

The Economist

DECEMBER 23RD 2017–JANUARY 5TH 2018

Sexual harassment: a turning point?

A new chapter for South Africa

The Trump doctrine unveiled

Our country of the year

Christmas double issue

A tiger's tale * Nationalism: an essay * What's in an oil barrel? * Songs bands play live
The West Wind * Punk science * The opium wars * Fermenting food * Polygamy
Icelandic * Bike sharing * RER B * Women in economics * Our quiz
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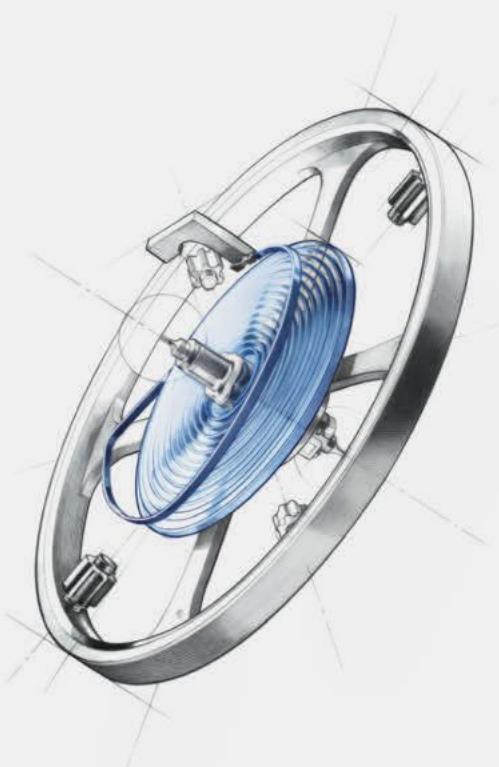






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to take part in "a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."

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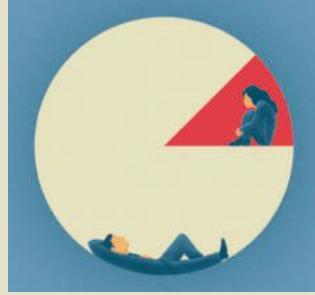
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The tone of Donald Trump's first year as president was set at his swearing-in ceremony, where he delivered a blistering attack on the political establishment for inflicting "American carnage". A row ensued with the media about the size of the inauguration crowd (it was small). His relationship with the press went downhill from there. Millions protested against the start of the Trump era at "women's marches".

Mr Trump introduced a variety of controversial policies, aiming **travel bans** at citizens from several Muslim countries, pulling America out of a trans-Pacific **trade deal**, renegotiating **NAFTA**, setting in motion America's exit from the **Paris accord** on climate change and recognising **Jerusalem** as Israel's capital.

Allegations were made that some in Mr Trump's inner circle had made illicit contact with **Russian** officials. Michael Flynn's resignation as national-security adviser fed the rumour mill, as did Mr Trump's sacking of James Comey as director of the **FBI**. Speculation mounted that Mr Trump might do the same to Robert Mueller, the special counsel looking into the affair.

All the haters and fools

Amid accusations of nurturing "fake news", tech firms found they had a lot of explaining to do. Facebook, Google and Twitter were hauled in front of Congress after it emerged that a trove of controversial American **political ads** on their sites had been paid for by Russian provocateurs. Mr Trump said he believed Vladimir Putin's denial of meddling: "You can only ask so many times."

Xi Jinping tightened his grip on power at the Communist Party's national congress in **China**. His "thoughts on socialism" were written into the party's constitution. The last Chinese leader to have his ideology thus enshrined while still alive was Mao Zedong.

Turkey's strongman, Recep Tayyip Erdogan, consolidated his political dominance in a referendum that boosted the power of his presidency. A diplomatic row followed when Angela Merkel's government shut down rallies held in Germany by Turkish ministers. The referendum result was met by widespread protests in Turkey amid claims of fraud.

I try so hard to be his friend
North Korea goaded America with missile tests, declaring itself a "complete" nuclear state with nukes that could hit anywhere in the United States. America hinted at military action if the North kept improving its nuclear arsenal. Both countries' leaders insulted each other, with Kim Jong Un calling Mr Trump a "d**tard" and Mr Trump describing Mr Kim as a "sick puppy".



Robert Mugabe's 37 years of misrule in **Zimbabwe** came to a sudden end. He was ousted by the army after sacking the vice-president, Emmerson Mnangagwa, who then returned from exile to succeed him. Mr Mnangagwa was complicit in the mass killing of the Ndebele people in the 1980s. He now promises to be a good democrat, but has stuffed his cabinet with some of Mr Mugabe's worst henchmen.

Kenya's supreme court tore up the results of a presidential election in August because of

"irregularities". The subsequent poll in October, which the main opposition candidate boycotted, delivered the same result: victory to Uhuru Kenyatta, the incumbent.

Sexual harassment was a big issue in 2017. Hundreds of women exposed men in high places who can't keep their hands to themselves. Harvey Weinstein, a Hollywood mogul, saw the firm he co-founded crumble and sought treatment for "sex addiction". A senator, several congressmen and Britain's defence secretary all stepped down. Hopes were raised that women might be treated better in future.

Claims of sexual harassment were also levelled at **Uber**. A lawsuit alleging the theft of self-driving technology and news that it had concealed a huge hack (and paid off the hackers) were just some of its other woes. Arianna Huffington, a board member, said that there was "no room...for brilliant jerks". Travis Kalanick stepped down, eventually, as chief executive.

Britain's prime minister, Theresa May, saw that the opposition Labour Party was in disarray and called a snap election. It backfired spectacularly. After a dismal campaign, early forecasts of a 100-seat majority for her Conservative Party proved fanciful. Mrs May lost her majority. Jeremy Corbyn, Labour's hard-left leader, consolidated his position. To govern, Mrs May had to do a deal with the Democratic Unionists, a tiny Protestant party from Northern Ireland. That has complicated the **Brexit** talks.

A fire that killed 71 people in a public-housing block in London shone a light on the poverty that endures in some of the city's ritziest neighbourhoods. The **Grenfell** disaster epitomised the mood of an uneasy, fractured Britain.

Angela Merkel's Christian Democrats lost seats in **Germany's** election, which were a breakthrough for the

anti-immigrant Alternative for Germany. She struggled to form a government.

After an election in **Japan**, Shinzo Abe, the prime minister, can now pass legislation without approval from the upper house. He will seek to change Japan's pacifist constitution to acknowledge the existence of the Japanese army, which will upset China and South Korea.



The election of Emmanuel Macron as president of **France** delighted rootless cosmopolitans everywhere. Mr Macron's campaign was marked by Kennedyesque optimism and a wholehearted embrace of globalism. He thrashed the National Front's Marine Le Pen. But governing is always more tricky: Mr Macron's approval ratings tumbled in his first few months in office.

Need tax cuts

Global **stockmarkets** had a bumper year. The Dow Jones Industrial Average, S&P 500 and **NASDAQ** broke record after record. The belief that Mr Trump would roll back regulations and cut taxes explained much of the euphoria lifting stocks, as did the strength of the global economy.

Despite warnings that it is a speculative bubble primed to burst, the price of **bitcoin** soared by 1,800% over the course of the year, to over \$19,000 (at the time of writing; by the time you have finished reading this section it may have passed \$20,000).

Many **central banks** tightened monetary policy, as inflationary pressures started to emerge. The Federal Reserve

lifted interest rates three times. The Bank of England raised rates for the first time in a decade, as did Canada's central bank for the first time in seven years and South Korea's for the first time in over six. The European Central Bank took a step towards unwinding its stimulus programme.

Sick and demented people

Jihadists continued to kill people. A gunman attacked a new year's party at a nightclub in **Istanbul**, slaying 39. Terrorists using vehicles as weapons murdered 13 in **Barcelona**, eight in **New York** and five in **Stockholm**. Britain endured its worst year of terrorism since 2005, including attacks in central **London**. A suicide-bomber slaughtered 22 people and injured 500 attending an Ariana Grande concert in **Manchester**. Hundreds were massacred in attacks on a Sufi mosque in **Egypt** and in Mogadishu, **Somalia**. A bomb in **Kabul** killed at least 150.

Islamic State was at last routed from its strongholds in Iraq and Syria. But although IS is a spent force in both countries, its tentacles have spread to Libya. Meanwhile, the war in **Syria** rumbled on. The regime of Bashar al-Assad used chemical weapons in an attack in Idlib province; America hit back with 59 cruise missiles. Mr Assad remained in control of most of the country.

After Iraq's autonomous **Kurdish region** voted for independence in a controversial referendum, Iraqi troops entered Kirkuk, which is outside the region but voted in the ballot, and took control of the city.

America's worst **mass shooting** in modern times happened in Las Vegas, when a gunman fired semi-automatic rifles from a hotel room into a crowd at a country-music concert, killing 58 people.

Spain endured its worst crisis in decades, as Catalonia voted for independence in an unconstitutional referendum in which turnout was high among the secessionists. After

Catalonia's leaders declared independence, Madrid suspended the region's autonomy. Its leaders fled to Belgium.



The shine came off Aung San Suu Kyi's leadership over her silence concerning the ethnic cleansing of **Myanmar's** Rohingya Muslims by the army. More than 650,000 fled the pogrom into neighbouring Bangladesh.

Venezuela lurched from crisis to crisis. President Nicolás Maduro created a new constituent assembly filled with his cronies, usurping many of the powers of the National Assembly, which was properly elected and is controlled by the opposition.

Michel Temer survived several attempts in **Brazil's** congress to remove him from office over corruption allegations. His approval ratings are now the

worst of any Brazilian president, but he can only be investigated again when he leaves office in 2018. Although Brazil's political saga dragged on (and on), its economy rebounded from recession.

Federal G is ready!

Hurricane Harvey hit southern Texas and Louisiana, the first big hurricane to hit the United States in 12 years. Damages were put as high as \$190bn. Puerto Rico was the biggest victim of **Hurricane Maria**, leaving the island without power. The official death toll is 64, but new estimates think it could be 1,000.

A corruption scandal that led to the impeachment of Park Geun-hye as **South Korea's** president also spread to Samsung, when Lee Jae-yong, the conglomerate's de facto boss, was imprisoned for five years.

Cheaper batteries, longer ranges and concerns about emissions brightened the outlook for **electric cars**. Volvo became the first big carmaker to announce that it would stop producing cars powered by an internal-combustion engine. Britain and France said they would ban the sale of all petrol and diesel cars over the coming decades.

Amazon seemed to be constantly in the headlines. It bought Whole Foods Market for \$13.7bn, striking fear into bricks-and-mortar retailers, and joined a select club of companies with a share price above \$1,000. The lucky winning city to host Amazon's new offices will be announced next year.

Sad



The prize for public-relations disaster of the year went to **United Airlines**. After no one volunteered to give up a seat on a packed flight, it forcibly removed a passenger, dragging him down the aisle of the plane. The incident went viral on social media. Among the jokes: United should be beating the competition, not its customers.

Other economic data and news can be found on pages 118-119



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**SINGAPORE
AIRLINES**

The year of Hurricane Harvey

Revelations have felled some powerful and predatory men. Will the change be permanent?



FOR those who care about a woman's right to lead her life unmolested, 2017 began badly. A man accused of groping several women took office in the White House. (Donald Trump dismissed the allegations—as well as a tape of him boasting about his behaviour, which he called mere “locker-room talk”.)

The year is ending somewhat better. In October Harvey Weinstein, a film producer, was accused of having spent decades harassing and assaulting actresses, and using his exalted position in Hollywood to intimidate and silence anyone who got in his way. He was forced out of the firm he co-founded and is being investigated by police. Further accusations against other powerful men followed, spreading beyond Hollywood into politics, journalism and the tech industry. Dozens were sacked or stepped down. Millions of women were inspired to share their own experience of harassment, using the hashtags #MeToo, #YoTambien, #BalanceTonPorc and so on. In a fitting end to a year of comeuppances, Roy Moore, who is accused of harassment and assault by several women, including one who was 14 at the time, became the first Republican to be defeated in a Senate race in Alabama since 1992.

#MeToo drew attention to a facet of women's lives to which men had been comfortably oblivious. It showed how common harassment is, and how harmful to women's careers. But the lesson from big social changes in the past is that more needs to happen if 2017 is to mark a permanent shift in behaviour. Even now, Hurricane Harvey could blow itself out and women at work once again be assailed by all the old abuses.

Winds of change

If history is a guide, a new social norm takes root when a series of smaller changes prepare the ground (see page 81). First an event galvanises a group of evangelists to throw light on an injustice that is acknowledged only in the shadows—the extent of domestic abuse, say, or the fact that gay people are accused of threatening public morals when they lead perfectly ordinary lives. Sometimes new attitudes bring about a change in the law, as with the introduction of Prohibition and the reform of civil rights in America. But the new law will stick only so long as large parts of the population embrace it. Prohibition failed because too few Americans agreed that all drinking was debauched. People also need to see that transgressions are punished—either directly by the police, or, more often, by the mass of bystanders who choose to act either as enforcers or enablers. Most countries where female genital mutilation is common have laws against it. They are simply not enforced.

The signs are that the #MeToo movement has reached a delicate stage. The buffeting of the past few months has certainly been cathartic. It has also brought abusers in a bewildering range of industries kicking and screaming into the open. But the novelty of seeing famous men brought down will soon fade. Before that happens, both men and women need to come to a shared understanding of what sexual harassment is

and what to do about it. If too many of them conclude that complaints are being exaggerated or exploited, they will not step in to stop backsliders. Minor transgressions will be allowed to carry on. That will make it more likely that rape and sexual assault go unpunished, too.

Start with what counts as harassment. Most people can see the harm in a man trading a promotion for sex, in sexual assault or in crude groping. The divisions start with unwanted propositions, leering, sexualised put-downs and the like, particularly by a man who is in a powerful position. What men try to laugh off as a compliment, or a joke, often feels like humiliation or bullying to women—and may well be intended as such. Accusations can cast a shadow over someone's reputation, so the lack of clarity over what is appropriate and what is not can be unsettling. Men and women may wonder how they are supposed to know whether a flirtation will be welcomed or will be the prelude to a career-threatening exposure. A lack of due process only adds to the uncertainty.

Despite this absence of agreement, the evidence suggests that even less serious harassment causes harm. A study published in May, which followed the careers of a cohort of women in Minnesota, found that 11% had been harassed in some way in a single year. The victims went on to earn less than other women; of those who had been verbally abused repeatedly or physically touched at least once, 79% left the company within two years. That is not only wrong—in the way that all bullying is wrong—but also a waste of valuable talent.

Once there is a consensus about what is wrong and why, the new norms must be enforced. This is unlikely to involve a change in the law. Rape and sexual assault are already illegal; discrimination and bullying at work are subject to employment law. What needs to change is the tacit complicity of managers and staff. HR departments often defend the boss—especially if he is seen as a rainmaker, as Mr Weinstein was. Managers want to keep their star employees, even if they are toxic, because they appear to do so much for the team.

Those may turn out to be false economies—certainly, they were with Mr Weinstein, who brought about the collapse of his firm. When you tot up the costs of all the women who leave, never join or work less well, the harassing star may not be so valuable after all.

A new agenda

To change behaviour, the new standards must be enforced. Women who make complaints should not be brushed off, bullied into dropping them or gagged by settlements with non-disclosure clauses—one idea is that firms should be obliged to tell investors how many such agreements they have made. The entertainment industry, which appears so far to be an arch-offender, needs to reflect hard about whether that is related to the lack of women producers and directors.

Ultimately, however, much of the task will fall to peers. Men need to be alert and to step in where necessary. Women need to stand up for each other. Too many people have been blind to a problem hidden in plain sight. But Hurricane Harvey has ranged through 2017 and ignorance is no longer an excuse. ■

South Africa's next president

Nice one, Cyril

The rejection of the Zuma dynasty restores hope to the rainbow nation



ON DECEMBER 18th South Africa's ruling party picked a leader. The new head of the African National Congress (ANC) is Cyril Ramaphosa, one of the handful of heroes who negotiated the peaceful dismantling of apartheid in the 1990s. In 2019 he will probably be elected president of South Africa. It is absurd—and a sign of how poisonous ANC politics have become—that his rivals within his own party dismiss him as a tool of “white monopoly capital”. That he won the party's top job anyway shows that there is still hope for South Africa.

The choice should have been simple. Nkosazana Dlamini-Zuma, the candidate backed by Jacob Zuma, the country's current president, promised more of the same. Under Mr Zuma's administration, corruption thrives, state resources have been looted and democratic institutions have been undermined. By one estimate, as much as 150bn-200bn rand (\$11bn-15bn), or 5% of GDP, has been misappropriated. Ms Dlamini-Zuma (who is Mr Zuma's ex-wife) has remained almost entirely silent about what South Africans call “state capture”. In a 4,200-word speech kicking off her campaign, she did not mention corruption once. Many took this to mean that, if elected, she would shield Mr Zuma from prosecution on the 783 counts of corruption that he faces. She also vowed to curtail the independence of the central bank, put more people on the public payroll, fight the dreaded white monopoly capital and achieve “radical economic transformation” by ramping up state spending and expropriating land, mines and businesses.

Mr Ramaphosa, by contrast, promised “moral renewal”. He has been deputy president since 2014, but is untarred by the murk around Mr Zuma. In almost every campaign speech, he pledged to fight corruption. Unions backed him (he is a former

union boss). Businessfolk backed him, too (he is a tycoon with a reputation for pragmatism). Polls said he was far more popular with ordinary voters. Yet his victory was terrifyingly narrow: fewer than 200 votes among almost 5,000 party delegates. Had the courts not disqualified more than 400 illegitimate delegates, many of them from provinces supporting the Zumas, Mr Ramaphosa would surely have lost.

Now for the hard part

Having averted the entrenchment of a dismal dynasty, he must set about undoing the damage Mr Zuma has wrought. The first step should be to remove him from office. Mr Zuma would ordinarily expect to serve another year and a half as president. That would be a disaster, as it would give the vultures around him yet more time to pick the bones of the state. Mr Ramaphosa should immediately press the ANC to recall Mr Zuma. If Mr Zuma fails to heed his party's wishes, Mr Ramaphosa should urge a no-confidence motion in parliament. As deputy president, he would be next in line. He should appoint a credible head of public prosecutions who can decide whether to press those 783 charges of corruption against Mr Zuma. He should also set up a judicial commission of inquiry to probe allegations of state capture.

Mr Zuma will fight back. He has powerful allies among the ANC's new senior leadership, and among those who benefit from cronyism. Graft in South Africa now runs wide and deep—even head teachers are murdered so that their successors can gain access to the tiny school budgets they control. Cleaning all this up will not be easy. But it is not impossible, if Mr Ramaphosa demonstrates that those in charge do not have impunity. His election could mean a new start for South Africa. The rand surged on news of his victory. Other investors will wait and see whether he is serious about reform. Ordinary South Africans will pray that he is. ■

America's National Security Strategy

Defending America, Donald Trump's way

The president's new security strategy magnifies small threats and minimises big ones



CRITICS of Donald Trump often charge that he is a man without principles. That is unfair. When it comes to one terrible idea—his conviction that America is stupid to want to lead a rules-based global order—the president is strikingly consistent. Back in 1987, weeks after Ronald Reagan startled the world by calling on Soviet leaders to tear down the Berlin Wall, Mr Trump placed full-page advertisements in major newspapers expressing a bleaker worldview. In an open letter to the American people, Mr Trump, then a property developer with a flair

for publicity, called for his country to show more “backbone” abroad. He accused Japan and other American allies of “brilliantly” manipulating trade and currency flows to grow rich, while enjoying military security foolishly provided by America at no charge. Mr Trump concluded: “Let's not let our great country be laughed at any more.”

