaviour in economically important ways, as Mr Roth found to his frustration. To be useful, economists need to learn to understand and evaluate moral arguments rather than dismiss them.

Many economists will find that a dismal prospect. Calculations of social utility are tidier, and the profession has fallen out of the habit of moral reasoning. But those who wish to say what society should be doing cannot dodge questions of values. ■



The American Association for the Advancement of Science

A generation game

AUSTIN

This year's meeting of the AAAS heard about growing transplant organs, safer anaesthesia, quantum computers and tsunami detection. First, a new type of gene

WHAT'S a gene? You might think biologists had worked that one out by now. But the question is more slippery than may at first appear. The conventional answer is something like, "a piece of DNA that encodes the structure of a particular protein". Proteins so created run the body. Genes, meanwhile, are passed on in sperm and eggs to carry the whole process to the next generation.

None of this is false. But it is now clear that reality is more complex. Many genes, it transpires, do not encode proteins. Instead, they regulate which proteins are produced. These newly discovered genes are sources of small pieces of RNA, known as micro-RNAs. RNA is a molecule allied to DNA, and is produced when DNA is read by an enzyme called RNA polymerase. If the DNA is a protein-coding gene, the resulting RNA acts as a messenger, taking the protein's plan to a place where proteins are made. Micro-RNAs regulate this process by binding to the messenger RNA, making it inactive. More micro-RNA means less of the protein in question, and vice versa.

Often, this regulation is in response to environmental stimuli such as stress. And sometimes, the responses acquired in this way seem to be passed down through the generations, in apparent defiance of conventional genetic theory. The best known example in people comes from the Netherlands, which suffered famine in 1944, at the

end of the second world war. Children born of starved mothers were, as might be expected, smaller than usual. But the children of those children were also small. Experiments carried out on mice confirm these observations.

Stress city

In the case of mothers, it is now believed that this process, called intergenerational epigenesis, is caused by micro-RNAs from the parent getting into eggs as they form in a developing fetus. That makes sense. Eggs are large cells, with room to accommodate these extra molecules. But intergenerational epigenetic effects can pass down the male line as well. And how paternal micro-RNAs come to be in an egg is a mystery, for the sperm that would have to carry them there are tiny and have no spare room. Work by Jennifer Chan, a graduate student at the University of Pennsylvania, has, however, shed light on the process.

Ms Chan's solution was described on February 16th by her research supervisor, Tracy Bale of the University of Maryland, at the annual meeting of the American Association for the Advancement of Science, in Austin, Texas. The crucial insight behind her study was that micro-RNAs need not actually get inside sperm cells as they form. They could equally well be attached to sperm just before sexual intercourse. Ms Chan therefore concentrated her atten-

Also in this section

- 68 Growing organs for transplants
- 69 Making anaesthesia safer
- 69 Reliable quantum computing
- 70 Tsunami detection

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tions on part of the male genital tract called the epididymis. This is where sperm mature. Cells lining the epididymis constantly discharge small, fluid-filled, membrane-bound bubbles called vesicles. When Ms Chan, working with mice, looked in detail at these vesicles, she found that they contained lots of micro-RNAs.

That was interesting. But she then went on to do an experiment. Mice are easily stressed. Simply putting new objects into their living space is enough to induce significant changes in their levels of stress hormones. Stress a male in this way and his offspring (of either sex) will react less to stress than do the offspring of unstressed males. That looks like intergenerational epigenesis. It also makes evolutionary sense, since it calibrates a mouse's stress response to the stressfulness of the environment—which is likely to be the same as that of its father. To prove that this intergenerational effect was caused by epididymal micro-RNAs, Ms Chan collected these molecules and injected them into fertilised mouse eggs. Those eggs, as she had hypothesised they would, grew into less-stress-reactive adults.

This work is all in mice. But Dr Bale has now roped some men into the experiment, too—namely 25 male students who have provided regular semen samples in order that the micro-RNAs therein can be tracked and correlated with such stressful events as sitting exams. The results of this are yet to come in. But, with her mouse work alone, it looks as if Ms Chan has cracked an important part of the puzzle of intergenerational epigenesis.

Response to stress is not, however, the only thing in which micro-RNAs are implicated. They are also suspected of involvement in schizophrenia and bipolar disorder. To investigate this, a second speaker at ►

► the AAAS meeting, Paul Kenny, of the Icahn School of Medicine, in New York, also turned to mice.

The root of Dr Kenny's suspicion was the discovery, post mortem, in the brains of patients who had been suffering from these conditions, of elevated levels of three micro-RNAs, called MiR206, MiR132 and MiR133b. He and his colleague Molly Heyer therefore looked at the role of these micro-RNAs in regulating brain cells called parvalbumin interneurons, which are thought to be involved in schizophrenia.

Picking one, MiR206, for closer examination, the two researchers created a mouse strain in which the gene for MiR206 was switched off in the parvalbumin interneurons. They then performed experiments to study the behaviour of these mice, assuming that switching the gene off might protect them against schizophrenia-like symptoms. Surprisingly, they found the opposite.

Their first experiment was to play the mice a sudden, loud noise. This will startle any creature, mouse or man. If the noise is preceded by a softer one, however, both humans and murines react far less when the loud noise comes. They are expecting it. But people with schizophrenia seem never to learn this expectation. And neither, to the researchers' surprise, do mice with the MiR206 knockout.

The scary moment

For people, these observations are often explained by the fact that one symptom of schizophrenia is increased fear. And, in a second experiment, Dr Kenny and Dr Heyer showed, again contrary to expectation, that MiR206-knockouts were unusually fearful as well.

The researchers used a box which contained two lights, each positioned above a lever. First, a light would blink on and go off. Then, after a delay, both lights would come on. That was the signal for the mouse to press a lever. If the lever the mouse pressed was the one not under the initial light, the animal received some food. Drs Kenny and Heyer found that the knockout mice collected less food than did normal ones. But this was not because they were making mistakes. If they pressed a lever, they picked the correct one as often as a normal mouse would. Instead, they were pressing any lever less often. That was because they spent most of their time hiding in the corners of the box opposite the wall with the lights and levers. Again, they seemed abnormally afraid.

What all this means for the study of schizophrenia is unclear. It is possible that examination of the other two pertinent micro-RNAs may shed more light on the matter. More generally, though, both Dr Kenny's work and Ms Chan's are good examples of the fact that there is more to genes than was once believed. ■



Transplants and biotechnology

Mix and match

AUSTIN

Stem cells and gene editing may turn domestic animals into organ factories

TAKE the fertilised egg of a pig. From each cell in the resulting embryo cut out a gene or genes that promote the development of the animal's heart. Inject human stem cells from a patient who needs a new heart into the embryo and then place it into the womb of a sow. Wait nine months. The result is an adult pig with a heart made of human cells. The pig can be slaughtered and the heart transplanted into the patient who provided the stem cells, for whom the organ will be a genetic match.

That, at least, is the hope of a panel of researchers who presented their work to the AAAS meeting. For, though this kind of biological melding may trip the disgust circuits, the value of such a procedure, were it possible, is clear.

First, transplantable organs are scarce and demand for them is increasing. As life in general, and cars in particular, become safer, the supply of bodies with healthy organs in them is shrinking. Meanwhile, people are living longer. As a result, some 75,000 individuals in America alone are waiting for organs. Every day around 20 of them die. Besides increasing the supply of organs, growing them in animals might also increase their utility. The genetic match between organ and patient would mean those receiving transplanted organs would no longer need to take immunosuppressive drugs to stop rejection.

All this makes growing organs in livestock a tantalising alternative to harvesting them from the dead. Thousands of years of breeding have yielded beasts which grow fast, so a patient need not wait long while

his future heart develops inside a young animal. Sheep, cows and pigs are all roughly the right size to host human organs. And, since such animals are already raised for their flesh and skin, their use to grow more valuable things should meet with no objection beyond squeamishness.

Creating human organs in this way would rely on the union of two recent developments in biotechnology. CRISPR/Cas9, a genetic-engineering tool discovered in 2012, would snip away portions of the animal-host's genome that control the development of the organ being grown. This would create a "genetic vacuum" which could be filled by induced pluripotent stem cells, the second breakthrough, made in 2006. Human pluripotent stem cells can grow into many different kinds of tissues, filling the void left in the developing animal with an organ made from the patient's own cells.

That this combination works in principle was first shown last year, when a group at the Salk Institute in California reported making mice with eyes, pancreases, hearts and other organs composed of rat cells. Such mixed-species creatures are known as chimeras, after a monster in Greek mythology. Many of these mouse-rat chimeras lived to adulthood, and one reached its second birthday which, for a small rodent, is old age. A second group, led by Hiromitsu Nakauchi of Stanford University showed that a mouse pancreas grown this way in a rat, which then had parts of it transplanted into a mouse genetically identical to the one that supplied the stem cells employed, could control diabetes in that mouse. Dr Nakauchi had thus created a working, transplantable organ.

The creation of chimeras that include human organs is more challenging, because people are less closely related to sheep and pigs than mice are to rats. Nevertheless, Dr Nakauchi and his group have followed up their mouse work by growing human pancreas cells in pig fetuses. Another panellist, Pablo Ross of the University of California, Davis, said he had managed a similar feat in sheep. In both cases the chimeric animals were not brought to term. Were that to happen, their human pancreas cells might hypothetically be extracted and transplanted into people suffering from diabetes, in order to revive a patient's ability to produce insulin.

Dr Nakauchi and Dr Ross both performed their tricks by using CRISPR/Cas9 to snip a gene called *Pdx1* from the embryos of their pigs and sheep. This gene encodes a protein crucial to pancreatic development, thus creating the genetic vacuum that the human pluripotent stem cells go on to fill. But *Pdx1* is not the only gene that can be silenced in this way. Daniel Garry of the University of Minnesota uses the technique to shut down *Etv2* in pigs. *Etv2* controls the development of the vascular sys- ►

tem, including the heart. Dr Garry, too, is then able to persuade human stem cells to grow into organ cells—in his case heart cells—though at the moment they form only a small proportion of the cells in the resultant embryonic hearts.

In their quests for pancreatic cells, Dr Nakauchi and Dr Ross have encountered similar problems of rarity. But these are early days. Dr Garry, whose laboratory is now producing two or three pig-human fetuses a week, is studying those fetuses to try to understand why it is that in some only one heart cell in 100,000 is human while in other fetuses the number is one in 100. If he can discover the underlying principle, then the aim of replacing pig cardiac cells entirely with human ones will have come closer. ■

Unconsciousness

Going under

AUSTIN

Tracking the brain's electrical activity can make anaesthesia safer

AROUND 1936 three neurologists at Harvard Medical School raided the medicine cabinet, filling their boots with morphine, barbiturates, ethers and even cobra venom. They injected those substances into (apparently) willing volunteers and cemented primitive electrodes to their scalps and earlobes. They also collared a drunk and wired him up. With pen and paper, they then recorded how the electrical signals in their volunteers' brains changed as the drugs began to take hold.

This kind of gonzo science might meet a touch of resistance from the institutional review board if proposed today, but the work of Gibbs, Gibbs and Lennox still stands. The trio showed, without meaning to, that sedatives lower the activity of the brain through several clear stages, and that each stage is observable in that organ's electrical readings. Their results have been refined over the years, of course, to the extent that Emery Brown, a successor of theirs at Harvard, now thinks, as he told the AAAS meeting, that statistical analysis of such electroencephalography (EEG) signals has become so good that it can be used to make anaesthesia safer and better.

The EEG of a conscious brain shows no striking features, just low-amplitude and seemingly uncorrelated ups and downs in the frequency of oscillations in the brain's electric field. That is because the brain's neurons are firing independently of one another as they go about the various tasks that render their owner conscious. Then (as the Harvard trio found) as the patient goes under the oscillations smooth out,

deepening into a stark, uniform wave which vibrates ten times a second. The drug has tripped the neurons into singing from the same hymn sheet. Their unified song takes over from the cacophony of a conscious brain, and the patient is out.

That, Dr Brown believes, gives anaesthetists a better way to assess how deeply someone is under than measuring blood pressure and heart rate. He regularly uses brain waves clinically. In a recent operation, for example, he was able to administer a third of the normal dose of an anaesthetic called propofol to an 81-year-old cancer patient, monitoring her brain waves to ensure that she was deeply under at all times. Indeed, he thinks he may be able to automate the whole process, and has designed a machine which adjusts the dose in response to brainwave changes.

He also believes that the potential for using EEG to understand unconscious brainwaves goes beyond the operating table. Sleeping pills, for instance, do not so much aid sleep as sedate their recipient. Dr Brown thinks insomniacs might be guided into true sleep through a more precise examination of their brain activity, and the application of commensurate drugs.

Moreover, true successor to Gibbs, Gibbs and Lennox that he is, Dr Brown reveals his own gonzo side when he says his understanding of EEG readouts is such that he believes he could safely place someone into, and then retrieve him from, a "locked-in" state—one in which a person is fully aware of his surroundings, but incapable of any movement or action. When your correspondent offered himself as a test subject, only partially in jest, Dr Brown flashed an arch grin, before sombrely explaining that such an experiment would be beyond the tolerance of modern review boards, too. ■



Watching the waves

Quantum computing

Quality over quantity

AUSTIN

If quantum computers are to be useful, they must first be reliable

CALCULATING machines that run on quantum bits (known as qubits, for short) are, by some accounts, the future of computation. Quantum computers have the theoretical advantage that they can solve with ease certain mathematical problems, such as the factorisation of large numbers, which are hard or impossible for classical machines. This is possible thanks to a qubit's ability to remain, through the peculiarities of quantum mechanics, in many quantum states simultaneously. The more qubits a computer has, the more mind-bogglingly gigantic are the calculations it can handle. Finance, medicine, chemistry and artificial intelligence are thus all expected to be transformed by quantum computing.

And where the future is, there surely will Google be also. The firm sets great store by its quantum-computing project, which it calls Project Bristlecone. This is intended to develop a "quantum-supremacy device", ie, one that is palpably and probably faster than a traditional computer of equivalent size at solving particular mathematical problems. Google is currently preparing such a device, which will have 49 qubits. It is rumoured that this will be ready for demonstration before the year is out. Though not confirming such rumours, John Martinis, Google's quantum-computing boss, told the AAAS meeting about some of the problems involved in doing so.

Leadership in the quantum-computing race, Dr Martinis said, is typically measured in terms of the number of qubits that a machine can handle. Less attention is paid to those machines' error rates. Since the people building such experimental machines are usually physicists, rather than engineers, they typically cite their best measurements when reporting qubit error rates, in order to show the machine's capability. That number is of little interest to Dr Martinis and his team, though. They are thinking like engineers, attempting to build a robust, working device. In this case, Dr Martinis says, it is the worst error, not the slightest, that is important.

Project Bristlecone's main concern is the quality of the qubits. The theoretical ability to beat a classical computer is of little use if the hardware that serves as the physical representations of those calculations is misfiring or dodgy.

At the moment, that is sometimes the case. Preparing and maintaining qubits is a delicate and fiddly process, akin to classi- ►

►cal computing in the days before silicon. The slightest puff of interference from the outside world risks disrupting a qubit and scuppering a calculation. Every one of Google's qubits is held in a chip that has 120 wires coming out of it, each of which is capable of introducing troublesome noise. Nor can quantum computers rely on the error-correction techniques that classical computers use. Those duplicate data outputs and check them against each other. Duplicating the output of qubits would mean having to measure them prematurely. That would change the qubits' quantum states, wrecking the calculation. Instead, everything must be and remain perfect.

Such reliability has been mostly

achieved in classical computing. Hardware problems are not unheard of, but they are relatively rare. (The software is another matter.) But that dependability is the result of 60 years of continuous improvement of solid-state silicon transistors. Quantum computing is now in the equivalent of the days of vacuum tubes running calculations in room-sized computers. And that was a world in which the tubes often blew, and bugs in the system were literal ones, namely insects that caused short circuits. Such behemoths were able to turn into today's sleek machines because, at every stage of the journey, they were useful. And that, ultimately, is the standard quantum computers will have to match. ■

along many kilometres of a fault. That means their energy is not radiating from a point. A single seismometer therefore has difficulty distinguishing between a quake of magnitude 7.3, 8.3 or even 9.3 (about as large as they get). The logarithmic nature of the earthquake-magnitude scale, though, means the third of these is 1,000 times more powerful than the first. And the more powerful the shock, the more likely it is that a dangerous tsunami will result. Once the seismic waves from an earthquake have reached enough seismometers, the distinction becomes clear. But near any given quake there are rarely enough seismometers around.

Except, as the panellists pointed out, there are. America's satellite-based Global Positioning System and subsequent similar efforts from other countries (known collectively as GNSS, the Global Navigation Satellite System) have permitted the creation in many places of networks of sensors that measure, within millimetres, local distortions of Earth's crust. The main reason for doing this is to understand the build-up of earthquake-causing strain in the crust, so such monitors are most abundant where tremors are commonest. And, if a tremor does happen, monitors nearby will be shaken by it.

There are, by the panellists' estimates, about 17,000 such monitoring devices around the world. Of those, around 2,300 make their data available instantly. If these instant monitors' signals could all be gathered together and run through suitable software, the true nature of a big submarine earthquake would be apparent almost at once, and appropriate warnings could be issued.

At the moment, two regional projects are testing this idea. One, READI, on the Pacific coast of America, is under the aegis of NASA. The other, GEONET, in Japan, is organised by that country's land-mapping agency. The hope is that, if these local ventures work, other countries will join in and a global network can be created over the next decade.