On December 18th President Donald Trump launched his National Security Strategy (NSS)—a high-level plan for keeping America safe that each administration must produce by law—and bragged that his “America First” doctrine was winning the country renewed respect, after years of disastrous dealmaking and failure by his predecessors. In fact, despite a few flourishes, the NSS paves the way to a diminished role for America—►

EASE AND FULFILMENT

HOW MALAYSIA IS ENABLING THE GROWTH OF E-COMMERCE

One startling feature of development in the 21st century has been the way emerging markets are using electronic commerce to leapfrog phases that richer countries went through long ago. In Asia and around the world, people who may previously have been in unskilled agrarian or manual labour, often in geographical isolation, are embracing the possibilities brought by mobile telecommunications and selling products directly to local and overseas buyers.

Malaysia is already well ahead in its growth trajectory, with the goal of becoming a fully developed country by 2020. As such, it not only has a strong domestic e-commerce market, but is a leader for countries in the region. With 15.3m online shoppers—half the population—Malaysia has a broad base of e-consumers ready to buy everything from clothes to books and electronics online. The e-commerce industry is projected to grow by up to \$27 billion by 2020, contributing 6.4% of GDP.

"We applaud the government of Malaysia for continuously underlining e-commerce as a primary driver for building a digitised economy," says Hans-Peter Ressel, the chief executive of Lazada Malaysia.

This vigorous growth owes much to collaboration between government and the private sector, as well as to a strong postal and logistics network that enables e-fulfilment and makes it easier to do business.

One global firm flourishing in Malaysia is Lazada, part of a group founded by a German internet company and now controlled by Alibaba. An e-commerce pioneer in South-East Asia, Lazada operates in Indonesia, Malaysia, the Philippines, Singapore and Vietnam, giving shoppers an effortless buying experience and connecting retailers with the region's largest online customer base.

"Malaysia, a developing nation with a huge appetite for internet use and government incentives, has all the factors to propel an e-commerce leap," says Shamsul Majid, head of e-commerce at Pos Malaysia.

"We applaud the government of Malaysia for continuously underlining e-commerce as a primary driver for building a digitised economy," says Hans-Peter Ressel, the chief executive of Lazada Malaysia. And through its #EveryoneCanSell initiative, Lazada is trying to pay some of that support forward by offering new sellers access to benefits including training and financial support. "We hope to boost SMEs' capabilities so they remain competitive online," Mr Ressel says.

With the growth of e-commerce, postal and logistics services are stepping up to the expectations that come with their increased importance to business. "Malaysia, a developing nation with a huge appetite for internet use and government incentives, has all the factors to propel an e-commerce leap," says Shamsul Majid, head of e-commerce at Pos Malaysia, a postal services company. "Pos Malaysia was recently selected to operate the only e-fulfilment hub in Malaysia's Digital Free Trade Zone to benefit international and local e-commerce players and customers." With its network of 1,000 touchpoints countrywide, including self-service terminals, mobile outlets and postal agents, Pos Malaysia acts as the physical link between buyers and sellers, supporting e-commerce on a foundation of strong e-fulfilment capabilities.

World-leading innovators in e-commerce, supported by robust e-fulfilment networks, are making Malaysia their hub from which to embrace the myriad business opportunities in Asia today. To find out more about how you can join them, contact MIDA, the Malaysian Investment Development Authority. www.mida.gov.my

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► not out of necessity, but out of a want of vision or understanding of what America stands to gain from global leadership.

The NSS is much less radical than Mr Trump's campaign speeches, with their talk of starting trade wars, scorn for NATO's obsolescence and praise for the merits of torture. It nevertheless manages to channel the pessimism of that long-ago Manhattan businessman. It scoffs that for two decades American leaders assumed "engagement with rivals and their inclusion in international institutions and global commerce would turn them into benign actors and trustworthy partners. For the most part, this premise turned out to be false."

Accordingly, it draws stern conclusions about how to handle China and Russia. Mr Trump is hardly the first American president to grumble about Chinese trade practices or Russian adventurism. Indeed, hawks will see much to like in sections of the NSS that chide Russia for bullying its neighbours or meddling in democratic elections, a charge Mr Trump himself is oddly unwilling to level. Domestic and foreign politicians with conventional views will also be relieved to see the NSS describe America as a force for good in the world—a power that still sees a place for (reformed) bodies like the UN.

However, a pessimistic strand also runs through this Trumpian NSS. It talks of strengthening the body that screens foreign investments for national-security risks, the Committee on Foreign Investment in the United States, as part of efforts to defend the "National Security Innovation Base", a newly minted term encompassing the American businesses, government-owned National Laboratories and university researchers who give the country its technological edge. Students of science

and engineering from "designated countries" may need to have their visas restricted to cut "economic theft". The distrust extends to climate change. Rather than see global warming as a threat, the NSS calls the campaign against fossil fuels "an anti-growth" agenda that harms America's economy and security.

In 2006 President George W. Bush's NSS argued that American security rests on two pillars: promoting freedom, justice and human dignity, and leading a growing global community of democracies. Mr Bush portrayed caution as retreat: "We choose leadership over isolationism, and the pursuit of free and fair trade and open markets over protectionism." Nine years later an NSS issued by Barack Obama rebuked Mr Bush for overreach and for blotting America's image with torture, ill-regulated drone strikes and so on. That Obama NSS called for America to act only when enduring national interests were at stake, and to "lead by example" at home.

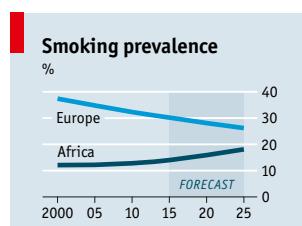
A zero-sum worldview

Mr Trump seems to reject both the Bush and Obama doctrines, noting that "neither aspirations for democratic transformation nor disengagement" insulated America from perils in the Middle East. Many Trump supporters will shrug at the strategy's mealy-mouthed promise not to impose America's democratic values on others, or its assertion that allies are of value because they "magnify our power". But the strategy's transactional, zero-sum tone is dismaying. America has gained enormously from the post-war order it helped design. Donald Trump was wrong in 1987 to see all the costs of leadership and none of its enduring value. He is still wrong today. ■

Safer smoking

Baccy to the future

America is taking the right approach to lower-risk smoking products



in medical bills and lost productivity.

Big Tobacco is doing nothing illegal by producing and marketing cigarettes. But the industry has an inglorious history of lying about the effects of cigarettes on human health. Although rates of smoking in much of the rich world are declining, tobacco firms fight measures, such as restrictions on advertising, that are designed to clamp down on cigarette use in emerging markets. No wonder people are cynical when they hear tobacco bosses evangelise about the benefits of new, lower-risk products such as e-cigarettes and heated tobacco products (see page 85). Even so, regulators weighing up how to treat safer alternatives to cigarettes are often too harsh.

The goal of policymakers ought to be harm-reduction. Too often, however, the focus is not on "reduction", just on "harm". E-cigarettes let users inhale nicotine without the toxicity that comes from burning tobacco. It seems clear that e-cigarettes are much less harmful than the ordinary sort; 95% less so, accord-

ing to Public Health England, a government agency. There is scant evidence that they are a gateway drug that encourages non-smokers to start puffing and eventually to move on to more dangerous products. Britain's Royal College of Physicians thinks they could help prevent deaths.

Plenty of regulators take a different tack. Brazil, Singapore and Thailand, among others, have banned e-cigarettes outright. In October New York became the 11th American state to ban e-cigarettes from workplaces, bars and restaurants. France has also imposed such a ban, "to protect the public". The World Health Organisation's anti-tobacco group in 2016 suggested that countries prohibit or restrict the use of e-cigarettes.

Heat, not light

These decisions are based on gaps in the evidence proving that the products are safe over long periods. Such concerns are not to be dismissed: more independent research into their effects is needed. But a full auditing of their impact on health requires studies that will take many years. The damage from conventional cigarettes is happening now. It is perverse to ban a less harmful product like an e-cigarette from a market that allows the more dangerous version to be sold on every street. It is scarcely more sensible to treat every product as equally unhealthy when one is known to be lethal, and others are likely to be less harmful. ►



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► The same broad logic ought to apply to heat-not-burn (HNB) products, Big Tobacco's latest wheeze. Conventional products involve the combustion of tobacco at very high temperatures, which produces many of the toxic substances in cigarette smoke. But because HNB products warm the tobacco rather than burn it, they are likely to harm smokers less than cigarettes do. An advisory body to the British government concluded this month that two HNB products already on the market in Britain, although unhealthy, contained between 50% and 90% fewer harmful or potentially harmful substances than cigarettes. They may also be better at converting hardcore smokers than e-cigarettes, since they look, feel and taste more like the real thing. HNB products should be treated more cautiously than e-cigarettes because they are less well understood and because they do contain tobacco, with its cargo of

carcinogens. But they should be allowed on the market, and they should also be taxed less heavily than normal cigarettes.

It would be ideal if people did not smoke at all. But plenty choose to do so, despite the effect on their health. The right approach is to nudge them towards products that cause the least damage. America's Food and Drug Administration is aiming for a sensible combination of stick and carrot. It is trying to make conventional cigarettes less addictive by forcing tobacco companies to cut nicotine levels. At the same time it is providing firms with a path to market for lower-risk smokes, the effects of which it will continue to review. It may give approval to Philip Morris to start selling IQOS, its HNB product, in early 2018. That will gall Big Tobacco's many critics. But it is foolish and puritanical to withhold alternatives that could help save lives which would otherwise be lost. ■

Our country of the year

Formidable nation

Which nation improved the most in 2017?



sheer size or economic muscle—otherwise China and America would be hard to beat. Rather, we look for a country, of any size, that has changed notably for the better in the past 12 months, or made the world brighter.

We make mistakes. In 2015 we picked Myanmar, for moving from “larcenous dictatorship” to “something resembling democracy”. We acknowledged that its treatment of the Rohingya minority was disgraceful, but failed to predict how much worse it would soon get. This year, after more than 600,000 Rohingyas fled their smouldering villages to avoid being raped and slaughtered by the Burmese army, we are tempted to name next-door **Bangladesh** as the country of the year for taking in so many of them. The country has also seen rapid economic growth and a sharp fall in poverty. Had it not crushed civil liberties and allowed Islamists free rein to intimidate, it might have won.

Another candidate is **Argentina**, where President Mauricio Macri is enacting painful reforms to restore fiscal sobriety after years of spendthrift populism under the Kirchner family. In October Mr Macri's party won the largest share of the vote in mid-term elections, suggesting that most Argentines are no longer fooled by bogus statistics and the promise of free money. Despite violent protests in December, this is progress.

In the end our shortlist came down to **South Korea** and **France**. South Korea has had an extraordinary year, enduring threats from its missile-wielding northern neighbour with calm and grace. This is not entirely new—North Korea has been vowing to immolate the South for decades—but tensions rose alarmingly this year, as President Donald Trump and Kim Jong Un traded taunts, calling each other “rocket man” and “mentally deranged US dotard”. As all this was going on, South Korea

had to cope with a crisis at home as well.

Mass demonstrations and a corruption probe led to the impeachment of President Park Geun-hye, who is now in a jail cell facing trial. Her successor, Moon Jae-in, has weathered a Chinese boycott over the deployment of anti-missile defences (China frets that the new radar can see into China as well as North Korea). Mr Moon has politely delayed Mr Trump's demands to renegotiate a trade deal. And a court has jailed Lee Jae-yong, the boss of Samsung, the largest of the country's dominant chaebol (conglomerates). In short, South Korea has made great strides towards cleaning up its domestic politics despite living under constant threat of nuclear apocalypse.

Le jour de gloire est arrivé

In most years, that would be enough. But in 2017 France defied all expectations. Emmanuel Macron, a young ex-banker who had no backing from any of the traditional parties, won the presidency. Then La République En Marche, Mr Macron's brand-new party full of political novices, crushed the old guard to win most of the seats in the National Assembly. This was not merely a stunning upset. It also gave hope to those who think that the old left-right divide is less important than the one between open and closed. Mr Macron campaigned for a France that is open to people, goods and ideas from abroad, and to social change at home. In six months he and his party have passed a series of sensible reforms, including an anti-corruption bill and a loosening of France's rigid labour laws.

Critics mock Mr Macron's grandiosity (calling his presidency “Jupiterian” was a bit much). They carp that his reforms could have gone further, which is true. Perhaps they forget how, before he turned up, France looked unreformable—offering voters a choice between sclerosis and xenophobia. Mr Macron's movement swept aside the *ancien régime* and trounced the ultra-nationalist Marine Le Pen (who, had she won, would have wrecked the European Union). The struggle between the open and closed visions of society may well be the most important political contest in the world right now. France confronted the drawbridge-raisers head on and beat them. For that, it is our country of the year. ■

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Full of surprises.

What fuels Yemen's war

You are right to point out that the West is complicit in the barbarous destruction of Yemen by providing warplanes, munitions and technical support to the Saudis ("The war the world ignores", December 2nd). Britain has sold Saudi Arabia weapons worth billions of pounds, but now that the Saudis have imposed a blockade of Yemen's key ports the British government appears to recognise that its wholehearted support for the war is toxic.

On a recent visit to Riyadh Theresa May, the prime minister, called on the Saudis to end the blockade. Her pleas fell on deaf ears. Amid renewed fighting, and as the country responsible for drafting UN Security Council resolutions on Yemen, Britain should put forward a resolution demanding an immediate ceasefire and a lifting of the blockade to allow fuel, food and other essentials into the country. This needs to be backed up with sanctions on parties that fail to comply. Only then will we see a chance for the millions of Yemenis who are at risk from famine to put their lives back together.

SHANE STEVENSON
Yemen country director
Oxfam
Oxford

Following the herd

I was dismayed to see *The Economist* buying into an all-too-common narrative among conservationists in Africa that vilifies pastoralists ("Cows, cash and conflict", November 11th). You conveyed the impression that pastoral societies have become a prime source of political instability, human-trafficking, the drug trade, wildlife poaching, illegal migration and jihadist and religious extremism in the Sahel and the Horn of Africa. The pastoral peoples that make up a significant minority of the inhabitants of these zones are inevitably involved in those activities, but more as victims than as perpetrators.

You did shed some light on

the activities of urban elites—members of the governments or the armed forces—who buy cattle to invest their often ill-gotten gains in fringe pastoralism and exploit poorly governed borderlands to pasture their herds while their armed guards poach wildlife on the side. However, whether armed rapid-response units, such as those working for a conservation group in the Central African Republic, are a desirable response to such threats is highly debatable.

It was similar paramilitary forces trained by EU-funded conservation programmes that provided significant numbers of the Seleka rebel forces that overthrew that country's government in 2013.

PHILIP BURNHAM
Honorary director
International African Institute
London

A former prime minister

It is not true that Benjamin Disraeli's novel, "Sybil", "lamented that Britain was dividing into" two nations (Bagehot, December 9th). That is the myth, erected posthumously by the Conservative Party. As Douglas Hurd made clear in his excellent biography, Disraeli was being purely descriptive and he certainly was not proposing unifying these two nations. Nor is he the founder of One Nation Conservatism. Indeed, there is no record of him ever actually using the term "one nation".

DAVID TERRY
Droitwich, Worcestershire

Engage with Russia

"Red mist" (December 2nd) acknowledged the damage being done by the mindless anti-Russian perspective now prevalent in most of the Western press. As you say, even those Russians most opposed to Vladimir Putin now see the Western media almost as propagandist as their own. I appreciate that this is an awkward conclusion for anti-Russian cheerleaders, such as yourselves. This presumably explains the tortured logic of your argument.

Moreover, the "no positive agenda", is not Western policy (think Syria and North Korea) and to the extent that it is, it is bad policy. It is quite clear that closer co-operation with Russia on Islamic extremism, strategic weapon controls and cyber-aggression, to give just three examples, would make the world a much safer place.

Yes, Russia is problematic, but it is not the ultimate evil you strive to present it as. We sup from much shorter spoons with other devils. Those brave Russians critical of the obsession of newspapers such as yours are right.

SIR TONY BRENTON
British ambassador to Russia
2004-08
Cambridge, Cambridgeshire

Nice touch

The Spanish word *dedazo* could mean "big finger", but in the context of the Mexican president choosing his successor it is more likely to mean "touch" ("The democratic dedazo", December 2nd). In this case it would mean a touch with the finger, indicating that José Antonio Meade is Enrique Peña Nieto's successor. We point with our index finger, and it is no coincidence that the noun "index" and the verb "indicate" are etymologically related in the sense of "to point out".

WILLIAM HARDIN
Interpreter
United States Coast Guard
Auxiliary
San Diego

To the letter

Nostalgia permeates the designation of many airport codes—it's not just Podgorica that is stuck in the 20th century ("Terminals with attitude", November 11th). Saint Petersburg still goes by LED, from its Soviet time as Leningrad. And Ho Chi Minh City's airport, decades after the fall of Saigon, is still rocking the SGN moniker.

YACOV ARNOPOLIN
London

The bellicose naming of airports is bucked by Albania, a country as religiously diverse

as its ex-Yugoslav neighbours but which avoided their tensions and wars after the fall of communism. Leaders of the four "traditional religions"—Sunni Islam, Catholicism, Orthodoxy and Bektashi—frequently travel Europe together to promote the "Albanian model" of religious tolerance and harmony. They depart from and return to the airport in Tirana, which is named after Mother Teresa of Calcutta, herself born in neighbouring Macedonia.

FEARGHAS O'BEARA
Brussels



The Arctic Circle runs across the runway at Rovaniemi airport in Finland. As the closest airport to Santa Claus village, it might be nice if the authorities changed its airport code from RVN to SAN (though that would steal the code for San Diego's airport in California).

CHRISTOPHER WILLIAMS
London

Women in the driving seat

I already have a self-driving car ("Battle of the brains", December 9th). It takes me wherever I want to go, obeys most of my commands, never speeds, slows down for children, fills up once a week, and manages all this with a rudimentary intelligence.

It's called my husband.
HOLLY JAMES
Port Hope, Canada ■

Letters are welcome and should be addressed to the Editor at The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N 6HT
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Executive Focus



President & Chief Executive Officer

Africa Finance Corporation (AFC) is an African-led international finance institution established in 2007 to bridge Africa's infrastructure investment gap through the provision of debt and equity finance, project development, and technical and financial advisory services. AFC has invested over USD4.5 billion in infrastructure projects in 28 countries across Africa, with a focus on power, transport, telecommunications, heavy industries and natural resources (oil, gas and mining). AFC's shareholders include the Central Bank of Nigeria, African financial institutions and other industrial investors.

AFC is looking to recruit and appoint, for a period of 5 years (renewable), a new CEO. This individual who will be based in Lagos, Nigeria, will oversee and supervise all strategic and business aspects of the institution. This CEO will have responsibility for the day-to-day leadership, strategy, operational management, and growth of the AFC and will guide the organisation as it moves into the next phase of its development. This CEO will bring a compelling vision, a deep understanding of infrastructure development and will be a highly credible leader who has had visible responsibility roles throughout her/his career in Africa. The CEO must possess excellent diplomatic and leadership skills, a natural capacity for investment & fundraising and a proven capability to manage stakeholders. The CEO will work closely with the Board of Directors to develop and execute on strategies to achieve AFC's mission and goals.

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Applications that meet the criteria must arrive by email no later than midnight on December 31st 2017. Egon Zehnder will only enter into further correspondence with shortlisted applicants.



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Closing date: 22 January 2018

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Lifts

Higher still and higher

Lifts have shaped modern cities; with new technology they could refashion them again



ROTTWEIL AND TYTYRI

THE Finnish lift's walls are bathed by a blue luminescence; music that is not quite jazz gently tootles within. The effect is comforting. But other things are odd. The lift's dozen or so buttons seem numbered at random and, one would think, unfathomably: 45, 105, 215, 270. At level 350 the doors hiss open on a dark and dirty cavern, silent save for the sound of dripping water.

Germany's highest meeting room, 1,000km (600 miles) to the south-west of that strange Finnish lift, has its oddities, too. It looks out not at a central business district, but on the bucolic edge of the Black Forest. It sits atop a skyscraper which contains no offices but 12 lift shafts. In the lift by which you reach the penthouse an indicator tells you not just what floor you are headed for, but how fast you are getting there.