Really clever use of the GNSS, moreover, might be able to do even better than this, by tracking a tsunami as it travels. Though the most visible consequence of a tsunami is a wave in the ocean, it also creates one in the atmosphere. This affects the arrival time of GNSS radio waves in a way that, with enough ground-based detectors, would permit the passage of the wave to be followed. And these detectors, too, will soon be commonplace. For many years, smartphones have contained GNSS receivers, so a phone's apps can use location information. The latest phones have equipment so sensitive that it could, in principle, detect a passing tsunami in the atmosphere. All this would require is for someone to write a suitable app, and for enough phone users to download it. ■



Tsunami detection

Ahead of the wave

AUSTIN

Finding more time to detect threats and evacuate coastlines

TSUNAMI are terrible things. And part of their terror lies in their unpredictability. Even when a submarine earthquake that may cause one is detected, the information that is needed to determine whether a giant wave has actually been created takes time to gather. That is time unavailable for the evacuation of coastlines at risk. Contrariwise, issuing a warning when no subsequent wave arrives provokes cynicism and a tendency to ignore future evacuation calls.

Such tsunami-warning systems as do exist rely on seismometers to detect earthquakes, and tide gauges and special buoys to track a wave's passage. That is reliable, but can often be too late to get people away from threatened coastlines. What these

warning systems cannot do reliably is predict immediately whether a given earthquake will cause a tsunami. And that, in the view of some seismologists, is a scandal. For, as the AAAS meeting learned from Gerald Bawden of NASA, Paul Huang of America's National Tsunami Warning Centre, Tim Melbourne of Central Washington University, and Meghan Miller of UNAVCO, a geoscience research consortium, the tools for accurate tsunami prediction already exist. All that needs to happen is to connect them up.

The nub of the problem is that it is hard to distinguish immediately whether a submarine earthquake is powerful enough to cause a tsunami. Big quakes (those above about magnitude 7.3) involve slippage



The state of the world

A future perfect

Because people can think logically, life will keep getting better, argues Steven Pinker in his exhilarating new book

TO ANYONE who reads a newspaper, this can seem a miserable world. Syria is still at war. Another lunatic has gone on a gun rampage in an American school. The tone of political debate can rarely have been as crass and poisonous as it is today.

Front pages are grim for the same reason that Shakespeare's plays feature a lot of murders. Tragedy is dramatic. Hardly anyone would read a story headlined "100,000 AEROPLANES DIDN'T CRASH YESTERDAY". Bad things often happen suddenly and teleogenically. A factory closes; an apartment block burns down. Good things tend to happen incrementally, and across a wide area, making them much harder to film. News outlets could have honestly reported that the "NUMBER OF PEOPLE IN EXTREME POVERTY FELL BY 137,000 SINCE YESTERDAY" every day for 25 years. But readers might get bored.

Negative news is one reason why people consistently underestimate the progress humanity is making, complains Steven Pinker. To discern the true state of the world, he says, we should use numbers. In "Enlightenment Now", he does just that. The result is magnificent, uplifting and makes you want to rush to your laptop and close your Twitter account.

The world is about 100 times wealthier than 200 years ago and, contrary to popular belief, its wealth is more evenly distributed. The share of people killed annually in wars is less than a quarter of that in the

Enlightenment Now: The Case for Reason, Science, Humanism and Progress. By Steven Pinker. Viking; 576 pages; \$35. Allen Lane; £25

1980s and half a percent of the toll in the second world war. During the 20th century Americans became 96% less likely to die in a car crash, 92% less likely to perish in a fire and 95% less likely to expire on the job.

Mr Pinker's best-known previous book, "The Better Angels of Our Nature", showed that humankind has grown less violent. His new one demonstrates that steady, cumulative progress is occurring on many fronts. For this he credits the values of the 18th-century Enlightenment, summarised by Immanuel Kant as "Dare to understand!" By applying reason to problems, people can solve them—and move on to the next. Trade and technology spread good ideas, allowing rich countries to grow richer and poor ones to catch up.

Best of all possible worlds

Progress has often been stunningly rapid. The vast majority of poor Americans enjoy luxuries unavailable to the Vanderbilts and Astors of 150 years ago, such as electricity, air-conditioning and colour televisions. Street hawkers in South Sudan have better mobile phones than the brick that Gordon Gekko, a fictional tycoon, flaunted in "Wall Street" in 1987. It is not just that bet-

Also in this section

72 A Chinese adventure

72 Risk and rationality

73 Remembering Debussy

73 Journalism in film

74 The history of art, then and now

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Economist.com/culture

ter medicine and sanitation allow people to live longer, healthier lives, or that labour-saving devices have given people more free time, or that Amazon and Apple offer a dazzling variety of entertainment to fill it. People are also growing more intelligent, and more humane.

In every part of the world IQ scores have been rising, by a whopping 30 points in 100 years, meaning that the average person today scores better than 98% of people a century ago. How can this be, given that intelligence is highly heritable, and clever folk breed no more prolifically than less gifted ones? The answer is better nutrition ("brains are greedy organs") and more stimulation. Children are far likelier to go to school than they were in 1900, while "outside the schoolhouse, analytic thinking is encouraged by a culture that trades in visual symbols (subway maps, digital displays), analytic tools (spreadsheets, stock reports) and academic concepts that trickle down into common parlance (*supply and demand, on average, human rights*)."

Mr Pinker contends that this braininess has moral consequences, since people who can reason abstractly can ask: "What would the world be like if everyone did this?" That is consistent with the observable spread of Enlightenment values. Two centuries ago only 1% of people lived in democracies, and even there women and working-class men were denied the vote. Now two-thirds of people live in democracies, and even authoritarian states such as China are freer than they once were.

Belief in equality for ethnic minorities and gay people has shot up, as demonstrated not only by polls (which could be biased by the knowledge that bigotry is frowned upon) but also by internet activity. Searches for racist jokes have fallen by seven-eighths in America since 2004. Those who enjoy them are dying out: on-►

► line searches for racial epithets correlate with interest in “Social Security” and “Frank Sinatra”, Mr Pinker notes. Even the most conservative places are loosening up. Polls find that young Muslims in the Middle East are about as liberal as young western Europeans were in the early 1960s.

Many readers will find this bubbly optimism hard to swallow, like too much champagne. We may be materially richer, some will protest, but aren’t we less happy because we know that others have even more? We may have supercomputers in our pockets, but aren’t they causing an epidemic of loneliness among the young? And what about global warming or North Korea’s nuclear missiles?

Mr Pinker has answers for all these questions. In 45 out of 52 countries in the World Values Survey, happiness increased

between 1981 and 2007. It rises roughly in line with absolute income per head, not relative income. Loneliness, at least among American students, appears to be declining. Global warming is a big threat, but not insurmountable. The number of nuclear weapons in the world has fallen by 85% since its peak.

The rise of populism challenges Mr Pinker’s thesis. Supporters of Donald Trump, Brexit and various authoritarian parties in Europe tend to believe that the old days were golden, that experts can’t be trusted and the institutions of liberal democracy are a conspiracy to enrich the elite. Some want to tear down these institutions and start again—which would at the very least interrupt the incremental progress that Mr Pinker champions.

Without downplaying the risks, he re-

mains optimistic. The checks and balances that populists decry are reasonably effective in most rich countries and will outlast the current crop of demagogues. Supporters of populism will become disillusioned, or will simply die off. Mr Pinker draws especial comfort from the decline of faith. Worldwide, although 59% of people are religious, that share has fallen from nearly 100% a century ago. As people grow richer, he argues, they abandon the crutch of belief and rely more on reason.

Pessimism has its place—it fosters caution. And the human instinct to focus on problems is sound—it means they often get fixed. Nonetheless, Mr Pinker’s broad point is surely right. Things are not falling apart. And barring a cataclysmic asteroid strike or nuclear war, it is likely that they will continue to get better. ■

Chinese fiction

The dragons of salvation

A Hero Born (Legends of the Condor Heroes I). By Jin Yong. Translated by Anna Holmwood. *MacLehose Press*; 416 pages; £14.99

AS HE built his e-commerce empire, Jack Ma, the co-founder of Alibaba, proudly sported the nickname “Feng Qingyang”. The moniker was borrowed from a cunning swordsman in a novel by Jin Yong. In spite of official sales estimated at 300m copies, plus multiple spin-off films, television serials and games, the 14 martial-arts epics written by Jin Yong between 1955 and 1972 have remained unknown to most Western readers. Their author, though, is hardly a hermit scribe.

His real name is Louis Cha. Now 93, Mr Cha founded and edited one of Hong Kong’s leading newspapers, *Ming Pao*. He has been honoured by Queen Elizabeth and awarded two doctorates (one honorary, one for research) by Cambridge University. The swashbuckling blend of medieval history and heroic fantasy that he honed as Jin Yong is now set to reach a wide English-language readership.