Thyssenkrupp, a German engineering conglomerate, and Kone, a Finnish liftmaker, are two of the world's big four lift-engineering companies. As such, they need places to test new designs, new patterns of operation and new technologies. Kone does this in a mineshaft in Tytyri, about 50km west of Helsinki; if you take that glowing blue lift down to the dank cavern at level 350—so called because it is 350 metres (1,150 feet) below the top of an adjacent shaft—and go through a steel door you will find yourself in the work-

In extending the human world upwards, the lift overturned previous notions of prestige

ing mine which that other shaft serves.

Thyssenkrupp's facility is more flashy; a slim, 246-metre-high concrete finger clad in an elegant barley-sugar twist of fabric. Inaugurated in October, it towers above the medieval town of Rottweil, hitherto best known for its beefy guard dogs. The town welcomed it with a two-day celebration; the view from the top—on a clear day you can see to the Alps—is expected to bring in an additional 50,000 tourists a year.

The technology being improved in these out-of-the-way places is essential to modern city life. Around 1bn people take one of the world's 14m lifts every day; they take twice as many lift journeys in a day as people take flights in a year. Cities struggle on through bus and rail strikes; life without lifts, at least in central business districts, would more or less grind to a halt.

The lift is to the vertical what the car is to the horizontal: the defining means of transport. Like cars, modern lifts are creatures of the second industrial revolution of the late 19th century. Like cars, they have transformed the way that cities look, changing how and where people live and work. And today, like the cars that are lidar-sensing their way towards an auton-

▶ omous future, lifts stand ready to change the city again.

Hoisting equipment of one sort or another has been in use for millennia. The Colosseum in Rome had 24 lifts powered by slaves. For centuries arrangements of pulleys and ropes were used in mines, factories and even occasionally to move people in palaces and private homes. Erhard Weigel, a 17th-century German mathematician, used a system of pulleys to transport himself around his seven-storey home in Jena. Louis XV installed a counterweight lift to his private chambers in Versailles in 1743.

The commanding heights

The modern lift was introduced to the public at New York's Exhibition of the Industry of All Nations in May 1854 by Elisha Otis, whose name still adorns more elevators than any other. His patented innovation added to the basic box, rope and counterweight a spring-loaded ratchet which would stop the lift falling if the main cable snapped. In front of a large audience he ascended to a height of 15 metres before an assistant with an axe severed the cable. "All safe, gentlemen. All safe" he is said to have proclaimed after the safety catch tripped. He installed his first passenger lift in EV Haughwout and Company, a porcelain shop, three years later.

It was not a success. Customers would not ride in the fearful new device, and Haughwout got rid of it in 1860. Otis's eventual triumph had to wait for two other innovations: steel-frame construction, which allowed buildings to be taller, and electric motors, which allowed lifts to be faster.

Before the 1880s buildings had to support the load imposed by their upper floors with the walls of their lower ones. The taller the building, the thicker the lowest walls—and thus the less ground-floor space there was to rent. More than a dozen storeys was impractical.

Even at 12 storeys a lift comes in handy, and big new buildings in America started to boast them (in 1870 New York's Equitable Life building became the first office to do so). But for the most part they used hydraulic lifts which pushed passengers up from below. These required a piston sunk down into the ground to a depth matching the height of the liftshaft—inconvenient, but not impossible for something under 20 storeys. And they were a lot faster than Otis's steam-driven counterweight lifts.

The electric motor changed that. Otis's original steam-powered lift climbed at 0.2 meters per second (m/s). The electrified lifts in the first steel-framed building to top 50 floors, the 241-metre Woolworth Building, which opened in 1913, were more than ten times faster. Two decades later those in the 381-metre Empire State Building travelled at 6m/s, as fast as many modern lifts.

By this stage, America's cities looked like nothing the world had ever seen before. Before the lift, buildings of more than six storeys were rare; rooftops were low and even, broken occasionally by the bulk of citadels and places of worship. There are few such cityscapes left today. Paris has mostly succeeded in keeping its roofline even (despite a towering icon that depends on cunningly non-vertical lift technology). Kone's 16th-floor boardroom, ironically, overlooks a Helsinki kept defiantly low-rise by strict planning laws. But most cities reach for the sky, sometimes dramatically—Dubai—sometimes in a higgledy-piggledy—São Paulo.

In extending the human world upwards, the lift overturned previous notions of prestige. Before the 20th century people prized proximity to the pavement. The first floor, above the hubbub of the street but conveniently accessed by a single flight of stairs, was the floor most sought after—the piano nobile or *bel étage*. Anything above the second floor was typically reserved for servants. In hotels and tenements, standards and prices fell with altitude. As Andreas Bernard points out in "Lifted: A Cultural History of the Elevator", top floors were considered a public-health risk. The strain of tackling so many stairs, the difficulty of getting outside in the fresh air and the trapped heat of summer played a part in this. It may be no coincidence that the garret was home to consumptive artists.



The lift not only made much higher floors possible, it gave them a new status and glamour. Rents began to rise, not fall, with height. The penthouse—a word that took its modern meaning in the 1920s—became a status symbol. From the Equitable Life Building onwards, top executives took to the top floors. Altitude was eminence, farsightedness, elevation—power.

Lifts also made the workplace more regular. Structures built around staircases had internal arrangements much less strict than today's, with mezzanines and back-stairs that provided different points of access to the same floor. Lifts imposed a new simplicity. The lobby where lifts arrive and depart serves as a focus on each floor. Storeys are strictly and consistently set apart by number (with the occasional exception for triskaidekaphobes and their equivalents in other cultures). This repetitive stacking of space, some have argued, played a crucial role in formalising office plans and hierarchies. There is a reason why M.C. Escher never etched any delightfully paradoxical lift shafts.

By the 1970s lift engineering was a pretty mature industry, and started to consolidate and globalise. Kone and Thyssenkrupp, along with the Swiss firm Schindler, bought up rival firms to join Otis (now a division of United Technologies) as worldwide brands. Between them the big four now account for around two-thirds of the global market; Hitachi and Mitsubishi of Japan take quite a lot of the rest. There is as yet no Chinese lift giant—perhaps because the industry relies as much on its ability to provide services on a global scale as on its mechanical engineering prowess. Half the big four's annual revenues of \$40bn (€36bn) come from that side of the business.

But if China is not a force in the industry, it has been a huge influence on it; the Chinese appetite for more, higher and faster lifts is like nothing seen since 1920s New York. In 2000 some 40,000 new lifts were installed in the country. By 2016 the number was ➤

► 600,000—almost three quarters of the 825,000 sold worldwide. China not only wanted more skyscrapers; it wanted taller ones. More than 100 buildings round the world are over 300 metres; almost all of them were built this century, and nearly half of them in China. The country is home to two-thirds of the 128 buildings over 200 metres completed in 2016. Other countries may content themselves with a few show-off pinnacles. China buys them by the dozen.

Such buildings exacerbate the constraints liftmakers and the architects they work with have always faced: time and space. Kheir Al-Kodmany at the University of Illinois has found that after 28 seconds waiting, would-be passengers start to get irritated. And while lifts make rentable floor space reachable, they attract no rent themselves. At the top of the tallest buildings (which are often tapered, both because of the wind and to reduce loading on the structure below) the lift shafts may take up 40% of the floor space. The fewer the shafts, the more lucrative the building.

Increasing speed, a focus of the Japanese lift manufacturers, saves some time. Lifts typically travel at around 8-9m/s. Mitsubishi's lifts in the Shanghai Tower more than double that, reaching 20m/s (45 miles per hour). But though the users value speed, they have problems with the acceleration that provides it. Lifts accelerate at less than a tenth of the rate of an average car, because being pushed into the floor of a lift is a lot less comfortable than being pushed back in your seat. This means lifts can only reach their top speed on long uninterrupted runs. And even then, only on the upward leg; people are yet more sensitive to acceleration going down. Designers could get their lifts up to 20m/s just by letting them fall free for two seconds; but most customers wouldn't thank them for it.

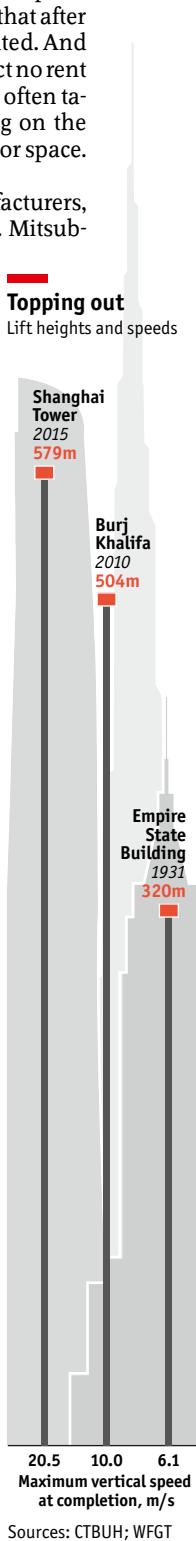
Henrik Ehrnrooth, the boss of Kone, thinks the quest for further speed is now pretty much played out. The time it takes for the doors to open and close, he says, has as big an influence on the total time it takes to get to your desk—the measure which matters most. Kone, and the rest of the big four, concentrate more on the hardware and algorithms needed to prevent unnecessary stopping and empty journeys, which cuts waiting times and reduces the number of shafts needed for a given building.

Liftmakers say that "Destination control", in which the lift system tells the user which lift to use, rather than the user telling the lift where to go, reduces door-to-desk time by 30%. Pair it with double-decker lifts, which in very tall buildings usefully serve odd and even floors simultaneously, and you increase capacity even further. (Such lifts are also spectacular, at least they are if you are in the perspex-walled observation level halfway down one of Kone's mineshaft testbeds watching them rush past like lorries.)

Alternatively, separate the top and the bottom deck and have two independent lifts in the same shaft. This allows an express lift serving a "sky lobby" on the 25th floor to run in the same shaft as the lift that offers a stopping service to the floors above. At least one company has attempted to put three lifts in a single shaft, but the challenges have so far proved insurmountable.

Really tall buildings pose problems of their own. Dubai's Burj Khalifa, the tallest building in the world, has 163 floors and measures 830m to its tip. But to get to the top you must change at a sky lobby; the longest ride offered by any of its 57 lifts is just 504 metres. The limiting factor is the steel lift cable. Any longer and it gets so heavy that it might snap under its own weight.

UltraRope, developed by Kone, gets around this problem by using carbon fibre. When the Jeddah Tow-



er in Saudi Arabia, the world's first 1km building, opens in 2020 it will boast a 660-metre lift made possible by UltraRope; the company thinks doing a whole kilometre should be feasible, if anyone wants to.

UltraRope has other advantages. Tall buildings sway with the wind, an effect that Thyssen Krup's test tower replicates with 240 jiggable tonnes of concrete on the 21st floor. Steel amplifies the swing like a strummed guitar string, which can damage the shafts and the cables. UltraRope has a higher resonant frequency, making it less sensitive to such sway.

The power of lateral thinking

A development being tested at Rottweil goes even further—doing away with the cable altogether. Thyssenkrupp, which also makes railway equipment, has harnessed high-speed rail technology to create Multi, a system held in place and accelerated by electromagnetic forces like those used for magnetic-levitation trains. This is not a new idea. One of the first people to look into it was a PhD student in Manchester in the 1970s, Haider al-Abadi, who is now prime minister of Iraq. But now it seems as if its time may have come.

By eliminating the cable, Multi aims to take away all limits on height other than those imposed by a building's structure. The absence of cables will also allow lifts to move laterally, as well as vertically, making the whole system more like a railway. Lift shafts will be able to fork and rejoin to allow overtaking; descending lifts could sidestep ascending ones.

The first building to commission such lifts, Berlin's East Side Tower, will not be able to use Multi until it has been certified by the authorities, probably around 2020. Nor can it make full use of the system's potential; while Multi could have served its needs with just six shafts, the emergency services, less trusting of the new technology, have demanded two additional old-fashioned lifts so they can reach the upper floors if something goes wrong.

Further off, though, the possibilities have lift buffs giddy with excitement. Adrian Godwin, a consultant who has advised on some of the world's tallest buildings, imagines systems like Multi making buildings of 250 storeys or more possible, with many more lift cabins circulating in cores smaller than those in use today. The number of cars in the system could be changed on the fly to reflect usage patterns, which will make things more energy-efficient.

Buildings could change shape, as well as size. Mr Godwin, along with Thomas Heatherwick, a noted British designer, has envisaged an office block that curves up elegantly from a large base using revolving lift cabins like those on a Ferris wheel. He also has a vision for a building shaped like a giant hoop; lifts freed from cables require no central core.

Perhaps most intriguing, new types of sideways-scooting lifts could link up whole clusters of buildings. Transport hubs could house lifts serving a range of local buildings, moving first horizontally, then vertically. Or the lifts could zip between their tops on skybridges. It took trees hundreds of millions of years to evolve the structural systems and internal plumbing needed for wide-spreading boughs, thus making possible the wonderfully rich ecosystems of rainforest canopies. Lateral lifts could make canopy cities possible before Otis's patent sees its bicentenary. Having let cities climb into the sky, the lift may now help them spread across it. *

Sex and inequality

The perils of polygamy

How plural marriage begets violence

CAIRO, LAHORE AND WAU

IT IS a truth universally acknowledged, or at least widely accepted in South Sudan, that a man in possession of a good fortune must be in want of many wives. Paul Malong, South Sudan's former army chief of staff, has more than 100—no one knows the exact number. A news website put it at 112 in February, after one of the youngest of them ran off to marry a teacher. The couple were said to be in hiding. To adapt Jane Austen again, we are all fools in love, but especially so if we cuckold a warlord in one of the world's most violent countries.

Men in South Sudan typically marry as often as their wealth—often measured in cattle—will allow. Perhaps 40% of marriages are polygamous. “In [our] culture, the more family you have, the more people respect you,” says William, a young IT specialist in search of his second wife (his name, like some others in this article, has been changed). Having studied in America and come back to his home village, he finds that he is wealthy by local standards. So why be content with just one bride?

Few South Sudanese see the connection between these matrimonial customs and the country's horrific civil war. If you ask them the reason for the violence, locals will blame tribalism, greedy politicians, weak institutions and perhaps the oil wealth which gives warlords something to fight over. All true, but not the whole story.

Wherever it is widely practised, polygamy (specifically polygyny, the taking of multiple wives) destabilises society, largely because it is a form of inequality which creates an urgent distress in the hearts, and loins, of young men. If a rich man has a Lamborghini, that does not mean that a poor man has to walk, for the supply of cars is not fixed. By contrast, every time a rich man takes an extra wife, another poor man must remain single. If the richest and most powerful 10% of men have, say, four wives each, the bottom 30% of men cannot marry. Young men will take desperate measures to avoid this state.

This is one of the reasons why the Arab Spring erupted, why the jihadists of Boko Haram and Islamic State were able to conquer swathes of Nigeria, Iraq and Syria, and why the polygamous parts of Indonesia and Haiti are so turbulent. Polygamous societies are bloodier, more likely to invade their neighbours and more prone to collapse than others are. The taking of multiple wives is a feature of life in all of the 20 most unstable countries on the Fragile States Index compiled by the Fund for Peace, an NGO (see chart on next page).

Because polygamy is illegal in most rich countries, many Westerners underestimate how common it is. More than a third of women in West Africa are married to a man who has more than one wife. Plural marriages are plentiful in the Arab world, and fair-



ly common in South-East Asia and a few parts of the Caribbean. The cultures involved are usually patrilineal: ie, the family is defined by the male bloodline. And they are patrilocal: wives join the husband's family and leave their own behind. Marriages are often sealed by the payment of a brideprice from the groom's family to the bride's. This is supposed to compensate the bride's family for the cost of raising her.

A few men attract multiple wives by being exceptionally charismatic, or by persuading others that they are holy. “There may be examples of [male] cult leaders who did not make use of their position to further their personal polygyny, but I cannot think of any,” notes David Barash of the University of Washington in ➤

► “Out of Eden: The Surprising Consequences of Polygamy”. However, the most important enabler of the practice is not the unequal distribution of charm but the unequal distribution of wealth. Brideprice societies where wealth is unevenly distributed lend themselves to polygamy—which in turn inflates the price of brides, often to ruinous heights. In wretchedly poor Afghanistan, the cost of a wedding for a young man averages \$12,000-\$20,000.

By increasing the bride price, polygamy tends to raise the age at which young men get married; it takes a long time to save enough money. At the same time, it lowers the age at which women get married. All but the wealthiest families need to “sell” their daughters before they can afford to “buy” wives for their sons; they also want the wives they shell out for to be young and fertile. In South Sudan “a girl is called an old lady at age 20 because she cannot bear many children after that,” a local man told Marc Sommers of Boston University and Stephanie Schwartz of Columbia University. A tribal elder spelled out the maths of the situation. “When you have 10 daughters, each one will give you 30 cows, and they are all for [the father]. So then you have 300 cows.” If a patriarch sells his daughters at 15 and does not let his sons marry until they are 30, he has 15 years to enjoy the returns on the assets he gained from brideprice. That’s a lot of milk.

Valerie Hudson of Texas A&M University and Hilary Matfess of Yale have found that an inflated brideprice is a “critical” factor “predisposing young men to become involved in organised group violence for political purposes”. Terrorist groups know this, too. Muhammad Kasab, a Pakistani terrorist hanged for his role in the Mumbai attacks of 2008, said he joined Lashkar-e-Taiba, the jihadist aggressor, because it promised to pay for his siblings to get married. In Nigeria, Boko Haram arranges marriages for its recruits. The so-called Islamic State used to offer foreign recruits \$1,500 towards a starter home and a free honeymoon in Raqqa. Radical Islamist groups in Egypt have also organised cheap marriages for members. It is not just in the next life that jihadists are promised virgins.

The deepest deprivation

In South Sudan, brideprices may be anything from 30 to 300 cows. “For young men, the acquisition of so many cattle through legitimate means is nearly impossible,” write Ms Hudson and Ms Matfess. The alternative is to steal a herd from the tribe next door. In a country awash with arms, such cattle raids are as bloody as they are frequent. “7 killed, 10 others wounded in cattle raid in Eastern Lakes,” reads a typical headline in *This Day*, a South Sudanese paper. The article describes how “armed youths from neighbouring communities” stole 58 cows, leaving seven people—and 38 cows—shot dead “in tragic crossfire”.

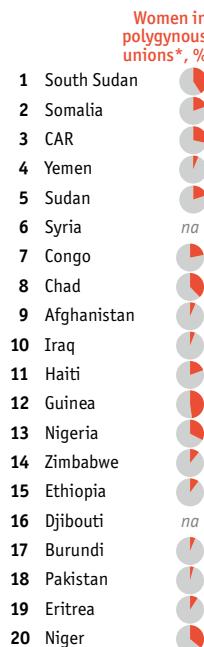
Thousands of South Sudanese are killed in cattle raids every year. “When you have cows, the first thing you must do is get a gun. If you don’t have a gun, people will take your cows,” says Jok, a 30-year-old cattle herder in Wau, a South Sudanese city. He is only carrying a machete, but he says his brothers have guns.

Jok loves cows. “They give you milk, and you can marry with them,” he smiles. He says he will get married this year, though he does not yet have enough cows and, judging by his ragged clothes, he does not have the money to buy them, either. He is vague as to how he will acquire the necessary ruminants. But one can’t help noticing that he is grazing his herd on land that has recently been ethnically cleansed. Dinkas like Jok walk around freely in Wau. Members of other tribes who used to live in the area huddle in camps for displaced people, guarded by UN peacekeepers.

The people in the camps all tell similar stories. The Dinkas came, dressed in blue, and attacked their homes, killing the men

Marital discord

Fragile-states index, 2017



Sources: The Fund for Peace; DHS; MICS
*Latest available

and stealing whatever they could carry away, including livestock and young women. “Many of my family were killed or raped,” says Saida, a village trader. “The attackers cut people’s heads off. All the young men have gone from our village now. Some have joined the rebels. Some fled to Sudan.” Saida’s husband escaped and is now with his other wife in Khartoum, the Sudanese capital. Saida is left tending five children. Asked why all this is happening, she bursts into tears.

“If you have a gun, you can get anything you want,” says Abdullah, a farmer who was driven off his land so that Dinka marauders could graze their cattle on it. “If a man with a gun says ‘I want to marry you’, you can’t say no,” says Akech, an aid worker. This is why adolescent boys hover on the edge of battles in South Sudan. When a fighter is killed, they rush over and steal his weapon so that they can become fighters, too.

Overall, polygamy is in retreat. However, its supporters are fighting to preserve or even extend it. Two-fifths of Kazakhstanis want to re-legalise the practice (it was banned by the Bolsheviks). In 2008 they were thwarted, at least temporarily, when a female MP amended a pro-polygamy bill to say that polyandry—the taking of multiple husbands—would be allowed as well; Muslim greybeards balked at that.

In the West polygamy is too rare to be socially destabilising. To some extent this is because it is serialised. Rich and powerful men regularly swap older wives for younger ones, thus monopolising the prime reproductive years of several women. But that allows a few wives, not a few dozen. The polygamous enclaves in America run by breakaway Mormon sects are highly unstable—the old men in charge expel large numbers of young men for trivial offences so they can marry lots of young women themselves. Nevertheless, some American campaigners argue that parallelised polygamy should be made legal. If the constitution demands that gay marriage be allowed (as the Supreme Court ruled in 2015), then surely it is unconstitutional to disallow plural marriage, they argue. “Group marriage is the next horizon of social liberalism,” writes Fredrik deBoer, an academic, in *Politico*, on the basis that long-term polyamorous relationships deserve as much legal protection as any others freely entered into.

Proponents of polygamy offer two main arguments beyond personal preference. One is that it is blessed in the Koran, which is true. The other is that it gives women a better chance of avoiding spinsterhood. Rania Hashem, a pro-polygamy campaigner in Egypt, claims that there is a shortage of men in her country. (There is not, but this is a common misconception among polygamists.) If more rich, educated Egyptian men take multiple wives, she says, this will make it easier for women to exercise their “right to have a husband”. Mona Abu Shanab, another Egyptian polygamy advocate, argues that polygamy is a sensible way to assuage male sexual frustration, a common cause of divorce. “Women after marriage just disregard their men [and] focus on their kids. They...always have an excuse for not engaging in intimate relations; they are always ‘tired’ or ‘sick’. This makes the men uncomfortable and drives them to...have a girlfriend.”

Some men see polygamy as a pragmatic response to female infertility. “My first wife was issueless,” says Gurmeet, a 65-year-old landlord in Lahore, Pakistan. At one point “she said our inability to have a child was because of my medical condition, not hers. I was enraged. I turned to religion and was guided [by God] to



► take a second wife.” He had been planning to try in-vitro fertilisation but God’s advice looked like a sounder investment. Initially, his first wife was “unwilling to share my affections with another woman”. But as time passed, she accepted the situation, says Gurmeet. He divided the house into two parts, so his wives could live separately. He divided his time equally between them. “It worked,” he says. The second wife had six children. But Gurmeet grumbles that she dressed less elegantly than his childless wife and did not keep her rooms as tidy.

Polygyny is hard work for men but good for women, says Gurmeet, because it is “undesirable” for a woman to be unmarried. Asked about polyandry, Gurmeet says, “I strongly disapprove. It is against nature for a woman to have multiple partners.” He elaborates: “As a young man I kept chickens. The cock has many hens, but he does not allow the females to mate with more than one partner. So it’s against natural law.”

Bad for brides

Polygamy “can work fine, provided you do justice to [all wives] equally,” says Amar, a Pakistani judge with two wives. “If you do not prefer any one over the others, no problem arises.” He admits that if two wives live together in the same home, “a natural rivalry” arises. Dividing property can also be complicated and leads to a lot of litigation.

But Amar thinks he gets it right. “My routine is: I spend one night with one wife and one night with the other. That way, nobody feels treated badly. And I give them exactly the same amount of money to spend: they get one credit card each. As a judge, it is

[my] foremost duty to deliver justice.” One of his wives enters the room and offers to give her side of the story. Her husband banishes her, with visible irritation, before your correspondent can ask her anything.

Although women in a polygamous society find it relatively easy to get married, the quality of their marriages may not be high. Because such brides are often much younger, not to mention ill-educated, they find it hard to stand up to their husbands. And brideprice is not conducive to a relationship of equals.

In South Sudan, nearly 80% of people think it acceptable for a husband to beat his wife for such things as refusing sex, burning the dinner and so on. Divorce requires that the bride’s family repay the brideprice; they may thus insist that the abused woman stays with her husband no matter how badly he treats her.

Polygamy is also bad for children. A study of 240,000 children in 29 African countries found that, after controlling for other factors, those in polygamous families were more likely to die young. A study among the Dogon of Mali found that a child in a polygynous family was seven to 11 times more likely to die early than a child in a monogamous one. The father spends his time siring more children rather than looking after the ones he already has, Mr Barash explains. Also, according to the Dogon themselves, jealous co-wives sometimes poison each other’s offspring so that their own will inherit more.

For Akech, the South Sudanese aid worker, growing up in a polygamous family “wasn’t easy”. Her father, a former rebel commander, had eight wives and numerous concubines. She has 41 siblings that she knows of. When she was six, she used to fetch 20 litres of water each day for her mother to use to make siko, a form of moonshine. Sometimes her father would come round drunk, bang on the door and take her mother’s money to spend on another woman. Akech remembers her parents quarrelling a lot. That said, the extended family could pull together in an emergency. When her father was shot in the leg, his wives teamed up to bathe him, get him to hospital and pay his medical bills.

One day, when Akech was at university, her father asked her to come and see him. “We had never had a father-daughter bond, so I was excited,” she remembers. When she arrived, he introduced her to a fellow officer and ordered her to marry him. She was horrified. Her father’s friend was 65. Akech was 19.

She pretended to accept the proposal and said she just wanted to pop back to her college, which was in a neighbouring country, to collect her things. Her father agreed. She went back to college and stayed there.

That was more than a decade ago. Akech went on to complete university and find a good job. She recently bought her now-elderly father a house, partly to show him the value of her education, but also out of a residual sense of guilt at having once defied him. “In my culture, your parents are your earthly gods. I tried not to disappoint him,” she says. He has never said sorry for attempting to sell her. *

A day crossing Paris

Take the B train

Observations from
a suburban railway

FROM SAINT-RÉMY-LES-CHEVREUSE TO AÉROPORT CHARLES DE GAULLE

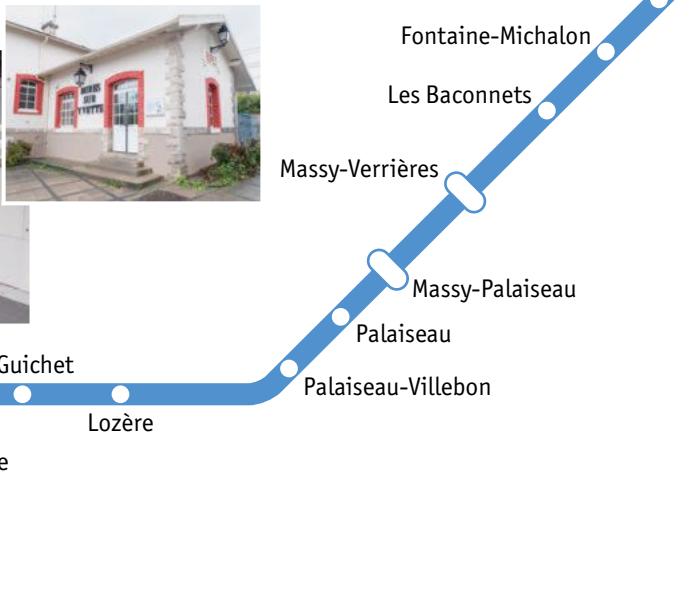
ON SUNNY weekends Saint-Rémy-lès-Chevreuse bustles with visitors. They admire its goats and cows, buy fresh farm eggs, picnic in riverside meadows and explore the 11th-century hilltop castle. Furtive mushroom-pickers slip to secret spots in the woods nearby.

Parisians have been enjoying this fantasy of rural life since the railway first arrived in St-Rémy 150 years ago. The line was dubbed the "lilac train" in honour of the mauve bouquets taken back to the Smoke as remembrances of day-trip idylls.

The lilac line is now, rather less charmingly, line B of the regional express network (RER, in French). On maps it appears as a blue thread with frayed ends stretching diagonally across Paris from bottom left (St-Rémy) to top right. It links country, leafy suburbs, the opulent city, tourist delights (and traps) and grotty northern banlieues. At its far end is Charles de Gaulle airport, a sprawling avant-garde mess that touched down on the fields of sugar beet and tulips next to the village of Roissy in 1974.

Despite its name, the B is no express. Tracing its 80km (50 miles) takes an hour-and-a-half—not that anyone normally does so. Day-trippers go out; commuters come in; people travel a few stops for shopping, or to see friends, or to go to school; at airports (the line indirectly serves one at Orly, as well as Charles de Gaulle) and railway interchanges travellers from further afield pile on. For all of them, the line is a means, not an end—and not a particularly appealing one. Many of the carriages that between them provide almost a million journeys a day wobble disturbingly along, with yellow-painted walls, dim lights, metal coat-hooks over threadbare purple seats, a crackling tannoy, doors that hiss, brakes that squawk like gangs of novice clarinettists. Strikes or breakdowns, both frequent, bring enormous disruption.

Approach the line as an end-to-end experience, though, rather than a sometimes irritating bit of infrastructure separating the A you are at from the B you desire, and things become more fascinating. François Maspero, a leftist writer, and Anaïk Frantz, a photographer, celebrated this when they spent a month on the RER B in 1989. Their aim was to show warm, welcoming human life in the



poorest suburbs and defy those who imagined a "circular purgatory, with Paris as paradise in the middle". Their journey told them something about Paris—but also something universal.

The railway lines that rush, or chug, into the world's cities all give you that universal: the constant intermingling, and disentangling, of rich and poor, local and visitor, native and migrant, young and old; the enriching diversity and grating inequality. But each line also gives you something specific to each particular string of places, be it the A train in New York, running from JFK airport up to Harlem, the Yellow Line that runs through Delhi's wealthy centre and crowded slums on to its enormous, sprawling suburbs, or London's District Line, which runs from bankerly Richmond to working-class, immigrant-heavy East Ham. For the particulars of Paris, take the B train.

RERing to go

Well before dawn on a weekday morning a fingernail moon hangs over St-Rémy. Birds have their voices, but little else stirs. The windows of Le Chalet Caffé, a bistro and tobacconist, are dark. At neighbouring La Giostra, where last night women in tweed jackets ate smoked-salmon pizza, the doors are blocked by overflowing bins. Only the station is bright, its four faux-Victorian lamps ablaze, white floodlights criss-crossing the platform with shadows.

"Yes, yes, don't worry yourself," the driver says amiably as he walks to the cab. "The only direction is Paris". A mother waves off her shaven-headed son, a military-camouflage pack on his back. A middle-aged woman scowls at a pair of guide books for Dubai.

Once off, the bright line of wagons creeps between stations barely a minute apart. The first passengers—ruddy-faced, well-to-do, lugging suitcases—appear to ➤

► be poised for travel, not commuting. They are almost silent. Those who get on respect a universal rule of public transport in the West, sitting as far as possible from their fellows (they avoid eye contact, too). The line loops past a ruined farmhouse. There were vineyards down here, before phylloxera struck.

At Bures-sur-Yvette, as darkness begins to lift, potted geraniums cram windowsills and the 19th-century villas boast turrets. Haydn and Mozart will be performed next Saturday in Saint Matthieu's church, which predates them both by centuries. A white-haired man in a linen jacket, baguette in his wicker basket, heads into the "artisanal" butchers. Take coffee and a croissant at the bistro—the owner proposes traditional "tartiflette" for lunch—and nothing seems to have changed for decades. A few Portuguese-speakers in hard hats stand at the aluminium bar; the rest of the clientele is pale-skinned. The village memorial counts 67 villagers lost in two world wars.

As dawn gives way to daylight the train slips under a 19th-century aqueduct on millstone pillars, built in the place of a Roman predecessor, and enters the suburbs proper. Station walls are draped in purple ivy. Orange-red tiles top many homes. Posters promote exhibitions in Paris. Near Sceaux the tree-lined avenues remain, as they have been for more than a century, a home for writers, academics, musicians (as well as disturbingly well-coiffured dogs). When Erik Satie died in Arcueil, his bedroom was said to contain 100 umbrellas and an untouched piano.

This is a well-heeled world for the cultured and comfortably liberal. Its voters flocked to the young centrist Emmanuel Macron in last spring's elections. Not all is genteel. You can walk by large housing estates in the southern banlieues, just as in the north. But they are for the most part well tended, fenced off, freshly painted. Once in a rare while the graffiti, ubiquitous along the line, is actually uplifting. At a station beside a stately school, a wall enjoins travellers to "hope, hope"; the words are English, the lower-case letters in the looping, cursive hand that French children must still perfect. It is a different story north on the line. Fresh graffiti in the station at La Courneuve says "A bas Le Macronisme" (Down with Macronism). Up there, the voters turned to hard-left politicians, such as Jean-Luc Mélenchon. Up there, food outlets offer fried chicken, not tartiflette.

As suburb becomes city in the south, most passengers are clearly on their way to work. The train breathes in timeless young men in dark suits watching *Les Simpson* on their phones; middle-aged ones playing Candy Crush. A man in a black T-shirt studies a slender book on quantum gravity; perhaps he is from the nuclear-research centre at Saclay.

For some, the train itself is a workplace. A silent woman in a leopard-print headscarf hands out yellow cards describing four jobless brothers. The pale blue card of a pot-bellied man reports he has no employment and wishes you safe travels. The beggar in the dark blue cap is readiest to smile.

Brass bands play and feet start to pound

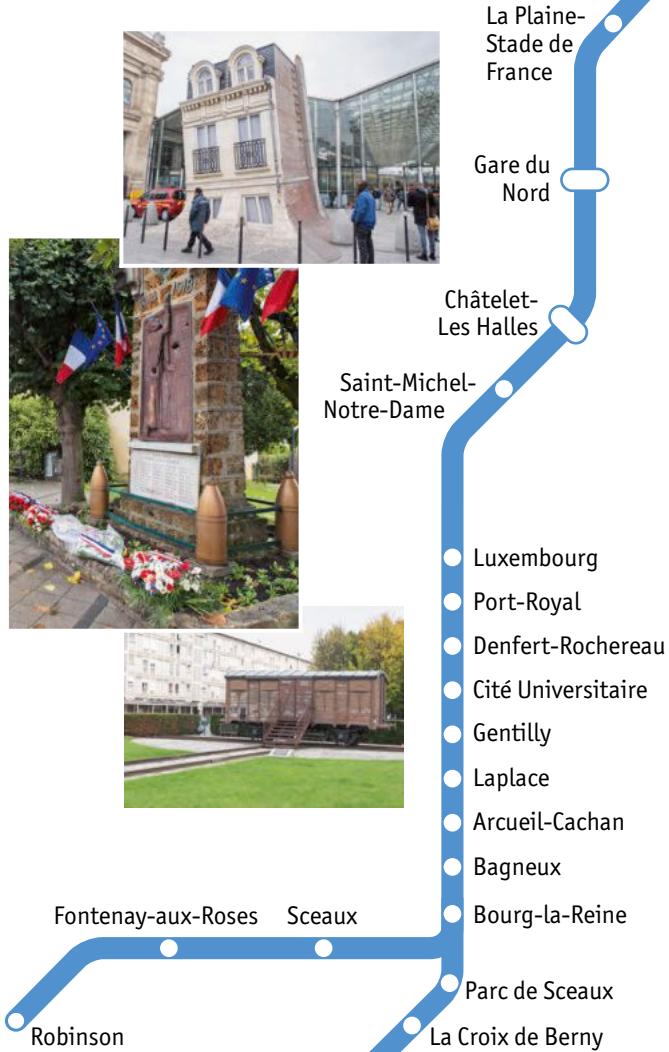
The line only reached the heart of Paris in 1895, when a tunnel was built from Denfert to Luxembourg station. It took a further eight decades for it to be coaxed under the River Seine (down an especially steep incline) and connected with the north.

At the trio of underground stations—Port-Royal, Luxembourg, Saint-Michel-Notre-Dame—which constitutes the heart of tourist-Paris, couples with small backpacks flood the train. They are insistently warned by loudspeaker, in several languages, of the dangers of pickpockets. With the carriages too packed to pass through, begging moves to the platforms and corridors. In the monstrous maze of Châtelet Les Halles—120 trains an hour, and allegedly the largest metro station in the world—women in black and children in bright coats pass entire days sitting underground on tiled floors. One woman explains her home was in Aleppo.

There are buskers, too. The regional rail operator, RATP, says there are 300 or so officially accredited ones. Antoine Naso, a

stocky former line manager, calls the city's 5.5m Metro passengers "one of the biggest music scenes in the world"; he recently put on a concert of some of the best acts of the past two decades. Every few months Mr Naso auditions new talent in a tiny basement mock-up of a metro tunnel. Two choral singers in sensible dresses perform Henry Purcell's "Let us wander". Endless young men with beards cover rock and pop anthems. The stand-out is Podkopaev Evgenio Korela, once a Finnish hard-rocker, who has by some technical magic transformed the lime-green handle of a broom into a funky percussive synthesiser. He has played in the city for 30 years; he talks movingly of his love for the "liberalism [and] democracy of Paris".

Mr Korela won't perform on the B train. It is too noisy. He and bigger bands like Eurofolk, an eight-piece Ukrainian gypsy-jazz group with quite a following, prefer the acoustics and space of stations like Châtelet Les Halles; the echoes of Eurofolk's set can be heard from the RER platform. But Wayne Standley, a mid-western folk guitarist, says he has played the length of the B line. The southern part "got lonesome towards the end," he recalls, "but you needed a rest. And it was quieter, so you could sound a little better". He remembers a Malaysian guitarist friend who thrived on the B train with a set consisting mostly of advertising jingles.





North of Gare du Nord, the line threads between massive residential blocks and post-industrial districts, some buzzing, some distinctly not. As the steelworks, glyceride refineries, car plants and warehouses up here have closed, they have been replaced by studios for film editors and artists, glass office towers, shopping malls and recycling plants. The beggars return to the carriages—but up here they are mostly white, and addicts. A grinning woman in a black baseball cap moves quickly along on her crutches, a carriage per stop; she offers no story, just asks for money.

Life here is far tougher than in the centre or south. In 2010 Emmanuel Vigneron, a geographer, compared death rates, medical care and incomes of people near every station on the RER B, adapting a technique first used to study health-care differences along the belt road of Tahiti. “We showed that by moving 15 minutes out of Paris mortality rates would double”, he says. In a sample of women from Port-Royal, in central Paris, and La Plaine-Stade de France, where the average income is dramatically lower, he found that those few stops further north represented an 82% higher risk of dying in a given year. Similar studies for commuter lines elsewhere have since become a headline-friendly way for various cities to worry about their inequality.

The presiding spirit of the *banlieues* is Paul Delouvrier, an administrator ordered by Charles de Gaulle to sort the “shambles” of the outer city and its slums. His legacy is one of huge, dispiriting tower blocks—the main focus of the book Maspero and Ms Frantz produced in 1989. For all their work’s sympathetic, humane charm, though, the decades since have mostly strengthened a popular view of northern *banlieues* as alien and threatening, a home to Islamist and immigrant extremists, sites of police brutality, riots, drug-dealing and rape. In February 2017 riots raged for several nights in estates near the RER station at Aulnay-sous-Bois after police reportedly sodomised a young man with a baton.