“A Hero Born” is the first of the 12 volumes of “Legends of the Condor Heroes”, written in the late 1950s. Set in the years after 1205, it enjoyably wields the weapons of *wuxia*—traditional martial-arts fiction, with its spectacular combat and pauses for philosophy—to show Chinese identity under threat from foreign and domestic foes. “Three generations of useless emperors” have brought the Song dynasty to its knees. Quisling allies of the Jurchen Jin invaders, who rule the north, abet imperial decline.

Enter the dragons of salvation: an

“eccentric” kung fu clan known as the Seven Freaks of the South, and the militant Taoist monks of the Quanzhen sect. They are first rivals, then collaborators. Though strained, their joint mission embodies a pact between “physical force” and the “more enlightened path” of wisdom that may rescue China.

Bereaved and exiled by traitors, the hero Guo Jing grows up on the Mongolian steppes. He joins the entourage of Temujin, a great warrior who will become Genghis Khan. Although manifestly a parable of Han Chinese resistance to foreign humiliation, the story does not demonise outsiders. The Mongols, ferocious but “refined people”, nurture the “not naturally gifted” youngster as a fighter and a patriot. In Anna Holmwood’s spirited translation, this action-packed and ideas-laden saga is as revealing of modern as of ancient China.



All-conquering heroes

Risk and rationality

Black swan down

Skin in the Game: Hidden Asymmetries in Daily Life. By Nassim Nicholas Taleb. *Random House*; 304 pages; \$30. *Allen Lane*; £20

IN 2001 Nassim Taleb published “Fooled by Randomness”, an entertaining and provocative book on the misunderstood role of chance. He followed it with “The Black Swan”, which brought that term into widespread use to describe extreme, unexpected events. This was the first public incarnation of Mr Taleb—idiosyncratic and spiky, but with plenty of original things to say. As he became well-known, a second Mr Taleb emerged, a figure who indulged in bad-tempered spats with other thinkers. Unfortunately, judging by his latest book, this second Mr Taleb now predominates.

A list of the feuds and hobbyhorses he pursues in “Skin in the Game” would fill the rest of this review. (His targets include Steven Pinker, subject of the lead review.) The reader’s experience is rather like being trapped in a cab with a cantankerous and over-opinionated driver. At one point, Mr Taleb posits that people who use foul language on Twitter are signalling that they are “free” and “competent”. Another interpretation is that they resort to bullying to conceal the poverty of their arguments.

All this is a shame, because the first, submerged Mr Taleb is still audible, and still has interesting things to say. Broadly, his concept of “skin in the game” holds that the extent of people’s stakes in particular outcomes is an underrated determinant of events. It can be applied to a wide range of subjects, from financial markets to businesses and religion, and the author illustrates it well. One neat concept is the “dominance of the stubborn minority”—ie, that ►

► a few individuals who will not change their behaviour can force everyone to adjust to their tastes. An example is that “a kosher (or halal) eater will never eat non-kosher (or non-halal) food, but a non-kosher eater isn’t banned from eating kosher.” Catering companies can thus switch to serving halal meat as it makes life easier.

In his last two chapters, Mr Taleb draws together the book’s ideas with some of his previous work. The more “skin in the game” you have, the greater your exposure to “black swans”. He concludes that the folk wisdom handed down by grandmothers—concerning the virtue of birds in the hand—shows an awareness of extreme risks not found in economists’ models. “Rationality is avoidance of systemic ruin,” Mr Taleb writes. He recommends suspicion of armchair experts who are detached from their subjects: “Do not pay attention to what people say, only what they do, and to how much of their necks they are putting on the line.”

Yet even here Mr Taleb applies different standards to his own arguments and those of others. When he criticises Western politicians for intervening in Libya, he has no skin in the game. He has not run for office or been obliged to put policies into action. The group with real skin in that game were the citizens of Benghazi, who might have been slaughtered had NATO not shown up. Failing to intervene in (for example) Rwanda had consequences too. Humbler analysts would acknowledge such awkward counterfactuals. But there is little humility on display here. ■

Remembering Debussy

A life among phantoms

Debussy: A Painter in Sound. By Stephen Walsh. Faber and Faber; 368 pages; £20. To be published in America by Knopf in October; \$28.95

CLAUDE DEBUSSY was a rarity: an avant-garde composer who was also popular. The musical establishment of his day reviled him, but he delighted audiences because he always strove to make his music beautiful, striking just the right balance between the novel and the familiar. He remains much loved. Some of his most famous pieces—“Clair de Lune”, “Prélude à l’Après-Midi d’un Faune”, “La Mer” and “Pelléas et Mélisande”, his only completed opera—ring a bell with many people who are not classical-music buffs.

The centenary of Debussy’s death falls on March 25th. As Stephen Walsh recounts in his lively yet learned new biography, he was born in 1862 in Saint-Germain-en-

Laye, outside Paris, the eldest of five children. His father was a failed shopkeeper and his mother a seamstress. There was no music in the house, but by chance the boy was given some piano lessons when he was seven. He proved so talented that three years later he was admitted to the Paris conservatory. He studied there for the next 11 years, followed by a spell in Rome, but he did not fit in. The school’s approach to music was hidebound, but Debussy wanted to reinvent it, creating shimmering, chromatic sound pictures based on unusual scales and chords.

His technique has been called “Impressionist”—a description he rejected—because it aims to convey a mood or feeling rather than following a formal structure, just as the Impressionist painters were trying to capture a fleeting scene, often out of doors. The big difference was that the painters tended to work rapidly so as not to miss the moment, whereas Debussy was painstaking, labouring to evoke evanescent subjects such as clouds and water. Like many composers of his day, he was heavily influenced by Richard Wagner. But at heart he believed that French music was best. He revered earlier French composers such as François Couperin and Jean-Philippe Rameau (Bach, whom he adored, was an honorary exception).

Mr Walsh depicts Debussy’s Paris with the same verve and scholarship that he applies to the man. The city was awash with artists of all kinds, from whom the composer drew inspiration; he set work by contemporary poets such as Verlaine and Mallarmé to music. The bohemian life suited him, but he was always broke, borrowing money from friends and business associates and rarely paying it back. At 50 he was famous and earning fat commissions, but his finances were always shaky.

His love life was messy, too. At 18 he began an affair with Marie Vasnier, a gifted singer and the wife of a civil servant. After various stormy relationships he married Lilly Texier, a couturier’s model, in 1899, but less than five years later he fell in love with Emma Bardac, a banker’s wife. Texier very publicly tried to commit suicide by shooting herself, but survived; Paris was scandalised. Debussy and Bardac were eventually married in 1908, legitimising their daughter, Chouchou, and remained together, if sometimes fractiously, until Debussy died of rectal cancer in 1918.

As a man, then, he had manifold flaws. He treated women badly, was given to lying and took his friends for granted. Like many artists, he invoked his calling to excuse these shortcomings. In a letter to his publisher in 1910 he fumed: “An artist is by definition someone accustomed to dreaming and who lives among phantoms...How can they want this same person to be able to conduct himself in daily life in strict observance of traditions, laws and other ob-

stacles placed in his way by a cowardly and hypocritical world?” That is either a noble truth or self-justifying cant, depending on your point of view.

As Mr Walsh says, his book is a musical biography, which aims to show the connections between the composer’s life and his music, not a blow-by-blow chronology. He explains how each of the major works was conceived and written and analyses key passages bar by bar. It is an enjoyable and impressive achievement. Many readers may wish for an electronic version that allows them to listen to the music rather than merely imagine it. ■



Journalism in film

Some of the president’s men

WASHINGTON, DC

Reporters should draw little comfort from their heroic cinema avatars

A LITTLE-KNOWN perk of reporting from the White House is free caffeine from Tom Hanks. The film star first sent a coffee-maker to the press room in 2004. His latest gift—a snazzy espresso machine—arrived shortly after President Donald Trump had denounced the “fake news media” as the “enemy of the American people”. Mr Hanks urged the White House press corps to “Keep up the good fight for Truth, Justice, and the American Way.”

A higher-profile tribute to the fourth estate, starring Mr Hanks and Meryl Streep and directed by Steven Spielberg, was released in January. “The Post” is a docudrama about the Washington Post’s decision in 1971 to publish the Pentagon Papers, leaked government documents acknowledging that the Vietnam war was unwin-

nable. By early February it had earned \$73m in domestic sales—a decent haul for a film heavy on men in bad ties, meetings in newsrooms and stirring homilies about free speech. It has been nominated for best picture at the Academy Awards.

Mr Spielberg makes no secret of having rushed out “The Post” to counter Mr Trump’s attacks on the press. Between the film’s success and opinion polls recording a modest uptick in public trust for newspapers, optimistic journalists might conclude that they, or at least their cinema avatars, are still widely admired. They might even detect the beginning of a general backlash against those snarls about “fake news”. That would be wishful thinking.

“The Post” was initially pitched as a human drama about Katherine Graham, a Georgetown heiress who found herself running the *Washington Post*, and proved braver than the Nixon administration (and many of her own staff) imagined. However, says Stacey Snider—CEO and chairman of Twentieth Century Fox Film, the movie’s co-producers and distributors—as parallels with current news grew clearer, the story became more of a political thriller. The studio predicted it would mostly do well “on the coasts and in college towns”.