Take an afternoon walk around estates such as La Courneuve 4000 or Aulnay 3000, where thousands of people are packed tightly together, and it is no wonder that many told Maspero that their dream was to move to a *pavillon*, one of the modest, privately owned villas that predated the projects. A massive wall of apartments has a broken plastic symbol of a galleon on its side. It is said to be due for demolition soon. By a doorway a woman tends a fire in a shopping trolley, roasting maize cobs to sell. Men stand on the roadside with tiny coolboxes, offering single cans of fizzy drink. Above them is an enormous poster of Moussa Sissoko, a footballer in the national team who was a resident here from 1989 to 2001. It is a reminder that some, at least, succeed and leave.

Get off at Drancy station and things look more welcoming. But among the grey, four-storey blocks of La Muette estate, built in the

1930s, there is a wooden cattle wagon, stencilled with a Star of David on one door as well as lettering of SNCF, France’s national railway company. Parties of schoolchildren circle the site with a guide. In the second world war La Muette, surrounded by barbed wire and watch-towers, was Paris’s concentration camp for those of Jewish descent. A memorial centre at the site, inaugurated by France’s president only in 2012, explains how mostly French guards oversaw the camp and the transport of inmates to the border, en route to Auschwitz. Today, bicycles are scattered on communal grass in early-evening sunshine.

All passed out of our lives

On the last leg north, the city breathes out. Having sent its commuters home it has a few hours to relax. Four teenage boys, sweaty in football kits, noisily debate their performances on the pitch. Young women run laughing and cheering into the carriage: one wears an ankle-length, dazzling white fur coat and sports a beehive of red hair; the head of her friend is shaved in an intricate criss-cross pattern.

The line splits at Aulnay. One branch slips under a motorway and out into fields of maize. The other takes a jumble of commuters and travellers towards the airport. In a few years, though, the travellers will be gone. Before the Olympics come to Paris in 2024 a non-stop service will start whisking passengers from Charles de Gaulle to Gare de l’Est, in the centre, in just 20 minutes. The locals will be left alone.

Monks in saffron robes and orange bobble hats stare out at arenas, hotels, exhibition centres and construction sites, approaching a terminal that is floodlit in red, white and blue, a top-heavy mass of concrete and shadow. Its signs are algebra in blue—2A-G divided by T3 in this direction, but carry T1 into the shuttle-bus column. Silvery escalators rise from the platform, their passengers’ heads tilted upwards—a group of Chinese tourists, each with a rectangular cardboard train ticket in hand; those monks, unencumbered by any luggage at all. It is near midnight as they glide up, and up, into the artificial light. Below, the windows of the B train, etched with graffiti, are radiant in the gloom.*

Fermenting food

Universe in a jar

Dinner tastes best pre-digested



LIBERTY, TENNESSEE

SANDOR KATZ'S kitchen is an alchemist's laboratory. Glass jars filled with grains and spices both common and unusual—oat groats and rice, millet and dried tapioca pearls, sugar and liquorice, dulse and mauby bark—line ceiling-high shelves. Beneath them sit carboys filled with homemade meads, fruit wines and perry. In glass jars and ceramic crocks on the broad central table, the alchemist's assistants—trillions of bacteria—transform red cabbage into crisp sauerkraut with a hint of caraway, deep green summer cucumbers into fizzingly sour olive-coloured pickles, carrots and green cabbage into bracing *pao cai* (Chinese pickles), and sliced daikon radish into an extraordinary *kimchi*. Its powerful funk blooms into the room as soon as Mr Katz removes the crock top.

Fermentation is the world's oldest method of storage and preservation. It arose out of practicality. It is easiest to grow cabbages, and other crops, if you synchronise the planting and harvesting; but you cannot eat them all at once. If you shred, salt and pack those same cabbages in jars they will last more or less indefinitely, and, in the process, become much tastier.

People tend to think of fermented foods as pickly and sour: that *pao cai*, for instance. In fact, bread, cheese, yogurt, chocolate and tea all undergo some kind of fermentation. Bread depends on it to make dough rise: yeasts, whether wild or lab-domesticated, consume the simple sugars found in flour. In bread, though, as in choc-

olate, the microbes are dead at the point of consumption. Unpasteurised sauerkraut, *kimchi* and *kombucha*, on the other hand, teem with live bacteria.

To biologists, fermentation is the anaerobic metabolism of sugars. It is what the yeast used to make bread, beer and wine does when it turns carbohydrates into alcohol and carbon dioxide without the benefit of oxygen. But not all the processes in Mr Katz's kitchen are anaerobic. *Tempah*, a Javanese food made from soya beans inoculated with spores of *Rhizopus*, a parasitic fungus, requires air to circulate if the mould is to grow into a solid cake around the beans. In his book "The Art of Fermentation", Mr Katz (pictured) prefers a broader definition: "the transformation of food by various bacteria, fungi and the enzymes they produce".

Not all microbial transformations are desirable. Leave a head of cabbage in brine for a week or a month and you will have delicious sauerkraut (see our festive recipe online). Leave it on the kitchen counter for a month and you will have a slimy mess. But the line between fermented and rotten is not always so stark. Sometimes, like beauty, it exists in the beholder's eye. With the exception of some Nordic types, Westerners tend to be repulsed by stinky, fermented fish. But they ➤

► will happily eat stinky, fermented milk in the form of Gorgonzola or Stilton. Many East and South-East Asians, who consume fish sauce regularly, eschew cheese.

At the moment, though, people's palates seem to be widening. Mr Katz teaches fermentation workshops around the world to strangers who come together to salt and squeeze root vegetables and trade SCOBYS (a "symbiotic colony of bacteria and yeast"—the broad, slimy, vaguely organ-like disc that turns tea and sugar into *kombucha*). Enthusiasts trade sourdough starters and kefir grains (at Bridge Farm in Ambridge, the setting for "The Archers", an enduring BBC radio series, they talk of little else). Fermentation's popularity seems in part a reaction against the last decade's fad for "molecular gastronomy"—using chemistry to transform the taste and texture of food—and of a piece with other back-to-nature trends such as foraging and cooking over open fires.

Microbial gastronomy

Fermentation produces delicious foods. But more than that, it connects humans to the invisible processes of life all—to the microbes that were here for billions of years before humans arrived, and will persist for billions more after they have gone. Fermentation enlists the microbes' aid, proceeds on their schedules, succeeds or fails according to their needs and rules.

The oneness goes deeper than that. The Buddhist notion of *anatta*, or non-selfhood, is biologically true. People are not unitary beings; they are entire universes for the "microbiomes" that live on and within them. More than 700 types of microbe live in a typical person's mouth. The gut bustles with bacteria by the trillion which assist with digestion, helping determine health, weight and even mood. Ferments made by different people can vary because of the different microbes transferred from their makers' hands. Some pioneers have tried producing cheese from bacteria found in their armpits and navels.

Fermentation extends the microbiome in time and space, allowing its microbial members to start digesting things before they even reach the lips. The micro-organisms thus pressed into service may be carefully chosen, and passed down through the generations. They may be simply introduced through "backslopping"—using a bit of a previous ferment to start the next batch. Or they may be left to happenstance: lambic beers and some sourdough starters use wild yeasts naturally present in the air or on bits of organic material. This entails some risk. A successful sourdough starter will smell slightly sour and pleasantly yeasty; one where the wrong microbes won will smell like vomit or putrefaction.

Nearly everyone on Earth consumes some form of fermented food regularly. In most of the world, this is just the way things have always been. The current revival of interest in the West is in part simply a return to the norm; in the 20th century much of Europe and America descended into peculiar ignorance on the subject.

The decline of fermentation in the West can largely be put down to the concentration of agriculture. In 1870, agriculture employed almost half of all American workers; each farmworker could produce enough to feed just five others, and people knew a great deal about how food was stored and prepared. Today only 1.4% of American employees work on farms. This has freed people from the need to spend hours churning butter from cows they milked themselves, or manually shredding fields of cabbage and turnips to salt for the winter. It has made cheap food abundant and moved workers into more economically productive jobs. But, as Mr Katz notes, the move from farmhouse porches and cellars to factories has rendered once quotidian processes mysterious.

It has also made food more predictable, and mass production easier. Commercial yeast acts quickly and flawlessly. Sourdough starters—slurries of flour and water that attract yeasts and lactic-



Fermentation
extends the
microbiome in
time and space

acid bacteria—take days to create, and produce different tastes from place to place. Sourdoughs taste better than the squishy, shrink-wrapped loaves on grocery-store shelves, but brands require consistency, and not everyone wants to bake (or pay for) an artisanal loaf, however delicious, whenever they want toast.

Pasteurisation also had a hand in fermentation's Western waning. Not all bugs are good bugs, and Louis Pasteur's innovation of heating milk and other foods enough to kill off bacteria undoubtedly saved many lives. But it brought with it the idea that all bacteria were germs to be ruthlessly extirpated, rather than a workforce to be exploited—or allies to be encouraged.

Rob Knight, who heads the American Gut Project at the University of California, San Diego and researches the links between the microbiome and general health, says that lactic-acid bacteria do in the sauerkraut crock or the yogurt pot what they do in the gut: render their environment unfriendly to an array of unhealthy fungi and bacteria. Mr Knight has found that people who eat fermented foods tend to have more diverse gut bacteria. This, in turn, tends to be associated with better physical and mental health, though whether a bountifully biodiverse gut is a cause or an effect of better health remains unclear.

Pasteurised foods, with and without the addition of acetic acid, do stay fresh longer; that which is not pasteurised is still, sometimes, unsafe. But fermented foods thus preserved tend to be more astringent and less subtle than those that live on in the consumer, and they have none of their biological diversity.

When it relies on ambient microbes fermentation is incredibly local; but the natural home for the new enthusiasm, as for all today's enthusiasm, is the cosmopolitan internet. On Facebook groups bakers can post pictures of their sourdough breads to collect tips ("strengthen the gluten by starting with cold autolyse without starter or salt first") and praise. Kombucha makers can offer their SCOBYS to willing takers ("If no one claims in two days, it's compost"). And brewers can discuss the finer points of *Brettanomyces* (a kind of wild yeast), the implications of brewing with sorghum and the finest fashion to keep their *foeder* in fine fettle.

On Etsy, an e-commerce site selling handmade crafts, bakers can buy sourdough starters with a story. One of those sold by Ken Greenlaw, somewhat unapetisingly known as "Bavarian Black Death", claims to have originated in Oberammergau in 1633; another, from Egypt, boasts of being "as old as the pyramids". Have they been independently, verifiably traced back to their supposed origins? Not exactly: "You take it with a grain of salt," says Mr Greenlaw (referring to the stories, rather than the starters).

Stories apart, most starters originated in obscurity. But internet-enabled enthusiasm means few of any quality will end up there; no promising culture of helpful microbes need ever be lost again. Eric Rusch has been selling his starter online for 12 years. "If anything happened to my starter," he says, sounding like nothing so much as a proud father, "I could send out an e-mail to 30,000 people and I'd probably get it back. It's neat to think that people all over the place are making bread that started out here and touched my hands." It is not merely in the microbiome that fermenters can create new communities.*

The Opium Wars

Memories and hallucinations

Britain and China see each other through a narcotic haze



BEIJING, HUMEN AND SYDENHAM HILL

ON AUGUST 5th 1872 thousands of Londoners put on their Sunday best and boarded trains heading for the outskirts of the capital. Though the weather was cold and rainy, they were determined to enjoy themselves. It was, after all, only the second "August bank holiday" in British history: a Monday off work on full pay—an extremely unusual treat.

Their destination was the Crystal Palace, the world's first theme park. The glass-and-iron structure, a colossal testimony to Victorian industrial might, overlooked fountains that were compared to those of Versailles. For a shilling a head (half price for children), visitors could expect the most diverse range of exotic thrills available in one place in one day anywhere in the country, including the first sculptures of dinosaurs.

To cap it all, that evening there was to be a re-enactment of a battle with China—"Grand Spectacle: Storming of the Chinese Peiho Forts", advertisements proclaimed. The strongly built redoubts on the desolate mud flats near the northern Chinese port of Tianjin had been overrun by British and French troops 12 years earlier in what the *New York Times* called a "dashing little campaign" at the end of the second Opium War.

The daytrippers in south London would have been familiar with their country's conflicts with the Celestial Empire. The clashes between the two powers, one claiming global supremacy, the other in precipitous decline, had been victories of just the sort of industrial prowess the Crystal Palace had been built to celebrate. The world's first iron warship had been deployed by Britain to great effect. They had also been squalid conflicts. Calling them the

"China Wars", as the British establishment did, sounded too grand. The general public just called them the Opium Wars. The first one had been triggered by China's confiscation of 1,000 tons of the drug from British smugglers and its refusal to pay compensation. That entirely reasonable act inflamed long-simmering British resentment of China's refusal to open its doors more than a crack to foreign products, and to be suitably deferential to British greatness.

The subsequent battles are now largely forgotten in Britain. From the British point of view, they were minor compared with those of the 20th century. And they are on the other side of the peak and decline of Britain's imperial power, which has tended to obscure them from view. But China has not forgotten the Opium Wars. The conflicts were a humiliation, exposing the hollowness of its claims to be the world's most powerful empire. They set it on a quest, which continues to this day, to rediscover its strength. Every Chinese schoolchild knows that the modern drive for wealth and power is, at root, a means of avenging the Opium Wars and what followed. How the conflict is remembered still matters very much.

All that mattered to the bank-holiday crowd, however, was that Britain had won. The first war, fought in 1839-1842, had resulted in the handing over to Britain of a desolate little island called Hong Kong and the open-

►ing of five Chinese ports to foreign trade. The second, in which Britain had joined forces with the French, was waged in 1856-1860. It resulted in sweeping concessions on trade (including legalisation of the opium traffic) and access for foreigners to China's hitherto closed interior.

Many of the holiday-makers were probably aware that the Opium Wars had been controversial in Britain and fiercely opposed by some politicians. William Gladstone, then prime minister, had, as a young MP in 1842, said that he did not know of a conflict "more calculated in its progress to cover this country with permanent disgrace" than the first Opium War. The daytrippers could have had no inkling that the wars would put China on a course that would eventually lead to a dictatorship inspired by the writings of two bearded émigrés who, as it happened, were living in north-west London at that time: Karl Marx and Friedrich Engels. On that bank-holiday Monday both men were getting ready that day for a showdown with anarchists at a forthcoming congress of the International Workingmen's Association in The Hague.

Contempt for, and suspicion of, China ran deep. That summer a new play opened in London, based on Charles Dickens's unfinished novel "The Mystery of Edwin Drood". The story begins with a seedy scene in a London opium den—by then, smoking the drug had come to be viewed not so much as a bad habit encouraged by the British, but as a Chinese vice menacing Britain. As Dickens put it, opium use could even make the smoker take on "the strange likeness of the Chinaman", including skin colour.

The fireworks show began with a procession of boats, illuminated by Chinese lanterns, on one of the lakes. Then soldiers began laying a pontoon across it towards mock Chinese forts on the other side. A battle erupted on the water, with "Royal Navy" boats exchanging barrages of fireworks with "Chinese" junks. "Victory was on the side of the English as a matter of course," one newspaper said. The show ended with a chorus of "God Save the Queen". Such was Victorian fun, brimming with pomp and patriotism. Even as late as the 1890s, more than 30 years after Britain's last conflict with China, the Opium Wars were still being celebrated in extravagant firework tableaux.

The Crystal Palace burned down in 1936, a spectacular blaze visible across London. A subtle reminder of the Opium Wars ling-

ers, however, around one of the garden's lakes. It is fringed with evergreen mahonias, plants introduced to Britain by Robert Fortune, a Scottish plant hunter who found them in the 1840s after the first Opium War had prised open the Chinese door. He also smuggled out 20,000 tea seedlings to Darjeeling, setting up the Indian tea trade. Before that, China had a near monopoly on what was becoming Britain's drug of choice—frequently bought with profits from opium.

The other palace

On the northern edge of Beijing is another park that was, in its day, frequently compared with Versailles: Yuanmingyuan, or the Garden of Perfect Brightness. It is an expanse of lily-filled ponds, weeping willows and winding paths more than four times bigger than the park at Crystal Palace.

Here memories of the Opium Wars are very much alive. "Never forget our national shame," intones a guide in front of a red-capped group of Chinese visitors. Around them are the few remaining pillars and jumbled stones of an 18th-century Western-style mansion designed by Giuseppe Castiglione, an Italian Jesuit missionary. The building was part of a huge complex of pagodas and courtyards that once filled the park—the imperial family's summer palace. At the end of the second Opium War it was razed by British and French troops in an orgy of destruction.

The soldiers began by plundering anything made of gold or silver, smashing exquisite objects of porcelain and jade, and dressing themselves up for comic effect in ornate silk clothes from the imperial wardrobes. Then, in revenge for the torture and killing of a group of British negotiators by the Chinese, the British commander ordered the complete destruction of everything that remained.

The torching of the Summer Palace stands as one of the greatest acts of cultural vandalism of the past two centuries. "When we first entered the gardens they reminded one of those magic grounds described in fairy tales; we marched from them upon the 19th October, leaving them a dreary waste of ruined nothings," wrote one British officer.

In 1997 Yuanmingyuan became one of the first sites in China to be named by the Communist Party as a "national base for patriotic education". The nationwide pro-democracy protests of 1989 had shown the party how much it lacked the public's support. Officials hoped that teaching people about the country's miserable past at the hands of imperialist aggressors would make them more supportive of the party, and grateful for its help in making China great again.

The list of such sites keeps growing: another 41 were added in 2017, bringing the national total to 428. Pilgrimages to them are all but obligatory for schoolchildren, university students and officials. At Yuanmingyuan, new recruits to the party are sworn in before the ruins. Students from a nearby school celebrate turning 18 at ceremonies here: they stand before the scattered masonry in their best clothes, release doves of peace and sing patriotic songs.

As China grows stronger, it is laying ever greater weight on its history. It wants the booty back that the British and French seized. And there is a lot of it. In 1865 numerous pieces, gathered by a French officer, were put on display for a few weeks in the Crystal Palace. Many other items are now in Western collections. In 2013 two famous sculptures looted from the palace in ►



► 1860 were returned to China by the family of a French art collector. Chinese buyers have purchased others and brought them home.

The nation's growing wealth allows it a new redress against the plundering of the past. It can acquire symbolic treasures from elsewhere itself: the London Taxi Company, maker of the famous black cabs; House of Fraser, a retailer; Club Med, a holiday firm. In 2013 there was much excitement in London about plans by one of China's richest businessmen, Ni Zhaoxing, to spend £500m (then \$810m) on rebuilding the Crystal Palace. Mr Ni eventually got cold feet, but his company has kept an article on its website that talks of Mr Ni's hope of "rebuilding the glory of history" in south London. The same term is often used in China by those who dream of a rebuilt Yuanmingyuan.

Mouth of the tiger

There are no great gardens in the town of Humen, where the brown waters of the Pearl river, having flowed through an endless sprawl of factories in the southern province of Guangdong, prepare to spill into the South China Sea. British merchants called this stretch the Bogue—an adaptation of the Portuguese translation of Humen: Boca do Tigre, or Tiger's Mouth. It was here, in the 19th century, that British ships offloaded their opium onto fast-moving Chinese smuggling boats known as "centipedes".

The town, which in the past two decades has grown rich by making textiles, is home to one of the country's first patriotic-education bases: the 1950s-era Opium War Museum. It stands on the site where, in 1839, Lin Zexu, a mandarin sent by the emperor, destroyed the confiscated British opium—the act that triggered the whole shameful affair. Another museum dedicated to the Opium Wars, the Sea Battle Museum, opened nearby in 1999.

As it was when the British warships arrived, Guangdong is still the drugs hub of China. When Xi Jinping became the country's leader in 2012, it was the biggest manufacturing centre of illegal narcotics, and home to one-sixth of the country's registered drug addicts. In 2014 nearly 60% of drug-making crimes recorded by Chinese police, mainly involving methamphetamine ("ice") and ketamine, occurred in the province. Following a three-year anti-drug campaign called Operation Thunder, the authorities there said a "turning-point" had been reached: Guangdong's share of drug crimes had fallen to less than 40%. But it is still number one.

The authorities in Guangdong are acutely conscious of the historical echoes. Indeed, they draw attention to them with occasional public burnings of seized drugs in Humen. Underlying all discussions of the issue is always the hint that it was the British who got China hooked on drugs in the first place.

In occasional books and articles, a few Chinese intellectuals ask whether the message of the Opium Wars is really as simple as the party suggests. Huang Yanming, a pro-democracy activist in south-west China, argues that the wars were more about the freedom to trade than a struggle over opium—calling them "Opium Wars", he says, is tantamount to "abandoning historical truth". Julia Lovell, a British historian, makes a similar point. In her book "The Opium War: Drugs, Dreams and the Making of China", she says the move into opium by British traders was not, as claimed by many Chinese historians, a deliberate conspiracy to make narcotic slaves of the Chinese. "It was a greedy, pragmatic response to a decline in sales of other British imports," she writes.

A Chinese translation of Ms Lovell's book is on prominent display in Beijing's biggest state-run bookshop. In it she notes one reason why the government was so averse to the drug: "disquiet about the threat to stability posed by a hedonistic opium culture". But Frank Dikötter, a Dutch sinologist, argues in his book "Narcotic Culture: A History of Drugs in China" that in most cases opium, in the form smoked in 19th-century China, "did not have significant harmful effects on either health or longevity". "Historians of China," he continues, "rarely mention that any respectable person in Europe or America could walk into a pharmacy in 1900 and routinely buy a range of hashish pastes, exotic psychedelics or mor-

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Jalap	5	0	75	0		
Musk pod, China ..oz	55	8	75	0		East Ind.
Oil, Cassiaper lb	0	0	0	0		Australia
Aniseed	3	4	3	6		American
Peppermint, H.G.H.	19	0	20	0		English S
Opium	18	0	25	0		Bark
Rhubr., China, fr to fin	0	9	2	0		English E
Senna pods	0	6	1	8		Bark

Commodities prices in The Economist, 1916

phine (together with a handy injection kit), and that opium products were widely on sale in Britain". Opium dens like those in "Edwin Drood" were a cultural problem, not a pharmaceutical one.

In 1847 *The Economist* described China's ban on opium as "silly" (it continues to argue that prohibition of drugs does more to boost traffickers' profits than to prevent addiction). Until 1916, this newspaper listed opium in its weekly list of commodities prices (see above). Only in that year did Britain begin requiring a doctor's prescription for its purchase.

To Mr Xi, China's defeats in the Opium Wars are proof that weak countries will be defeated. One of his first public acts after he took over was, with his Politburo colleagues, to visit an exhibition at the National Museum in Beijing called "The Road to Revival". It begins with the outbreak of the first Opium War and ends with China's rise under the Communist Party, represented, among other things, by nuclear missiles. The message is clear: don't mess with us again.

But Mr Xi ignores another conclusion that could be drawn from China's defeats: that an autocratic political system fearful of Western ideas was at least partly to blame for China's weakness. The Daoguang emperor, whose fight against opium led to the first war, was a jittery conservative—"an anxious ruler...searching for a scapegoat for the country's many troubles", as Ms Lovell puts it. Some Chinese liberals wonder whether painting foreigners, be they Westerners or Japanese, as a threat may serve a similar purpose today.

Museums in China have barely any wriggle room to question the official line. But at the Sea Battle Museum in Humen, which re-opened a year ago after a refurbishment costing nearly 60m yuan (\$9m), it is possible to detect some head-scratching.

The new display sticks to the official line, with motion-sensing video games allowing visitors to shoot at British ships by flailing their arms. But the exhibits end on an unusual note: a list of questions about what would have followed if the imperial government had acted differently. What if, for example, it had been "brave enough to step forward" after its first defeat and declare learning from the West a priority? Would the second Opium War have happened? The display offers no answers. To do so would court the wrath of a party that does not want to be told that a lack of reform may have played a part in China's 19th century sufferings. Instead, the museum plays safe with the closing words: "There are no 'what ifs' in history." *

Charting the news

News peak

NEW YORK
The events that grabbed the world's attention in 2017

THREE is no doubt that the world finds President Trump fascinating. He appeared on the cover of *The Economist* nine times in 2017—a record for any one person in a year. He also upped the stakes by suggesting that anything critical of him or his agenda was “fake news”. Plenty of people read it anyway.

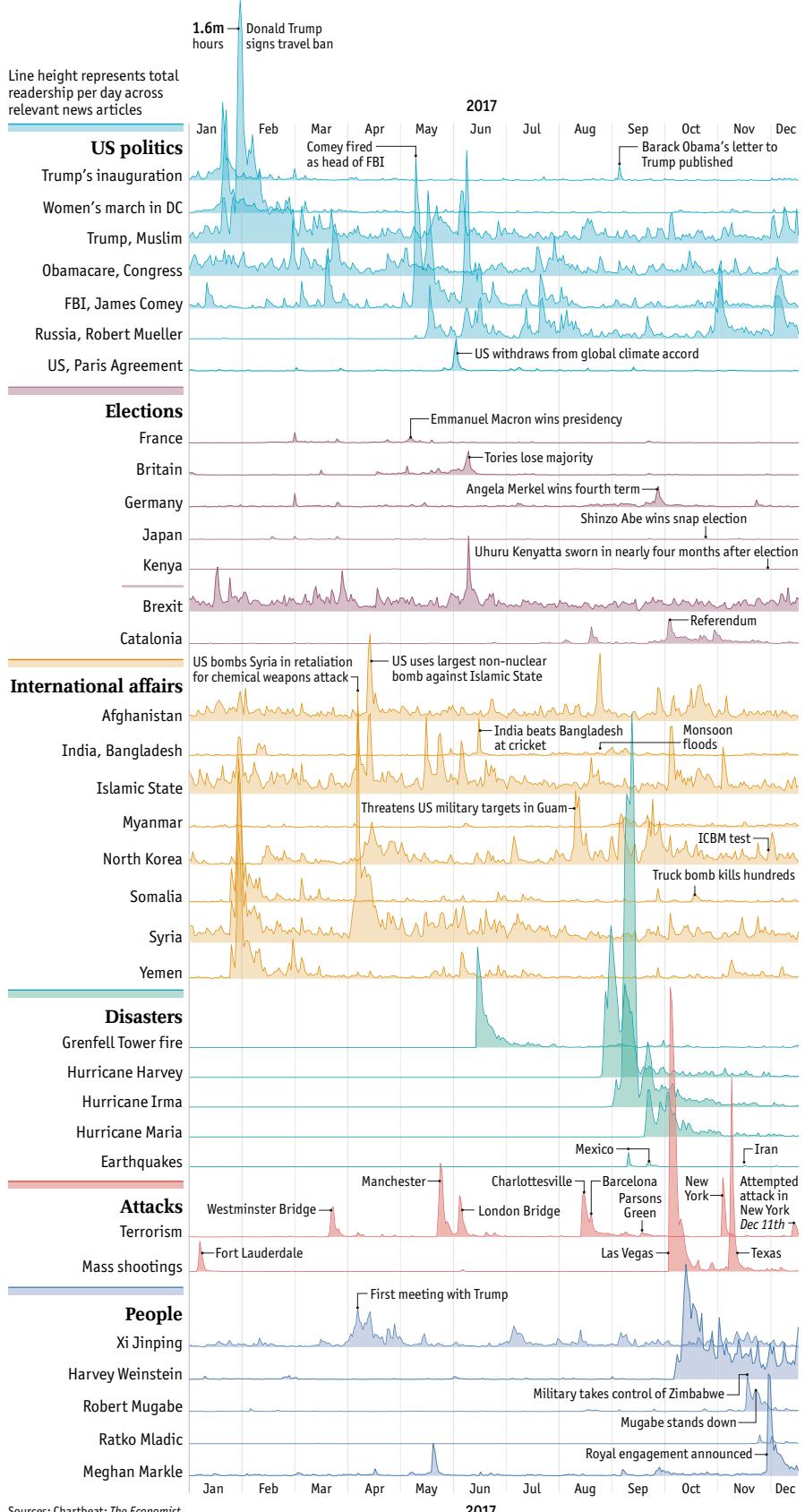
Yet statistics show that online news hounds are as interested in disasters and scandals as they are in politics. Chartbeat, a company that tracks online readership for 8,000 news publishers in 50 countries, provided its daily readership data for 2017 to *The Economist*. About half the data come from English-speaking countries, a quarter from Europe. The chart draws on three million articles—2.5bn words in all—covering the most significant events of the year.

Mr Trump’s inauguration attracted 4.4m hours of readership. But just as crowds for the women’s march a few days later were bigger than his, so was the number of people reading about it (6m). Both were overtaken by the hoo-ha around the president’s attempt to restrict travel from some Muslim countries. That consumed 19m hours of readers’ time between January and March and 40m hours over the year. Other presidential travails kept the attention, too. Efforts to repeal Obamacare, the firing of an FBI chief and investigating Russian meddling garnered 60m hours.

Meanwhile, German and French elections barely registered globally, nor did events in Myanmar, Kenya or Japan, though coverage of Syria drew 36m hours of readership and Islamic State 33m. People spent five times longer (8.5m hours) reading about a non-Muslim shooter killing 58 in Las Vegas in October than they did reading about a Muslim suicide-bomber killing 22 in Manchester in May.

Attempts at national and regional realignment did better—Brexit, and Catalonia’s push for independence, together earned 24m hours of viewing. On 10th September Hurricane Irma’s pounding of Florida gained the most attention (2.5m hours) of any story on one day. Total coverage of Irma drew four times the readership of Hurricane Maria’s hitting Puerto Rico.

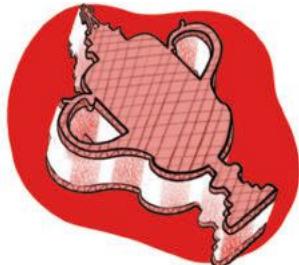
Scandal sells. The downfall of Harvey Weinstein, a film producer, because of allegations of assault, attracted 15m hours of attention. Royalty sells, too. Ratko Mladic and Robert Mugabe could not compete with Prince Harry’s engagement to Meghan Markle, which saw 3m hours of traffic. A good old-fashioned love story? Now, that’s real news. *



Christmas quiz

Testing, testing

Points mean prizes in our
end-of-year brain teaser

BRITAIN

- 1 Which northern town provided the winners of the first Wembley cup final and saw the creation of the first ice cream wafer sandwich?
- 2 Which geographical feature stretches from Bowness-on-Solway in Cumbria to Tyneside on the east coast?
- 3 Dartmoor in Devon is the setting for which famous Sherlock Holmes story?
- 4 Which British doctor traced the source of a major cholera outbreak in London in 1854?
- 5 What is the theme linking these answers?

EUROPE

- 1 What links the Torre dell'Orologio, the Rathaus Glockenspiel and the Prague Orloj?



- 2 What did Salvador Dalí donate to the city of Paris, on the Rue Saint-Jacques, in 1966?
- 3 What major reform did Pope Gregory XIII institute in 1582 that still has an effect today?

- 4 Which famous Rembrandt painting was originally named "Militia Company of District II under the Command of Captain Frans Banninck Cocq"?
- 5 What is the theme linking these answers?

UNITED STATES

- 1 Which American state was named after the wife of King Charles I?
- 2 What is the nickname of Texas?



- 3 Who was the first American to travel in space?
- 4a Which Minnesota senator has the same name as the plural of the Swiss currency?
- 4b Tom Paine's pamphlet advocating US independence was called "Common ----"?
- 5 What is the theme linking these answers?

AMERICAS

- 1 Which family ruled Nicaragua for most of the period from 1937 to 1979?
- 2 What is the capital of French Guiana, an overseas department of France on the north coast of South America?
- 3 Which Canadian actor was known for his appearances in "Uncle Buck" and "Planes, Trains and Automobiles"?



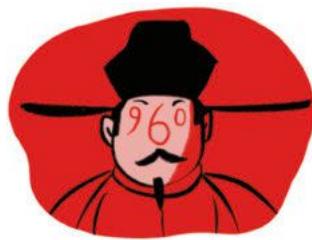
- 4 The Kings of Ayutthaya ruled which state for more than 400 years?
- 5 What is the theme linking these answers?

CHINA

- 1 Which spiritual group was dismissed as a "heretical organisation" by the Chinese government in 1999?



- 2 The earliest example of which eating instruments date back to the 12th century BC?
- 3 How is xi qu known in the rest of the world?



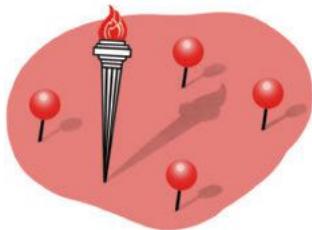
- 4 Which dynasty took power in China in 960AD?
- 5 What is the theme linking these answers?



- 3 Which Asian state's name means "lion city" in the original language?

INTERNATIONAL

- 1 What feature links Times, Red, Taksim and Syntagma?
- 2 Which international charity was founded by Henry Dunant and Gustave Moynier in 1863?
- 3 What links the logos of Xbox, Starbucks and Pepsi?
- 4 What links Cullinan, Hope, Excelsior and Centenary?
- 5 What is the theme linking these answers?

BUSINESS

- 1 In which city was the oil giant Standard Oil based until 1885?
- 2 Which efficiency guru wrote "The Principles of Scientific Management"?
- 3 Which electrical goods supplier launched a disastrous marketing campaign, offering free flights, in 1992?



- 4 Which business tycoon said "It is well enough that people of the nation do not understand our banking and monetary system, for if they did, I believe there would be a revolution before tomorrow morning"?
- 5 What is the theme linking these answers?

FINANCE

- 1 At which Wyoming resort does the Federal Reserve hold an economic symposium every August?



- 2 The head of which bank said "When I find a short-seller, I want to tear his heart out and eat it before his eyes while he's still alive", shortly before his firm went bust?
- 3 What links the economist who founded VoxEU with an inter-war British prime minister and the author of "The Fire Next Time"?
- 4 Which economist also wrote a book called "On the Jewish question"?
- 5 What is the theme linking these answers?

SCIENCE AND TECHNOLOGY

- 1 Which scientist played a leading role in putting Britain on the gold standard?
- 2 Which German mathematician created a system of notation for calculus (now named after him) and helped to develop early calculators?
- 3 What is the name for the eighth (and latest) operating system for Google's Android?

- 4 What is the name for a small text file stored on your computer that websites use to keep track of your preferences?
- 5 What is the theme linking these answers?

BOOKS AND ARTS

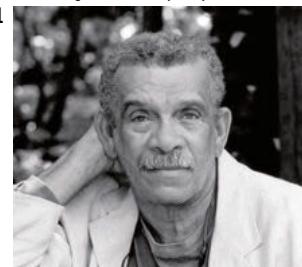
- 1 What type of instrument are the following: uilleann, gaita, duda and dudelsack?
- 2 What links the protagonists of "Twilight" and "The Remembrance of Things Past"?
- 3 What links these activities: Balboa, cumbia, Kathak and St Louis shag?



- 4 What links these manners of death: spontaneous combustion, on-stage explosion, bizarre gardening accident, choked on vomit?
- 5 What is the theme linking these answers?

PICTURE ROUND

Identify the four people below:



- 5 What is the theme linking these people?

Please send your answers to xmasquiz@economist.com.



Three correct sets of answers will be selected at random on January 5th and will win a copy of "Game Query", the new *Economist* quiz book. After that date, the answers will appear at economist.com/quiz17

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Indian foreign policy

The two sides of the mountain

DELHI

China is competing fiercely with India for influence in the subcontinent

EARLIER in December Wang Yi, the Chinese foreign minister, said his country “disapproves” of spheres of influence in international affairs. He was speaking in Delhi, India’s capital, a fact that underscored a point China is making increasingly clear by other, less diplomatic means: the thing it really disapproves of is India maintaining a sphere of influence.

Separated from the rest of Asia by the world’s biggest mountains, India is the elephant on its own subcontinent. Leaving aside perennially hostile Pakistan, it has effortlessly dominated smaller neighbours much in the way that America does in the Caribbean: they may grumble and resent their sometimes clumsy big brother, but they have learned to stay out of its way. Lately, however, China’s increasingly bold advances are challenging India’s sway.

Consider the past few weeks. On December 9th Sri Lanka granted a 99-year lease of a strategic port on its southern coast to a company controlled by the Chinese government. The same week an alliance of two communist parties swept parliamentary polls in Nepal; they had campaigned for closer ties with China and more distant ones with India. At the end of November, after a hasty “emergency” session of parliament with no opposition members present, the Maldives became the second South Asian country after Pakistan to ratify a free-trade agreement with

China. The low-lying archipelago in the Indian Ocean, which sits beside trade routes along which an estimated 60,000 ships pass every year, has also leased an island to one Chinese firm and awarded big infrastructure projects to others.

India has faced challenges in its traditional sphere before, says Tanvi Madan of the Brookings Institution, an American think-tank. What is different is the scale and speed of China’s incursion. Until 2011, for instance, China did not even have an embassy in the Maldivian capital, Male. But after a state visit to the island republic by Xi Jinping, China’s president, in 2014—the first by a Chinese leader—military, diplomatic and economic ties have strengthened rapidly. China now holds some 75% of the Maldives’ debt, reckons Mohamed Nasheed, an exiled former president.

Atoll costs

Following the Maldives’ sudden free-trade deal with China, India’s foreign ministry could only drily intone, “It is our expectation that as a close and friendly neighbour, [the] Maldives will be sensitive to our concerns, in keeping with its ‘India First’ policy.” Rather than reaffirm its commitment to upholding Indian interests, however, the Maldivian government abruptly suspended three local councillors for the sin of meeting with the Indian ambassador without seeking prior permission. In the

Also in this section

40 More repression in Cambodia

42 Banyan: Why the communists of China and Vietnam are at odds

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past the Maldives, with its 400,000 people, would not have dared snub its neighbour of 1.3bn so blatantly. The affront is all the more glaring given that a muscular foreign policy is one of the electoral planks of India’s prime minister, Narendra Modi, whose party just won a hard-fought election in his home state of Gujarat.

In Nepal, too, the Chinese dragon has advanced swiftly. As long ago as the 1950s its rulers had reached out to China in a bid to counterbalance India, which controlled nearly all access to the landlocked kingdom—as it was then—and was pressing the royal family to allow some democracy. “But all it took to manage Nepal then was a few boxes of whisky,” says Constantino Xavier of the Carnegie Endowment for International Peace, another think-tank.

Decades later, when Nepal’s king again made overtures to China, India mounted an 18-month economic blockade that ultimately persuaded him not only to shun his northern neighbour but also to allow multiparty elections. When Nepalese Maoists, briefly in government in 2008 following a ten-year civil war, went to China seeking aid, they came away empty-handed. “They were told a mountain has two sides; know which one you are on,” says Mr Xavier. In other words, Nepal should recognise Indian dominance.

Nepal, now a republic, issued a new constitution in 2015. India saw it as unfair to lowland regions that lie along its border, and so again showed its muscle. But rather than crumple in the face of a new blockade (which was imposed by Nepalese protesters but tacitly backed by India, which still controls nearly all road access), Nepal’s wobbly government held its ground. To assert its independence it signed several deals with China. In the just-completed elections this policy paid off handsomely ➤

► for Nepal's communists, who were able to promise giant Chinese investments in hydropower, roads and the country's first railway. This will run not downhill from Kathmandu, the Nepalese capital, to India, but over the mountains to China.

Nepal's ties to India remain extremely strong. Millions of Nepalese work there; it is Nepal's biggest trading partner; and the two countries' armies have historically been tightly bound. But whereas India has counted on this legacy to sustain its influence, China has busied itself with funding scholarships, think-tanks and junkets to China for Nepalese journalists and academics. Back in the 1960s, a Nepalese delegation met Mao Zedong, recalls Mr Xavier. "He told them that only in 50 years, when a train reached from Tibet to Kathmandu, could China match India's influence."