It exceeded those expectations. The top studios know how big a slice of the American box-office is earned, on average, in each largish market. That allows Fox to calculate that the film is over-performing in some Republican-leaning areas. In Fort Myers, Florida, it has sold 87% more tickets than the averages would predict. Other hotspots in Trump-voting states include Tampa, Florida; St Louis, Missouri; Des Moines, Iowa; Austin, Texas, and Harrisburg, Pennsylvania. “It has done well in towns all round the country,” says Ms Snider. “It couldn’t have been a big-city movie only and done as well as this.”

That looks like a fillip for those worried by declining faith in the news. Alas, there are four reasons to doubt that enthusiasm for journalists is reaching unexpected places. First, cities such as Austin are left-leaning islands in deeply conservative country. Des Moines has pockets of hipsterdom amid the Iowan cornfields. Republicans in Fort Myers or Tampa include lots of moderate retirees from the Midwest.

Second, Ms Snider identifies another powerful demographic factor behind the spread of ticket sales. Though she had hoped the film would appeal to all ages, the audiences for what is, after all, a period piece skew markedly older. That age bias is easier to discern in box-office data than any differences between Republican and Democratic states, she says. Some critics have duly dismissed “The Post” as gauzy nostalgia (though wistfulness for a time when pursuit of the truth was a more bipartisan affair may be understandable).

Third, look closer, and polling data on

The history of art

Out of one, many

“Civilisation” isn’t what it used to be

ON FEBRUARY 23rd 1969 Kenneth Clark, a British art historian and museum director, told the nation’s television viewers that he could not define civilisation. “But”, he said, standing in front of Notre Dame cathedral in Paris, “I think I can recognise it when I see it.” Clark’s haughty didacticism typified the BBC’s 13-part series outlining the history of Western art and architecture from the Dark Ages onwards. In Britain the programme helped launch the colour-TV set. There was much to be admired, even if his fogeyish views led the newly ennobled presenter to be mocked as ‘Lord Clark of “Civilisation”’.

One of his enthusiastic viewers was Tony Hall, then 17 years old. When he was appointed as the BBC’s director-general in 2013, Lord Hall, as he had by then become, announced his aim to update



Mary Beard and friends

support for the press is lopsided. According to Gallup, 27% of Americans expressed a great deal or quite a lot of confidence in newspapers in 2017, up from 20% in 2016. But the boost was all on one side: nearly half of Democrats trust the press, while a dwindling 13% of Republicans agree.

Finally, both “The Post” and “Spotlight”, an Oscar-winning film from 2015 about the Boston *Globe* uncovering clerical sex abuse, have drawn much smaller audiences than “All The President’s Men”, a Watergate drama starring Robert Redford and Dustin Hoffman as intrepid hacks. Released in 1976, it earned the equivalent of \$300m. Of course, it helped that it portrayed an extremely recent mega-scandal. But changes in the political climate may have contributed to the differential too.

that formative series. “Civilisations” will be broadcast in Britain from March 1st. The additional “s” is dropped onto the end of the title in the opening credits in a telling, self-referential irony. (A tweaked version, narrated by Liev Schreiber, will air on PBS in America from April 17th.)

The remake is even more ambitious than the original. Three years in the making and filmed in 31 countries, it features patient camera work and sweeping drone footage, which allows the viewer to properly appreciate the objects being discussed. It uses multiple voices to make connections across the world.

Simon Schama, Mary Beard (pictured) and David Olusoga, historians with assorted specialities, each present their own episodes. Among other themes they focus on how the nude became the hallmark of Western art, the meaning of colour and the significance of colonial encounters from Mexico to Mali. What different cultures drew from each other, through conflict or assimilation, is a key aspect of their analysis.

They explain how Japanese wood-block prints became all the rage in Paris in the 1860s; how, when Mimar Sinan built the Suleymaniye Mosque in Istanbul, he applied many of the same principles Michelangelo used in designing the dome of St Peter’s basilica in Rome; and how Portuguese traders brought back people and animals, which is why so many Africans appear in an anonymous painting of Lisbon from the 1570s called “View of a Square with the King’s Fountain”. If you learn anything from “Civilisations”, it is that influence and authority are messier than they once appeared.

Jon Boorstin, an associate producer on “All The President’s Men”, remembers the great effort taken to avoid scenes that might look like liberal gloating (one abandoned ending would have shown Nixon leaving the White House by helicopter after he resigned). He recalls a test screening deliberately held in Arizona, far from New York or Los Angeles. The movie was less a polemic about the press than about “the need to know”, Mr Boorstin says.

He worries that “All The President’s Men” seems quaint now. Trump-sceptics still love it: a recent live reading of the script drew sell-out crowds in Los Angeles. But its premise is that investigating and uncovering evidence of rule-breaking will lead to consequences, he notes. “You couldn’t make that movie now.” ■

Tenders



The Republic of Uganda



Uganda National Roads Authority

REQUEST FOR EXPRESSIONS OF INTEREST (CONSULTANCY SERVICES)

Project: Upgrading of Rwekunye–Apac–Lira–Acholibur Road Project

Description of Assignment: Consultancy Services for Design Review and Construction Supervision of the Upgrading of Rwekunye–Apac–Lira–Puranga Road (191 km) and 25 km of Secondary Roads.

Sector: Transportation

Mode of Financing: Istisna'a Financing

Financing No: 2UGA0125

Contract/Bid No: UNRA/SRVC/S/16-17/00006/01-02

The Republic of Uganda has applied for financing from the Islamic Development Bank (IsDB) in the amount of US \$210.0 million towards the cost of Upgrading Rwekunye–Apac–Lira–Acholibur Road Project and it intends to apply part of the proceeds towards payment under the Contract for the Consultancy Services for Design Review and Construction Supervision of the Upgrading of Rwekunye–Apac–Lira–Puranga Road (191 km) and 25 km of Secondary roads. The Project scope involves upgrading of 191 km 2-lane existing earthen/gravel road to asphaltic paved road standard with 2-lanes of 3.5 m wide asphaltic traffic lanes, 1.5 m paved and 0.45 m unpaved shoulders and improvement of 25 km secondary link roads, associated structures, drainage works, highway safety works, provision of weighing and axle load control equipment, road side facilities and other associated Civil works.

The objective of the assignment is to carry out detailed design review, procurement of civil works Contractor, Supervision and monitoring of physical progress, quality and the financial status of the Construction works with the objective to ensure that the works are completed on time, meet the engineering specifications, social, environmental and road safety standards. The services are expected to be completed within fifty (50) calendar months from the commencement date.

The Uganda National Roads Authority (UNRA) now invites eligible consulting firms from IsDB Member countries to express their interest in providing the required services. Interested Consultants must provide specific information which demonstrates that they are fully qualified to perform the services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Experience in the following areas or tasks shall be the minimum requirement for the assignment:

- Review of Detailed Engineering Designs and specifications;
- Support/assistance in the preparation of technical specifications, bidding documents and review and evaluation of bids;
- Supervision of Civil works contracts and Contract Management;
- Carrying out all standard duties required from the Engineer according to the FIDIC Condition of Contract.

Consultants may express interest in the forms of association, validated by an intention letter or agreement among members of the association which clearly specifies the type of association, i.e. a Joint Venture or Sub-consultancy. A Consultant will be selected from a shortlist of the IDB Member consultancy firms through Quality and Cost-based Selection method as set out in the **Guidelines for Use of Consultants under Islamic Development Bank Financing** (current edition) after shortlisting.

Interested Consultants may obtain further information at the address below during office hours (0900 to 1600 hours) from Mondays to Fridays.

**The Head, Procurement and Disposal Unit,
Uganda National Roads Authority**

Plot 3-5, New Port Bell Road
UAP Nakawa Business Park
First Floor Block D

P. O. Box 28487, Kampala, Uganda

Tel: +256 (0) 312 233 100/414 318 000 Fax: +256 (0) 414 232 807 /347 616

E-mail: procurement@unra.go.ug

Expression of interest, in English (one Original plus two copies), in a sealed envelope clearly marked "Expression of Interest for Consultancy Services for Design Review and Construction Supervision of Upgrading of Rwekunye–Apac–Lira–Acholibur Road (191 km) and 25 km of Secondary Roads" must be delivered to the Physical address below in person or by registered mail/courier, or by email, to reach not later than 1100 hours (Local time) on **2nd May, 2018**. The EOI applications shall be opened on **2nd May at 11:00hrs**.

**The Head, Procurement and Disposal Unit,
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Any form of canvassing or lobbying for the tender shall lead to automatic disqualification.

EXECUTIVE DIRECTOR



The Republic of Uganda



Uganda National Roads Authority

NATIONAL ROADS DEVELOPMENT PROGRAMME

CIVIL WORKS FOR THE UPGRADING OF RWENKUNYE-APAC-LIRA-ACHOLIBUR ROAD

SPECIFIC PROCUREMENT NOTICE

Initiation for Prequalification

Issue date: 22nd February, 2018

1. The Government of the Republic of Uganda **has applied for** Financing from the Islamic Development Bank (IsDB) towards the cost of the **National Roads Development Programme**, and it intends to apply part of the proceeds of this Financing to the payments under the contracts for the **Upgrading of 191 km long Rwekunye–Apac–Lira–Puranga Road to Asphaltic Paved Road Standard**. Disbursement in respect of any contracts signed, will be subject to effectiveness of the financing by the Bank.
2. The Uganda National Roads Authority now intends to prequalify Contractors and/or firms for: **Upgrading of:**
 - (I) **Procurement Reference No. UNRA/WRKS/16-17/00002/01 - Lot 1: Rwekunye–Apac (90.9 km) and;**
 - (II) **Procurement Reference No. UNRA/WRKS/16-17/00002/02 - Lot 2: Apac–Lira–Puranga Road (100.1 km)****from Earthen/Gravel Roadway to Asphaltic Paved Road Standard.**

The above two lots will be procured through International Competitive Bidding with pre-qualification of bidders as defined in IDB Guidelines for Procurement of Goods and Works dated May 2009. The eligible firms would be allowed to prequalify and bid for both lots.
3. The Rwekunye–Apac–Lira–Puranga Road is part of the National Road Network. It connects the Western with the Northern parts of Uganda and traverses four districts of Masindi, Apac, Lira and Pader. The road link starts at Rwekunye in Masindi District off the Kampala – Gulu highway, runs through Masindi Port where there is a ferry crossing across the Nile River, and crosses Apac and Lira districts before it terminates at Puranga in Pader District.
4. The Civil works for the Construction of Rwekunye–Apac–Lira–Puranga Road Section includes all works related to Upgrading of 191 Km long existing Earthen/ Gravel roadway to Asphaltic Road Standard in two lots, as mentioned above. Major work items include all works related to upgrading of existing 2-lane Earthen/ Gravel roadway to 3.5 m wide traffic lanes, 1.5 m paved and 0.3 m unpaved shoulders, associated earthworks, granular pavement layers, asphalt pavement, paved shoulders, retaining structures, gabion walls, bridges, culverts, pipe culverts, roadside drainage system, installation of road safety devices, provision of weighing stations and axle load control, roadside facilities such as laybys, bus stops and waiting areas, service areas, emergency stopovers environmental mitigation measures, etc., and other associated miscellaneous civil works. The road section being maintained under a Term Maintenance contract.
5. It is expected that Invitations for Bid (IFB) will be made in **June 2018**.
6. Prequalification will be conducted through prequalification procedures specified in the Islamic Development Bank's Guidelines for Procurement of Goods and Works May 2009, and is open to all bidders from eligible source countries, as defined in the Guidelines.
7. Interested eligible applicants may obtain further information from and inspect the Prequalification Document at the address below during working hours (0900 to 1700).
8. A complete set of the Prequalification Document in the English language may be purchased by interested applicants through submission of a written application to the address below, and upon payment of a non-refundable fee of **UGX:50,000= (Uganda Shillings Fifty Thousand only) or US\$14**. The method of payment will be by registering the payment on the Uganda Revenue Authority (URA) website portal. Print the payment advice Form after registering on the URA Portal and effect payment through any of the URA collection Banks.
9. Applications for Prequalification should be submitted in sealed envelopes, delivered to the address below before or on **3rd May, 2018 at 11:00 a.m.**, and be clearly marked "**Application to Prequalify for Upgrading of Rwekunye–Apac–Lira–Puranga Road (191 km); Procurement No: UNRA/WRKS/16-17/00002/01-02**" whichever is applicable. The applications shall be opened at the address below on **3rd May 2018 at 11:00 am**.

**The Head, Procurement and Disposal Unit,
Uganda National Roads Authority**

Plot 3-5, New Port Bell Road
UAP Nakawa Business Park
1st Floor Block D

P. O. Box 28487, Kampala, Uganda

Tel: +256 (0) 312 233 100/414 318 000 Fax: +256 (0) 414 232 807/347 616

E-mail: procurement@unra.go.ug

Any form of canvassing or lobbying for the tender shall lead to automatic disqualification.