India has met China's push with consternation, and the occasional pushback. Quite literally so: over the summer Indian troops crossed onto territory claimed by another small country in India's orbit, Bhutan, to block a road-building incursion by Chinese forces. The intervention did stop China, but has tested India's relations with a country that relies heavily on Indian aid and is such a close ally that it has yet to establish diplomatic relations with its only other neighbour, China. This may have been the intention. China has long been quietly offering to resolve its border disputes with Bhutan through an exchange of territory. India has blocked the idea, for fear that it would strengthen China at a point of military vulnerability for India.

In that particular contest India may be a match for China, in determination if not in strength. India's foreign-policy establishment is well aware of its other weaknesses in relation to its northern neighbour and has worked hard to address them. It used to rely on the sheer immensity and harshness of the Himalayas to act as a barrier, and deliberately built no roads that a Chinese invader might use. That has changed: India is furiously struggling to catch up with China's burgeoning and impressive border infrastructure.

But retaining an Indian "sphere of influence" remains a tricky task. Aside from the fact that India's economy is only a fifth of China's in size, and that its messy democracy makes policymaking slow and cumbersome, India suffers important institutional constraints. Its entire corps of diplomats amounts to just 770 professionals, compared, for example, with America's 13,500 foreign-service officers. Indian aid to its neighbours has suffered from poor delivery through inefficient public-sector companies. And until recently India has shied away from working with other countries that are equally concerned by China's expansionism. All of this is changing, however. The Indian elephant may be slow to learn, but it is hard to budge. ■

Cambodia

Dark days

PHNOM PENH

The government is systematically squashing all forms of dissent

THE logical approach now", reckons Naly Pilorge of LICADHO, a Cambodian human-rights watchdog, "would be to continue attacking." She is talking about a crackdown on all forms of political dissent launched in August by Hun Sen, who has been prime minister for 32 years and says he intends to remain in the job for another decade. Not content with securing a ban on the main opposition party, he is now persecuting unions, NGOs and anyone else who criticises the government.

The scale of the crackdown is unprecedented, says Ou Virak, a political analyst who once worked at the Cambodian Centre for Human Rights, which the government recently threatened to close. Gatherings of more than five people are banned. All non-governmental groups and associations need to notify local officials before organising any kind of activity, according to a directive from the Ministry of the Interior disseminated in October.

Legislation on unions, passed almost 20 months ago, makes re-registration almost impossible for the handful of independent outfits that exist in Cambodia. Without proper registration, in turn, they cannot represent their members in disputes at the country's Arbitration Council. Efforts to resolve matters at the council are required legally before a union can strike.

Sar Mora of the Cambodian Food and Service Workers' Federation, which has more than 4,000 members, describes baser forms of intimidation too. At meetings government goons take photographs



How the government handles the unions

and ask for copies of the agenda. Police watching the union's racketeering offices burst in if they see too many scooters parked outside. "Sometimes we call a meeting and workers are afraid to come to the meeting. We lost membership. And it is so hard to organise new members now," he explains.

Environmental activists challenging the looting of natural resources are another target. The loss of tree cover accelerated more in Cambodia than in any other country between 2001 and 2014, the result of illegal logging, gold-mining and the seizure of land from villagers for rubber plantations. But groups that point out such destruction, and the harm it causes locals, risk official ire. Two members of Mother Nature, a grassroots environmental network, were arrested in September after filming ships they suspected of involvement in illegal sand-mining operations.

Even reporting on resistance to the crackdown is difficult. In the past four months the government has closed two American-funded radio-news services, dozens of broadcasting frequencies and one of the country's best independent newspapers on trumped-up tax charges. Many correspondents have fled; others nurse cheap beers in Phnom Penh's bars and fret over finding new employment. They are the lucky ones. Two former radio journalists, Uon Chhin and Yeang Sothearin, face 15 years in prison for supplying information which "undermines national defence". The voices of ordinary Cambodians are kept quiet too. Social-media posts calling for political change land their authors—frequently students—in prison.

Many of the organisations and individuals targeted by the government have had links of some kind with America. The United States is therefore making more of a fuss about the repression than Japan and the European Union, other big donors to Cambodia. On December 6th America announced visa restrictions for anyone deemed to be "undermining Cambodian democracy". This follows a move last month to cut funding for Cambodia's election committee.

Mr Hun Sen has little reason to worry. The economy is thriving, tax revenues are soaring and friendship with China provides diplomatic and financial comfort. (Chinese businesses, the largest source of foreign investment, had pumped a cumulative \$12bn into the country by the end of 2016.) His party will romp home in elections in July. He may even feel secure enough to loosen up a bit before the vote.

In the long run, however, Alex Gonzalez-Davidson of Mother Nature is optimistic. Membership of his "ragtag army" increased by a third after the arrests of those filming the sand barges. Cambodians may not have any outlet for displeasure with the regime, but that does not mean they are blind to, or tolerant of, its faults. ■



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An aerial photograph of a dense urban skyline, likely Melbourne, with numerous skyscrapers. A thick blue line forms a large triangle across the image, pointing towards the center. Inside this triangle, there is promotional content for "The Hub" documentary.

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Banyan | Solidarity's not what it used to be

The two biggest Communist Parties still in power, though neighbours, struggle to get on



ONCE upon a time the Communist Parties of China and Vietnam were staunch comrades in the proletarian struggle. Mao Zedong thickened ties by helping Ho Chi Minh in his anti-colonial fight against the French and Americans, providing both military equipment and advice on communist discipline and ideology. Capitalism has transformed both countries in ways that would have shocked the two revolutionaries. Yet both parties have survived against the odds, running Leninist dictatorships while overseeing rapid economic growth. They are far and away the most successful of the world's remaining communist states, easily eclipsing shabby Cuba, tiny Laos and militant North Korea.

It is not just in embracing free markets that Vietnam has mimicked China. Under Xi Jinping, the Chinese Communist Party has centralised authority and clamped down on dissent. Observers wonder whether the party in Vietnam isn't starting to follow suit. A harder line was signalled at the last five-yearly congress, in early 2016. The zippy prime minister, Nguyen Tan Dung, had been expected to take over as general secretary from a thorough party man, Nguyen Phu Trong. Instead, Mr Trong and his allies forced Mr Dung's retirement, and Mr Trong kept his job.

The party has since grown tougher, enforcing discipline and authority. Across the country, it has cracked down on dissidents and activists. And with shades of Mr Xi, Mr Trong has pursued an unprecedentedly vigorous campaign against corruption. Well-connected leaders in Ho Chi Minh City and Danang have fallen. In September a former chairman of PetroVietnam, the state oil giant, was sentenced to death over embezzlement at a tainted bank. Goons spirited another former head of PetroVietnam out of Berlin to face charges in Hanoi, to Germany's anger. Some say Mr Dung himself will be charged.

Like Mr Xi, Mr Trong rightly believes that corruption threatens the party's survival. Corruption is an even bigger problem in Vietnam than in China, and something had to be done. Enforcing party discipline also offers a better hope of carrying out reforms in a system in which power is dispersed and the centre is often ignored. As in China, the line between fighting graft and purging political enemies is often blurred. But Mr Trong's abrupt removal of the offspring of the party elite from plum jobs can be seen as promoting pluralism and meritocracy in a country where nepo-

tism is rife, says Bill Hayton of Chatham House, a think-tank.

Yet for all the similarities between the two parties, the days of warm ties are long gone. Mr Xi visited Vietnam in November and woodenly intoned about fraternal solidarity. That rang hollow to Vietnamese incensed by China's expansive claims in what Vietnam calls the East Sea, not the South China Sea. In 2014 China towed an oil rig into waters claimed by Vietnam, sparking violent anti-China protests.

The two parties first fell out in 1979, when Deng Xiaoping launched a war to punish Vietnam for toppling China's clients in Cambodia, the murderous Khmers Rouges. (Vietnam gave China a bloody nose.) But the wary distrust dates back centuries. Vietnam is hard-wired to resist and resent the notion that it is in any way a vassal of the overweening empire to its north. Party fraternity cannot easily be revived in an era of prickly nationalisms.

What is more, some analysts argue, for all Mr Trong's aping of Mr Xi, the two parties are drifting apart philosophically. Since 1989 and the slaughter of the Tiananmen Square pro-democracy protesters, political reform in China has been off the table. Party and state are in effect one.

In contrast, starting around the turn of the century, the Communist Party of Vietnam has encouraged more pluralism. Clearer distinctions have been made between party and state. Top posts such as general secretary of the party, state president, prime minister and member of the Politburo have increasingly been filled by competitive elections, albeit within the elite of the party. In 2010 the local party congress in Danang held direct elections for the municipal leadership, a first. More broadly a degree of dissent is condoned. Some Vietnamese, including retired officials and generals, have argued that Vietnam's end-station should be multiparty democracy. In Mr Xi's China such airings are out of the question.

Mr Trong remains just a first among equals in a collective leadership. He heads the party but not the state. Term limits will force him to step down by 2021—and he may go sooner. Mr Xi, however, is state president as well as party leader. He made clear at his party's five-yearly congress in October that he is the country's undisputed boss. He may even overturn convention and seek another term in office in 2022 after a decade in power.

Growing a party

This divergence may well widen. Notwithstanding the current chill, discourse remains far freer in Vietnam than it is in China. Intra-party discussions are more lively. Outside the party, dissidents and religious groups still lay claim to a part of the public stage, and foreign pressure on the authorities not to be too harsh can work—Germany is trying now. Citizens have much freer access to the internet. Le Hong Hiep of the ISEAS-Yusof Ishak Institute in Singapore argues that under Mr Trong criticism will be tolerated—and even found useful—so long as it is not seen as a challenge to the regime. In China, in contrast, the internet is heavily policed, and no public voice is allowed to critics in the party, let alone to dissidents.

And then comes that prickly nationalism. Not even a Vietnamese leader as well-disposed towards China's Communist Party as Mr Trong can afford to disregard national feelings and sink all into better relations. Anti-Chinese sentiment runs high. It is only a matter of time before some fresh affront, probably to do with China's claims in the South China Sea, strains those old fraternal ties still further. ■



Urban development

Welcome to “nuclear-power town”

HAIYAN

China is urging towns to brand themselves. Some are getting carried away

NUCLEAR is the future for the small coastal city of Haiyan. Not just as a source of power but, local officials think, as a magnet for businesses and tourists. Home to China's first domestically developed commercial reactor, Haiyan recently started calling itself “nuclear-power town”. It has opened a nuclear museum (pictured), broken ground on a nuclear-related industrial park and drawn up blueprints for homes and hotels that play up the atomic theme. Signs above the main road declare it a “city of hope”.

For those not so enamoured of nuclear power, other newly emerging cities a short drive away might be more alluring. Gourmands can opt for “chocolate town” or “shiitake town”, whereas fashionistas have “leather-fashion town” and “cosmetics town”. Aspiring fund managers are also well looked after. They can choose between four different “financial” towns.

They are all part of China's push to create these *xiaozhen*, or “speciality towns”, a policy campaign that began in the wealthy eastern province of Zhejiang, where Haiyan is located, and that is now being rolled out nationwide. It is rooted in a long-standing effort to limit the size of big cities and keep the country's population dispersed as it rapidly urbanises. Central planners view the speciality towns as a way to promote the growth of urban areas with populations of 500,000 or fewer (see

chart). These are often far shabbier than the glitzy megacities.

Local officials have been asked to identify things that make their places unique—some combination of industry, tourist attractions and the local way of life—and then cultivate them into a full-fledged theme, a lodestar for development. The result, it is hoped, will be a mass of differentiated, thriving towns. Over the past 18 months the central government has approved 403 speciality towns and aims to have 1,000 of them by 2020. In the past, cities racked up massive debts by building vast new districts in the hope of developing a wide variety of businesses. The speciality towns, by contrast, are supposed to be focused on one particular industry, and

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much cheaper to build.

There are worries, though, that the campaign is veering off course. While the central government—fearful that local administrations might splurge on wasteful schemes—is trying to restrict approvals, lower-level officials are forging ahead, with or without permission. *China Times*, a newspaper in Beijing, estimates that as many as 6,000 speciality towns are being developed. The average investment so far has been about 5bn yuan (\$755m) per town, according to Shenwan Hongyuan Securities, a brokerage. If that were spent on all the 1,000 towns in the government's plan, the total cost would reach 5trn yuan, or nearly 7% of GDP—a huge amount, even by China's standards.

Some of the towns appear to deviate from what China's leader, Xi Jinping, had in mind when he lent support to the idea. Yucheng, a hamlet in Zhejiang, aims to be “happy town”, complete with a sex-toy shopping street and a hotel for amorous couples. Zhongxian, a poor city in the west, wants to be an online gaming mecca. It is building a 6,000-seat stadium to host e-sport competitions, even though three other cities have similar plans.

As local officials get carried away, planners in Beijing are losing some of their enthusiasm. In July the housing ministry scolded local governments for “three blinds” in their projects: blindly demolishing old districts, blindly building skyscrapers and (horror of horrors) blindly copying foreign culture. In September Zhang Xiaohuan, a government researcher, warned of a familiar problem in this supposedly new approach to urbanisation. Municipal officials, he said, were seizing on speciality towns as a way to gin up short-term growth without any thought to the longer-term consequences of their debt-laden in-

Myriad potential specialisms

China, number of cities and towns*
By population size, 2016



▶ vestments. On December 5th the government warned officials not to use the speciality push simply as an excuse for bingeing on yet more property developments.

The central government may have a point. But it fails to acknowledge that it is at fault, too, with its top-down approach to urbanisation. As many economists note, trying to limit the size of the biggest cities and boost that of smaller ones is a recipe for inefficiency. Lu Ming, an economist at Shanghai Jiaotong University, notes that China has a long history of places that have prospered with the help of a single industry, especially along the coast. Examples have included towns focusing on products as diverse as zips, cigarette lighters and bras. Yet these have almost always de-

veloped organically, disciplined by the rigours of competition for global market share. "They cannot easily be replicated on a national basis," says Mr Lu.

At its best the speciality-town policy might give a boost to places that already have a good deal going for them. With a nuclear-power plant in operation for more than 20 years, Haiyan has long been a leader in China's atomic-energy industry—even though few outside the city are aware of this. During the National Day holiday in early October, thousands of people lined up to visit its swanky new museum which portrays the science behind nuclear energy and its history in China. But it is a fair bet that it will not be tourism that powers Haiyan's future growth. ■

them, they find them a nuisance and complain that the government is not doing enough to control them. Rural groups propose relocating the animals to Tai A Chau, a tiny uninhabited island near Lantau that in British days was the site of a (now demolished) detention centre for Vietnamese refugees. Mr Yu says some should be sent to the islet on a trial basis. The government is not keen: Tai A Chau is not a good bovine habitat and monitoring their welfare there would be bothersome. Urbanites who regard the animals as part of Lantau's rustic charm want them to stay, too.

Some of those who would prefer that the animals be removed are motivated by more than just concern about the damage they cause. Some Hong Kong villagers (only men) enjoy historical rights to build houses on their ancestral land. But zoning laws make it difficult for them to do so on farmland. In Pui O, an area of Lantau favoured by many of the buffaloes, the animals occupy abandoned fields. Because they have buffaloes in them, it is hard to argue that these fields are not agricultural plots. Some villagers have taken to fencing them off and dumping rubble on them in order to keep the buffaloes away and ease future planning applications by making the sites appear to be brownfield.

The government says it is all for preserving Lantau's paddy-turned-mudbaths. But it is also keen to find land where homes can be built to ease the territory's desperate shortage of housing. Migration from more developed parts of Hong Kong is expected to boost the population of Mui Wo (currently 5,500) by 35% in 2018. There are plans for what officials call a "mega development" on two artificial islands east of Lantau, connected to it by new bridges. Eventually, the buffaloes may have to abandon their idyll. ■

Rural Hong Kong

Mud wrestling

HONG KONG

A battle over feral bovines pitches villagers against urbanites

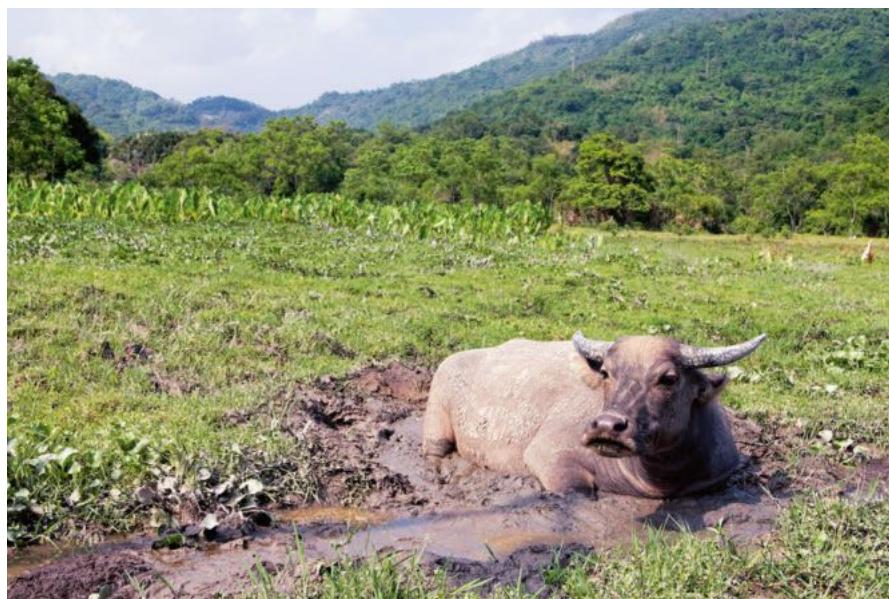
BUFFALOES love mud. It keeps them cool and protects their delicate skin from the sun. When the squelchy stuff is scarce they dig down to reach groundwater and make their own. The tireless churning of one herd on Lantau, the largest island in Hong Kong, has turned a parched field into a swamp full of lush green floating plants. It is a haven for insects and birds, including white egrets which perch on the buffaloes' backs. Many Hong Kongers cherish these majestic animals and the photogenic touch they add to the island's largely undeveloped wilderness. But some of the islanders would prefer to get rid of them.

Water buffaloes are not indigenous to Hong Kong. They were first introduced to the territory when it was a British colony, probably from South-East Asia, to work as beasts of burden in the rice paddies. In the 1970s the animals were abandoned—along with the fields—as rural people gave up farming for jobs in towns. Today around 120 feral buffaloes live in Hong Kong, alongside ten times as many of their bovine cousins, brown cows. The cows roam widely but the buffaloes are confined to small wetlands on the south coast of Lantau and in the north-west New Territories, an area of the Chinese mainland that falls under Hong Kong's jurisdiction.

The cows and buffaloes are classified by the government as "stray", not as protected species. That means the government is supposed to impound them. But it prefers not to have to take on the burden of looking after them (many Hong Kongers would object to putting them down). So it sterilises the animals and tries to keep them

away from places where they might cause harm by wandering onto roads, invading gardens or depositing their dung on village streets. The buffaloes are generally docile, but they are huge and have big horns which the bulls use when battling each other for dominance. In 2011 a man was gored by a bull on Mui Wo beach, a popular tourist destination on Lantau. It is unclear why the animal attacked.

Randy Yu, a local politician, says that many of his constituents grew up with the animals and so have "mixed feelings" about them. Although they are fond of



Hong Kong's burden of beasts



Public education

Keeping the wheels turning

WASHINGTON, DC

The way America funds its schools is more progressive than many assume

IN 1647, the Massachusetts Bay Colony passed a law mandating the establishment of publicly funded schools. Puritans were worried that otherwise children would fail to learn the Bible and become susceptible to the wiles of "that old deluder, Satan". To pay for the schools, the colonists levied a tax on local dwellings.

Although the aims of public schooling have changed since the 17th century, the critical role of property taxation in funding education has endured. The share of school funding that comes from local taxes such as levies on property is twice as high in America as in the rest of the OECD club of mostly rich countries. It is an approach with many critics, who argue that children who need the most help in school in fact receive the least, since they live in areas with cheap housing and correspondingly small tax takes. Arne Duncan, Barack Obama's first education secretary, once said that the use of property taxes was the main cause of the country's "inequitable school funding".