EXECUTIVE DIRECTOR

Economic data

% change on year ago

	Gross domestic product			Industrial production latest	Consumer prices latest	Unemployment rate, %	Current-account balance		Budget balance % of GDP 2017†	Interest rates, % 10-year gov't bonds, latest	Currency units, per \$ Feb 21st	Currency units, per \$ year ago	
	latest	qtr*	2017†				latest 12 months, \$bn	% of GDP 2017†					
United States	+2.5 04	+2.6	+2.3	+3.7 Jan	+2.1 Jan	+2.1	4.1 Jan	-452.5 Q3	-2.4	-3.5	2.90	- -	
China	+6.8 04	+6.6	+6.8	+6.2 Dec	+1.5 Jan	+1.6	3.9 Q4§	+172.0 Q4	+1.2	-4.3	3.83§§	6.34	6.88
Japan	+1.5 04	+0.5	+1.7	+4.4 Dec	+1.1 Dec	+0.5	2.8 Dec	+195.5 Dec	+3.9	-4.4	0.06	108	114
Britain	+1.5 04	+2.0	+1.7	n/a Dec	+3.0 Jan	+2.7	4.4 Nov††	-118.1 Q3	-4.5	-2.9	1.63	0.72	0.80
Canada	+3.0 03	+1.7	+3.1	+4.7 Nov	+1.9 Dec	+1.6	5.9 Jan	-45.8 Q3	-2.9	-1.7	2.35	1.27	1.31
Euro area	+2.7 04	+2.4	+2.4	+5.2 Dec	+1.3 Jan	+1.5	8.7 Dec	+448.0 Dec	+3.2	-1.2	0.72	0.81	0.95
Austria	+3.2 03	+1.4	+2.9	+3.4 Dec	+2.2 Dec	+2.2	5.3 Dec	+8.5 Q3	+2.2	-1.1	0.84	0.81	0.95
Belgium	+1.9 04	+2.0	+1.7	+6.2 Nov	+1.7 Jan	+2.2	6.6 Dec	-3.9 Sep	-0.7	-1.7	0.98	0.81	0.95
France	+2.4 04	+2.5	+1.9	+4.5 Dec	+1.4 Jan	+1.1	9.2 Dec	-28.5 Dec	-1.3	-2.9	0.99	0.81	0.95
Germany	+2.9 04	+2.4	+2.5	+6.7 Dec	+1.6 Jan	+1.7	3.6 Dec‡	+291.4 Dec	+7.9	+1.2	0.72	0.81	0.95
Greece	+1.3 03	+1.2	+1.3	+0.2 Dec	-0.2 Jan	+1.1	20.9 Nov	-1.4 Dec	-0.4	-0.6	4.40	0.81	0.95
Italy	+1.6 04	+1.2	+1.5	+4.9 Dec	+0.8 Jan	+1.3	10.8 Dec	+57.3 Dec	+2.7	-2.3	2.17	0.81	0.95
Netherlands	+2.9 04	+3.2	+3.2	+5.2 Dec	+1.5 Jan	+1.3	5.2 Jan	+80.7 Q3	+9.6	+0.9	0.78	0.81	0.95
Spain	+3.1 04	+2.8	+3.1	+2.8 Dec	+0.6 Jan	+2.0	16.4 Dec	+23.0 Nov	+1.6	-3.0	1.51	0.81	0.95
Czech Republic	+4.7 03	+2.0	+4.5	+2.7 Dec	+2.2 Jan	+2.5	2.4 Dec‡	+0.9 Q3	+0.7	+0.7	1.84	20.6	25.6
Denmark	+1.4 03	+3.6	+2.0	-3.1 Dec	+0.7 Jan	+1.1	4.2 Dec	+24.8 Dec	+8.3	-0.3	0.80	6.05	7.05
Norway	+1.4 04	-1.1	+1.9	-3.2 Dec	+1.6 Jan	+1.9	4.1 Dec‡‡	+21.1 Q3	+4.6	+4.9	2.00	7.85	8.35
Poland	+5.1 03	+4.1	+4.6	+8.9 Jan	+1.9 Jan	+2.0	6.9 Jan§	+0.2 Dec	-0.1	-2.2	3.48	3.38	4.08
Russia	+1.8 03	na	+1.7	+2.8 Jan	+2.2 Jan	+3.5	5.2 Jan§	+40.2 Q4	+2.4	-1.5	8.13	56.6	57.7
Sweden	+2.9 03	+3.1	+2.7	+8.1 Dec	+1.6 Jan	+1.8	7.0 Jan§	+21.1 Q3	+4.7	+1.0	0.90	8.10	8.98
Switzerland	+1.2 03	+2.5	+1.0	+8.7 Q3	+0.7 Jan	+0.5	3.0 Jan	+66.4 Q3	+9.3	+0.8	0.16	0.94	1.01
Turkey	+11.1 03	na	+6.7	+6.5 Dec	+10.3 Jan	+11.1	10.3 Nov§	-47.1 Dec	-5.0	-1.5	11.87	3.79	3.63
Australia	+2.8 03	+2.4	+2.3	+3.5 Q3	+1.9 Q4	+1.9	5.5 Jan	-22.2 Q3	-1.7	-1.5	2.87	1.27	1.30
Hong Kong	+3.6 03	+2.0	+3.7	+0.4 Q3	+1.7 Dec	+1.5	2.9 Dec‡‡	+14.8 Q3	+4.3	+4.2	2.02	7.83	7.76
India	+6.3 03	+8.7	+6.4	+7.1 Dec	+5.1 Jan	+3.5	5.0 Jan	-33.6 Q3	-1.6	-3.3	7.71	64.8	66.9
Indonesia	+5.2 04	na	+5.1	+3.4 Dec	+3.3 Jan	+3.8	5.5 Q3§	-17.3 Q4	-1.6	-2.8	6.41	13,618	13,373
Malaysia	+5.9 04	na	+6.0	+2.8 Dec	+3.5 Dec	+3.8	3.3 Dec§	+9.4 Q4	+2.6	-2.9	4.04	3.91	4.46
Pakistan	+5.7 2017**	na	+5.7	-1.4 Dec	+4.4 Jan	+4.1	5.9 2015	-15.3 Q4	-4.8	-5.9	8.80†††	111	105
Philippines	+6.6 04	+6.1	+6.7	-9.7 Dec	+4.0 Jan	+3.2	5.0 Q4§	-0.5 Sep	-0.3	-2.1	6.86	52.1	50.3
Singapore	+3.6 04	+2.1	+3.5	-3.9 Dec	+0.4 Dec	+0.6	2.1 Q4	+61.0 Q4	+18.5	-1.0	2.38	1.32	1.42
South Korea	+3.0 04	-0.9	+3.1	-6.0 Dec	+1.0 Jan	+2.0	3.7 Jan§	+78.5 Dec	+5.3	+1.0	2.80	1,076	1,146
Taiwan	+3.3 04	+4.3	+2.8	+1.2 Dec	+0.9 Jan	+0.6	3.7 Dec	+74.1 Q3	+13.8	-0.1	1.06	29.2	30.8
Thailand	+4.0 04	+1.8	+3.7	+2.3 Dec	+0.7 Jan	+0.7	1.0 Dec§	+49.3 Q4	+11.6	-2.5	2.52	31.5	35.0
Argentina	+4.2 03	+3.6	+2.9	+1.1 Jan	+25.4 Jan	+25.2	8.3 Q3§	-26.6 Q3	-4.2	-5.8	4.19	19.9	15.7
Brazil	+1.4 03	+0.6	+1.0	+4.4 Dec	+2.9 Jan	+3.3	11.8 Dec§	-9.8 Dec	-0.6	-8.0	8.40	3.26	3.10
Chile	+2.2 03	+6.0	+1.4	+0.2 Dec	+2.2 Jan	+2.2	6.4 Dec‡‡	-4.6 Q3	-1.3	-2.7	4.54	595	644
Colombia	+1.6 04	+1.1	+1.6	-0.8 Dec	+3.7 Jan	+4.3	8.6 Dec§	-11.1 Q3	-3.4	-2.3	6.56	2,874	2,901
Mexico	+1.8 04	+4.1	+2.1	-0.7 Dec	+5.5 Jan	+6.0	3.4 Dec	-16.1 Q3	-1.7	-1.1	7.70	18.6	20.5
Peru	+2.5 03	+5.5	+2.5	-12.5 Dec	+1.3 Jan	+2.8	6.9 Dec§	-1.8 Q3	-2.1	-3.3	na	3.25	3.25
Egypt	na	na	+4.2	+27.1 Nov	+17.1 Jan	+29.5	11.3 Q4§	-12.2 Q3	-7.1	-11.0	na	17.7	15.8
Israel	+2.9 04	+3.6	+3.0	+1.5 Dec	+0.1 Jan	+0.2	4.0 Dec	+10.5 Q3	+3.4	-2.0	1.88	3.49	3.70
Saudi Arabia	-0.7 2017	na	-0.7	na	+0.4 Dec	-0.2	5.8 Q3	+12.4 Q3	+2.7	-8.9	na	3.75	3.75
South Africa	+0.8 03	+2.0	+0.9	+2.8 Dec	+4.4 Jan	+5.3	26.7 Q4§	-7.3 Q3	-2.2	-3.9	7.99	11.6	13.1

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.

The Economist

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Markets

	% change on			
	Index Feb 21st	one week	in local currency terms	Dec 29th 2017
United States (DJIA)	24,797.8	-0.4	+0.3	+0.3
China (SSEA)	3,350.6	nil	-3.3	-0.7
Japan (Nikkei 225)	21,970.8	+3.9	-3.5	+1.5
Britain (FTSE 100)	7,281.6	+0.9	-5.3	-1.9
Canada (S&P TSX)	15,524.0	+1.3	-4.2	-4.9
Euro area (FTSE Euro 100)	1,195.3	+1.7	-1.2	+1.5
Euro area (EURO STOXX 50)	3,430.2	+1.8	-2.1	+0.6
Austria (ATX)	3,427.3	+1.2	+0.2	+3.0
Belgium (Bel 20)	3,950.3	+1.5	-0.7	+2.1
France (CAC 40)	5,302.2	+2.7	-0.2	+2.6
Germany (DAX)*	12,470.5	+1.1	-3.5	-0.8
Greece (Athex Comp)	838.7	+1.6	+4.5	+7.4
Italy (FTSE/MIB)	22,653.0	+1.0	+3.7	+6.5
Netherlands (AEX)	534.0	+1.6	-2.0	+0.8
Spain (IBEX 35)	9,823.3	+1.4	-2.2	+0.5
Czech Republic (PX)	1,111.2	+0.1	+3.1	+6.8
Denmark (OMXCB)	907.9	+1.9	-2.1	+0.6
Hungary (BUX)	38,971.9	+1.3	-1.0	+1.2
Norway (OSEAX)	909.5	+2.6	+0.3	+4.6
Poland (WIG)	62,603.3	-1.4	-1.8	+1.5
Russia (RTS, \$ terms)	1,291.2	+3.7	+11.8	+11.8
Sweden (OMX30)	1,575.1	+2.8	-0.1	+1.0
Switzerland (SMI)	8,989.0	+1.0	-4.2	-0.1
Turkey (BIST)	116,315.9	+2.5	+0.9	+0.5
Australia (All Ord.)	6,047.3	+1.8	-1.9	-0.9
Hong Kong (Hang Seng)	31,431.9	+3.0	+5.1	+5.0
India (BSE)	33,844.9	-0.9	-0.6	-2.1
Indonesia (JSX)	6,643.4	+0.7	+4.5	+4.2
Malaysia (KLCSE)	1,858.2	+1.3	+3.4	+7.2
Pakistan (KSE)	42,919.8	-1.0	+6.0	+5.9
Singapore (STI)	3,516.2	+3.3	+3.3	+4.7
South Korea (KOSPI)	2,429.7	+0.3	-1.5	-1.8
Taiwan (TWI)	10,714.4	+2.8	+0.7	+2.2
Thailand (SET)	1,801.2	+0.5	+2.7	+6.3
Argentina (MERV)	33,042.3	+4.7	+9.9	+3.6
Brazil (BVSP)	86,051.8	+3.0	+12.6	+15.0
Chile (IGPA)	28,633.2	+2.2	+2.3	+5.6
Colombia (IGBC)	11,762.0	+0.3	+2.5	+6.8
Mexico (IPC)	48,535.6	+0.3	-1.7	+3.1
Venezuela (IBC)	5,260.5	+33.7	+317	na
Egypt (EGX 30)	15,244.5	+3.0	+1.5	+1.9
Israel (TA-125)	1,366.8	+1.9	+0.2	-0.5
Saudi Arabia (Tadawul)	7,505.6	+1.2	+3.9	+3.9
South Africa (JSE AS)	58,606.0	+2.1	-1.5	+3.8

Corruption perceptions

At least 6bn people around the world live in corrupt countries, according to Transparency International's (TI) latest ranking of corruption in the public sector. Based on surveys with analysts and business folk, TI found 69% of countries scored less than 50 (100 being "very clean") in its index for 2017. Somalia languished at the bottom with a score of 9; New Zealand came top with 89. TI highlights the inverse relationship between graft and free speech. Nine out of every ten journalists killed since 2012 were in countries that scored less than 45. Bahrain suffered the biggest fall. In June the government shut down the country's only independent newspaper as part of a wider crackdown on dissent.



Source: Transparency International

Other markets

	% change on			
	Index Feb 21st	one week	in local currency terms	Dec 29th 2017
United States (S&P 500)	2,701.3	+0.1	+1.0	+1.0
United States (NAScomp)	7,218.2	+1.0	+4.6	+4.6
China (SSEB, \$ terms)	324.0	nil	-5.2	-5.2
Japan (Topix)	1,761.6	+3.5	-3.1	+1.9
Europe (FTSEurofirst 300)	1,491.6	+1.5	-2.5	+0.2
World, dev'd (MSCI)	2,118.4	+0.6	+0.7	+0.7
Emerging markets (MSCI)	1,209.7	+2.1	+4.4	+4.4
World, all (MSCI)	518.9	+0.8	+1.1	+1.1
World bonds (Citigroup)	958.5	-0.4	+0.9	+0.9
EMBI+ (JP Morgan)	811.6	+0.7	-2.9	-2.9
Hedge funds (HFRX)	1,290.5 ^{\$}	+0.2	+1.2	+1.2
Volatility, US (VIX)	20.0	+19.3	+11.0 (levels)	
CDSs, Eur (iTRAXX) [†]	51.6	-5.8	+14.4	+17.6
CDSs, N Am (CDX) [†]	55.6	-1.7	+13.3	+13.3
Carbon trading (EU ETS) €	9.6	+0.2	+17.6	+20.8

Sources: IHS Markit; Thomson Reuters. *Total return index.

†Credit-default-swap spreads, basis points. ^{\$}Feb 20th.

Indicators for more countries and additional series, go to: Economist.com/indicators

The Economist commodity-price index

	% change on			
	Feb 13th	Feb 20th*	one month	one year
Dollar Index				
All Items	152.0	154.0	+1.9	+3.6
Food	154.5	155.1	+3.1	-2.3
Industrials				
All	149.4	152.9	+0.7	+10.6
Nfa [†]	138.1	138.6	-2.8	-5.0
Metals	154.3	159.0	+2.1	+17.9
Sterling Index				
All items	199.2	200.0	+2.0	-7.8
Euro Index				
All items	153.0	155.1	+1.5	-11.5
Gold				
\$ per oz	1,329.6	1,336.3	-0.1	+8.2
West Texas Intermediate				
\$ per barrel	59.2	61.8	-4.2	+14.3

Sources: Bloomberg; CME Group; Cotlook; Darmenn & Curl; FT; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Urner Barry; WSJ. *Provisional

[†]Non-food agriculturals.**Speakers include:**

ENEIDA DE LEÓN
Minister of housing, territorial planning and environment
Uruguay



ENRIQUE PEÑA NIETO
President
Mexico

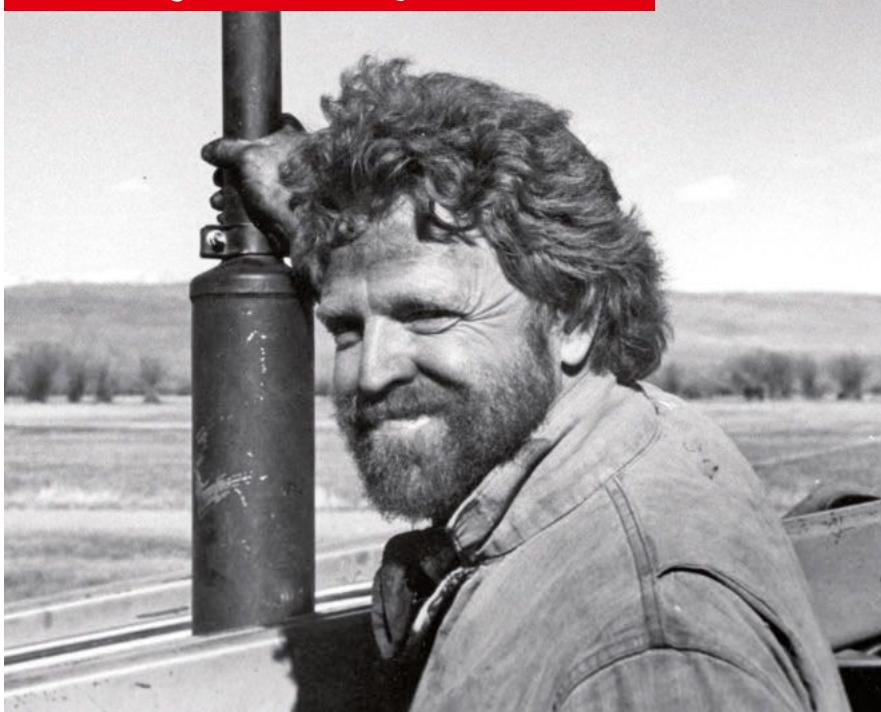


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On the cyber-frontier

John Perry Barlow, songwriter and internet Utopian, died on February 7th, aged 70

IT WAS late, 1985, before John Perry Barlow got into computers. He'd bought a word processor to keep things efficient as he ran the family ranch, and because he wanted a machine that would print out his lyrics for the Grateful Dead really nicely on paper. (Two jobs, two hats.) But then he procured a Macintosh and a modem, the first ever seen in Sublette County, Wyoming, and discovered that, through this little blinking box and the tendril of a landline, he could join an extraordinary community. In the WELL (for Whole Earth 'Lectronic Link), one of the first virtual bulletin boards, he moved like a cave fish, blindly, among entities without bodies. They were things of words alone, free-floating wisps of thought, in a perpetual town meeting of unleashed opinions. Everything was possible, and almost everything allowed, in a suddenly limitless world. As he wrote for the Grateful Dead in "Cassidy", his most famous song, he was "a child of boundless seas".

He saw what other people had not yet seen, that this was a new space—one to which he quickly applied an existing term, cyberspace, and his own metaphor, the electronic frontier. Here was a land that was unmapped, unregulated, crammed with unimaginable resources, up for grabs. Notions of trespass did not apply. There

was nothing material here, and thus no property, intellectual or otherwise; no context, no fixed identity. Early settlers could well turn out to be sociopaths or outlaws. But the wild, rowdy liberty of this place had to be protected.

From 1990, when he co-founded the Electronic Frontier Foundation in response to Secret Service raids on games companies and the homes of hackers, digital rights became his life. In 1996, with Congress hunkering down to defend national security, privacy, copyright and "decency", all those obsolete guard-posts, he flung out in fury "A Declaration of the Independence of Cyberspace":

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather...I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us.

Having started off as a stout Wyoming Republican, then a libertarian, he was an anarchist online. No government was needed, because there was governance already: the good behaviour of most people who used it, and the freedom-loving intentions of those who had designed it. In this vast

community, where real-space coercion couldn't hold, order flowed from collective ethical deliberation. There was nothing to fear. He had met hackers like Phiber Optik, with their pumped-up diatribes online, only to find that over dinner they looked as dangerous as ducks. His mission, therefore, was to lead the doubters and internet-oppressors gently into the new territory, disarming them with his cowboy hat and beard and with language which a poet or a cowhand could understand. He proselytised all over the world.

Permanently rewired

As it turned out, the internet resembled the most transforming moments of his life. As a boy in the Bar Cross ranch house, isolated in 22,000 scrubby acres, he had devoured a 20-volume children's encyclopedia in which, as on the Web, all knowledge seemed contained. Sitting a decade later on the floor at Timothy Leary's ashram in Millbrook, watching fractals bounce off the walls after dropping acid for the first time, he realised the complete connectedness of everything. His work with the Grateful Dead, who let fans freely record their concerts, convinced him that the best way to raise demand for a product was just to give it away. When writing some 30 songs for them with his childhood friend, Bob Weir, he came to see that songs had their own life, independent of their creator, changing each time the band played them, and gathering accretions of meaning from the whole community of Deadheads. Back on the ranch, he helped ensure the free flow of water round his irrigation district.

He saw all these capabilities in the Web yet also, as years passed, limitations. It did not float quite so sublimely free of the material world as he had claimed in the "Declaration". At the same time, the information it spread lacked the spark of physicality: looking folk in the eye, making yearling cattle scatter like mercury hit with a hammer. He had to give his lectures as a material being to get the impact he wanted. Meanwhile that enlightened community of Web-users, that civilisation of the Mind, seemed slow to form, to say the least.

As for whether the voyage into cyberspace marked a new age, a turning-point in history after which nation states would wither and humans would be permanently rewired, he hoped it was. He had hoped before, in 1967 in Haight-Ashbury, where the Summer of Love shed all constraints social, legal and sexual and he found himself in a world falling apart, longing for authority of any sort to reassert itself. But he trusted that everything in the universe tended towards the good, that total liberty was the only climate in which men and women could flourish, and that, if he was wrong, a free cyberspace would still have been worth battling for. ■

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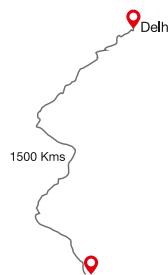
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