It is true that public education is no engine of social mobility. Of young Americans whose parents did not finish high school, only 5% get a degree, compared with nearly 20% in the OECD as a whole. But the way schools are funded is not as egregious as widely believed, according to recent data. In all but three states, poor pupils on average receive equal or greater

funding than their richer peers.

There are two reasons why a reliance on property taxes does not automatically lead to horribly regressive allocations of money. First, in many districts (including, for example, Boston), poor children live close to a lot of valuable commercial property, which is also taxed.

Second, states and the federal government have increased how much they contribute towards school funding, offsetting the regressive effects of local taxation. In 1920, 83% of public-school funding came from local sources, according to data from the National Centre for Education Statistics. The latest numbers show that local

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collections are no longer the largest source of money—they contribute 45% of the haul, slightly less than state funds. Federal programmes account for a further 9%.

The rise of other funding sources is a fairly recent development. Though the Supreme Court ruled in 1973 that unequal funding of schools as a result of property taxes was not unconstitutional, a subsequent wave of court cases led to more egalitarian spending. From 1990 to 2012, funding for the bottom fifth of school districts (measured by household income) increased by 50%, bringing them roughly in line with high-income districts.

Studies that look only at the spending by different school districts neglect the full picture. For example, if New Jersey's schools were funded entirely locally, poor children would on average receive just \$0.66 for every dollar spent on educating the better-off, the biggest gap in any state. But taking account of state funding, poor children receive \$1.06 for every dollar going to richer peers. That figure rises to \$1.08 once federal top-ups are included, suggesting that New Jersey is in fact among the most progressive states (see chart).

Nor do individual districts allocate their funding in an uneven way. According to a recent paper by Simon Ejedemyr and Kenneth Shores that examined districts across the country, poor and minority pupils receive 1% or 2% more in funding than better-off and white ones. Affluent districts and those with lots of rich and poor people living close together were the most progressive when doling out dollars. Although there are still many examples of neighbouring districts with widely different funding settlements, on average poorer children do not lose out as much as many critics allege.

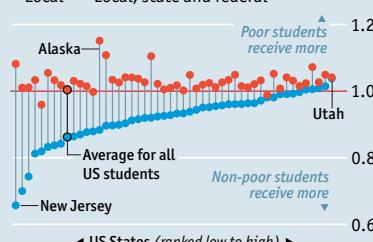
More worrying is that some states ►

Balancing act

United States, ratio of public spending on education for poor and non-poor students

Source of funding

● Local ● Local, state and federal



Source: Matthew Chingos and Kristin Blagg, Urban Institute

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▶ spend vastly more on public education than others do. Children in Vermont receive 2.8 times the funds of those in Utah, even after adjusting for differences in the costs of running a school. After the Great Recession pinched states' budgets, many dramatically decreased their education spending. In Oklahoma, state general funds, the main source of spending on primary and secondary education, have plummeted 28% per head since 2008. Fully 19% of districts have four-day weeks, and another 9% are considering moving to one as well. States like Texas, Kentucky and Alabama have also seen large cuts.

Education researchers once hotly debated whether additional funding would boost performance for low-income or minority pupils. But recent studies comparing the outcomes for pupils after increases in financing targeted on poor districts have found impressive effects. A study published in 2016 found that 10% in additional

spending increased the future earnings of pupils by 7% and reduced their likelihood of ending up in poverty. Increased spending of \$1,000 per pupil in Michigan was linked to a rise in university enrolment.

All this suggests that higher spending for the poorest children could make a big difference, not least because richer parents are quite willing to produce funds for trips, tutors and test preparation outside the classroom. Yet schools are relying on federal programmes like Title I, which provides additional cash to poor districts, simply to achieve parity, when these funds were meant as a top-up.

School funding in America may not be as regressive as many of its critics contest, but the model still lags behind that of other rich countries. Through its "pupil premium", England, for example, does a much better job of directing resources to children who need extra help. America still has many lessons to learn. ■

candidates won majorities of voters younger than 45, decisively lost voters 65 and older and barely lost voters between the ages of 45 and 65. That should worry Republicans: Americans born since 1980 have taken over from baby-boomers as America's largest generation, and 43% of millennial adults are non-white. Republicans are appealing to a dying generation at the expense of a growing one.

Republicans should also worry about their slipping hold on the suburbs. Mr Jones decisively won Alabama's five biggest cities and their surrounding counties, three of which Mr Trump won by 13 points or more. Republicans may take some comfort from the unique toxicity of Mr Jones's opponent, Roy Moore; their primary voters will not always stump for a preening bigot accused of molesting teenage girls.

But Mr Northam doubled the previous Democratic governor's margin in the suburbs of Washington, DC. Earlier in 2017 Democrats nearly stole a seat in the deeply Republican Atlanta suburbs. With Steve Bannon, Mr Trump's former chief strategist and campaign architect, threatening to back challengers to Republicans he deems insufficiently loyal to Mr Trump, the types of Republicans who can win moderate and independent voters may find themselves incapable of surviving primaries.

Statewide victories do not always translate into success in congressional districts. Democrats dilute their vote by living near each other in big cities. Gerrymandering also hurts; Alan Abramowitz, a political scientist, predicts that Democrats need to win 52% of the votes nationally to win a House majority. And Democrats face an unfavourable Senate map: they have to flip two Republican seats and retain all 26 of their own, including ten in states that Mr Trump won, to take the chamber. That is a tall order, even if people keep voting like Mr Obama is on the ballot. ■

Lessons from Alabama and Virginia

Of waves and bulwarks

BIRMINGHAM

What the elections of 2017 say about those of 2018

ON DECEMBER 12th, as Alabamans headed to the polls to choose a new senator, Tawanna Dunagan stood on Graymont Avenue in downtown Birmingham holding up a Doug Jones sign, exhorting passers-by to vote for the Democratic candidate. She had opted for Alabama Democrats in past elections, but 2017, she said, felt different: "People out here are voting like Obama's on the ballot."

One month earlier Virginia saw turnout hit a 20-year high in its governor's election, and there too the Democrat (Ralph Northam) won. In fact, although Democrats won just two of the seven special elections to the House and Senate in 2017, they outperformed expectations in all of them. At year's end they enjoy an 11-point advantage over Republicans on a generic ballot. In Alabama, Donald Trump now has a net favourability rating of zero, despite winning the state by 28 points in 2016. Data such as these suggest that the midterms of 2018 could be a wave election for Democrats—but thanks to gerrymandering and their voters' concentration in urban centres, translating enthusiasm into congressional majorities may prove difficult.

Though Alabama's electorate is smaller, more conservative and less educated than Virginia's, the two elections offer similar lessons. First, Democrats appear more motivated than Republicans. Turnout surged in liberal northern Virginia, and the

big cities and black-majority counties of Alabama. In Alabama turnout fell in majority-white, rural areas; that was not as true in Virginia, but Democrats banked enough votes in urban centres to cancel out the Republican showing in rural areas.

In both states, non-white and young voters broke decisively for Democrats. Mr Jones won 96% of black voters—and 98% of black women, while Mr Northam took 80% of Virginia's non-white voters. Both



Enjoying it while it lasts

Marriage

Apart together

NEW YORK

The rise of long-distance marriage

THE Callahans, Karen and Kevin, got married in 1973 when they were college students in Des Moines, Iowa. Forty years, two children and umpteen moves across the country later, they put down roots. Karen took a job in Durham, North Carolina, while Kevin stayed in Parkville, Missouri, where he could be close to relatives and prepare their home for retirement. They see each other at least once a month, for birthdays, holidays and mini-breaks. They look forward to their phone calls, almost every night at around nine.

About 3.9m married Americans aged 18 and over live apart from their spouses, up from around 2.7m in 2000. That number comes with some caveats, says Jonathan Vespa, a demographer with the US Census Bureau. Some of those people, like the Callahans, may be party to a commuter marriage. Others may be living apart, against their wishes, from spouses who are incarcerated, in nursing homes or serving in the armed forces. "We know it's increasing," says Danielle Lindemann, a professor of sociology at Lehigh University who surveyed a group of 97 commuter spouses. "But we can't really tell who is living apart just because of their jobs."

A higher share of men and women in their 30s and 40s live away from their partners than do those in younger and older working-age groups, according to census data. The number of separate spouses tapers off as people trade full-time employment for retirement. And the geographical patterns differ for men and women. Texas is home to the highest number of men who report an absent spouse, whereas Alaska takes the top spot for women. Nevada and New York, states with large tourism and manufacturing industries, are in the top five for both sexes.

Technological change has made living separate lives more bearable, and has thus probably contributed to long-distance marriage becoming more common. "With air travel and e-mail and FaceTime it's a whole different ballgame," Mr Callahan says. As communication and travel became easier and cheaper, the logistical challenges of keeping two homes and bringing up children together while physically apart dwindled. Ms Lindemann, who lived apart from her husband when she accepted a position in Nashville, is a case in point. She had no children and saw the separation as a temporary arrangement with a set end-date. Commuter couples in

Prison food

How bad can it be?

Noxious fare for the incarcerated is becoming rarer. Not fast enough

MOST recipes aim at deliciousness. With nutriloaf (also spelt nutrilof) the aim is to be as revolting as possible. It is made in prisons by baking leftovers and whatever else is to hand into a loaf, meeting minimum calorific and nutritional requirements. The ingredients vary. The Florida Department of Corrections recommends a basic mix of carrots and spinach, dried beans, vegetable oil, tomato paste, water, grits and oatmeal.

People who get past the smell describe the taste as bland. It looks like a lump of shredded, dried slop. One of the side effects is severe constipation. It is served three times daily without utensils, usually for no more than ten days as an extra punishment for prisoners who are already being held in isolation.

Prisoners, whose culinary expectations are already pretty low, often find it so disgusting that they stop eating for days rather than consume it. Decisions about its use are made capriciously, even by individual guards. Among the infractions it is most often used to punish

are throwing food, spitting, making weapons and failing to obey an order.

Fewer prisoners are thought to be getting the stuff than heretofore, though it is hard to collate figures across America's many prison systems. Institutions are not obliged to record or publish information on punishment meals. The constitution requires only that prisoners should receive food adequate to maintain health; it does not have to be tasty. Even so, nutriloaf has been scrapped by several states: California, Maryland, Massachusetts, Minnesota, New York and, most recently, Pennsylvania.

Inmates in several other states have challenged its use through the courts, mostly without success. "Plaintiffs all stated they refused to eat the meal loaf," one court said in its ruling. "Thus, any weight loss cannot be attributed to a nutritional deficiency."

Nutriloaf is obviously cheap. But it is probably a false economy. A sudden change in diet or going without food can seriously harm the health of prisoners with conditions such as diabetes. Depriving prisoners of decent food harms both individual and group morale—and has been known to cause riots. Restricting food should be used only as a last resort and then only for food-related misconduct, for short periods and under medical supervision, says David Fathi of the American Civil Liberties Union.

"This is OK. It's not unconstitutional," says Joe Arpaio, a former sheriff of Maricopa County, Arizona, as he picks over a lump of nutriloaf in a video from 2010. Mr Arpaio also dressed his prisoners in shaming pink underwear. Challenged to eat some nutriloaf, he sniffs, pulls a face, takes a little between thumb and forefinger, swallows and gags. "You know, quite frankly, I wouldn't eat this," he says. Nor should anyone else have to.



A stodgy sentence

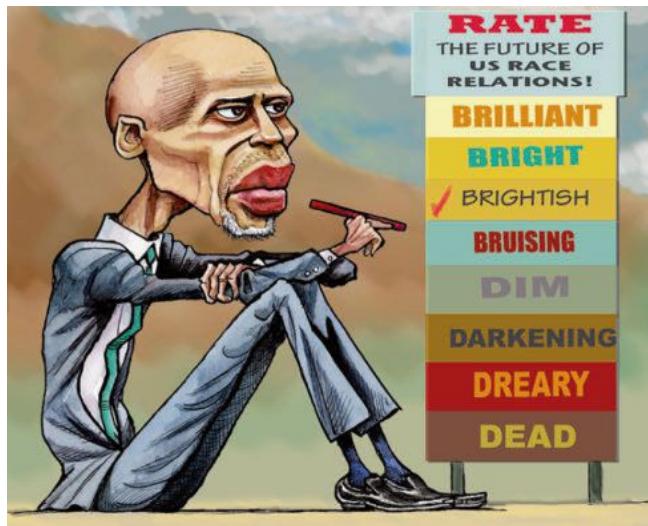
academia say the choice to live apart is a "professional necessity rather than financial necessity", Ms Lindemann says.

It is no fluke that there has been a shift away from cohabitation within marriage since the financial crisis of 2008. Mark Penn, a political strategist, argues that only a minority of commuter spouses are highly educated careerists and academics like Ms Lindemann. Most have been "forced apart by economics", he says. The timing is suggestive: as the economy went into recession many people faced a choice between a job far away and no job at all. Curiously, though, the number of long-distance marriages has not declined, even as America's economy has recovered. An enduring shift in America's familial norms may be under way.

Long-distance marriage is often unglamorous. Some lucky commuters are able to visit their partner every weekend. Others go months, or even years, without a reunion. Holidays can provide a brief respite. Among the usual throngs of travellers this December will be husbands and wives who are neither estranged nor living together. ■

Lexington | Hoop dreams

A brooding sportsman-sage detects a bright moment for black activism



ADDRESSING the Democratic National Convention in Philadelphia in 2016, Kareem Abdul-Jabbar sounded uncharacteristically optimistic. "Those who think Americans scare easily enough to abandon our country's ideals...underestimate our resolve," said the former basketball player, betraying, as he stooped over the podium, his unconscious habit of trying to make his seven-feet, two-inch (2.18m) frame less conspicuous. Now hunched behind a table in his office in Los Angeles, Mr Abdul-Jabbar, who scored over 38,000 points in the National Basketball Association, a record never surpassed, says he enjoyed the experience. It was the first appearance at a party confab by anyone in his family since his father, a trombonist, accompanied Marilyn Monroe's rendition of "Happy Birthday, Mr President" in 1962. He also cracked the convention's best joke—introducing himself as "Michael Jordan", on the basis that "Donald Trump couldn't tell the difference."

Yet Mr Abdul-Jabbar, who has probably written more books than any other basketballer, too, and is not known for his sunny outlook, was less confident in America's moral purpose than he let on. "I always knew [Trump] had a strong chance to win because his appeal was to racism," he says quietly. "People in America won't admit they have racist feelings and will vote accordingly." That is a sentiment more familiar from his writing, including a dozen books and hundreds of articles, many of which consider the persistence of racism in America. It is probably right, too. Since the election, many political scientists have suggested that racial resentment—defined by one scholar as a "moral feeling that blacks violate such traditional American values as individualism and self-reliance"—was a bigger factor in rallying white Americans to Mr Trump than economic anxiety. The promise of a post-racist society many saw in Barack Obama's election looks far off.

As a child prodigy and pioneering black sportsman, Mr Abdul-Jabbar witnessed many cycles of racial progress and setback. Growing up in multicoloured Harlem as Lewis Alcindor, the son of a police officer and seamstress, he says he did not realise he was black until third grade. Yet he cites the murder of Emmett Till, a 14-year-old African-American lynched in Mississippi that same year, 1955, as having a profound influence on him. "I couldn't understand it and my parents didn't have the words to explain," he

says. His alma mater, the University of California, Los Angeles, which he entered in 1965 as a coveted teenage player—already over seven feet tall and the creator of an unstoppable shot, the skyhook—had integrated early. Yet Mr Abdul-Jabbar suffered all manner of racist slurs there. "There's no way having people call you nigger every night doesn't affect you," he once wrote.

Within a year he was nationally famous and politically active. He was the youngest to attend a summit of black athletes in Cleveland, to support Muhammad Ali after the boxer refused the Vietnam draft. After the assassination in 1968 of Martin Luther King—whom Mr Abdul-Jabbar had interviewed as a schoolboy journalist—he refused to be considered for the Olympic games held that year, and converted to Islam. "The history of the Christian world with the slave trade was very seedy," he explains.

This was a formidable sporting and civil-rights record; Mr Abdul-Jabbar was celebrated by neither activists nor sports followers with the ardour he deserved. He was not charismatic like Ali. He was introverted and difficult. He disliked journalists. Playing for the LA Lakers, his quiet fierceness was contrasted unfavourably with the sunniness of his teammate, Magic Johnson. Mr Abdul-Jabbar fretted that white Americans would misinterpret Mr Johnson's bonhomie as a signal that the civil rights struggle was over. ("That was the effect, but I didn't blame Magic for it. We were friends and respected each other.") He was more critical of Mr Jordan, who was once said to have refused to campaign for a Democrat on the basis that "Republicans buy sneakers, too." "It was because he wouldn't engage politically," says Mr Abdul-Jabbar. "I wasn't trying to stick him up for anything, but just some support, an acknowledgment that we have issues that are important, and he wasn't open to it."

Yet in 2016 Mr Jordan pledged millions of dollars in donations to civil-rights groups. "He's come around," says Mr Abdul-Jabbar. This was in line with three trends that he credits with reinvigorating the political impact of black role models. First, the fact that the biggest stars have made billions of dollars; "there's power there," he says. Second, a general sense of disgust among black Americans at the Republican campaign to demonise Mr Obama, which Mr Abdul-Jabbar, like most black Americans, attributes to racism, and thinks probably laid the ground for Mr Trump. Third, the role of digital technology in broadcasting the daily injustices black Americans suffer, including the police atrocities that inspired Colin Kaepernick, an American football player, to kneel for the national anthem. "We all thought that was over—you know, Barack Obama was elected," he says. "But it's not over."

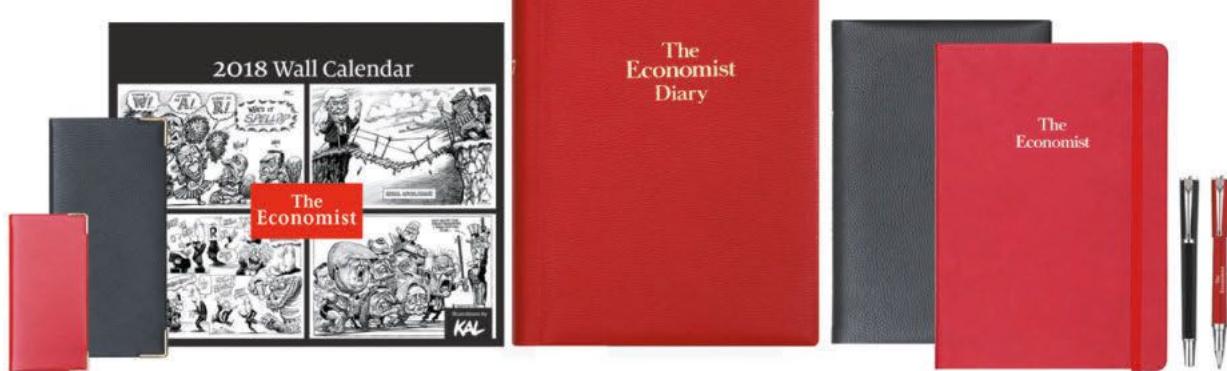
A slam-dunk case

Mr Abdul-Jabbar seems revivified, too. Prominence on social media has introduced him to millions. He published two books in 2017, including a moving memoir of his friendship with his (white and pious Christian) coach at UCLA, "Coach Wooden and Me". At 70, he might even have mellowed a bit. He says he feels more able to "understand the blind spots that affect white people." America's recent progress on race relations, he adds, has "in many ways surpassed my expectations". By the basketballer's brooding standard, this is such an upbeat note your columnist rashly ventures a cheerful last question. Does he still enjoy Christmas?

"No, I never liked it that much," Mr Abdul-Jabbar says blankly, unfurling his long limbs to go. "It's so commercial. The spirit of Christmas should be the Christ child." He shakes his head. "It's a disappointment." ■

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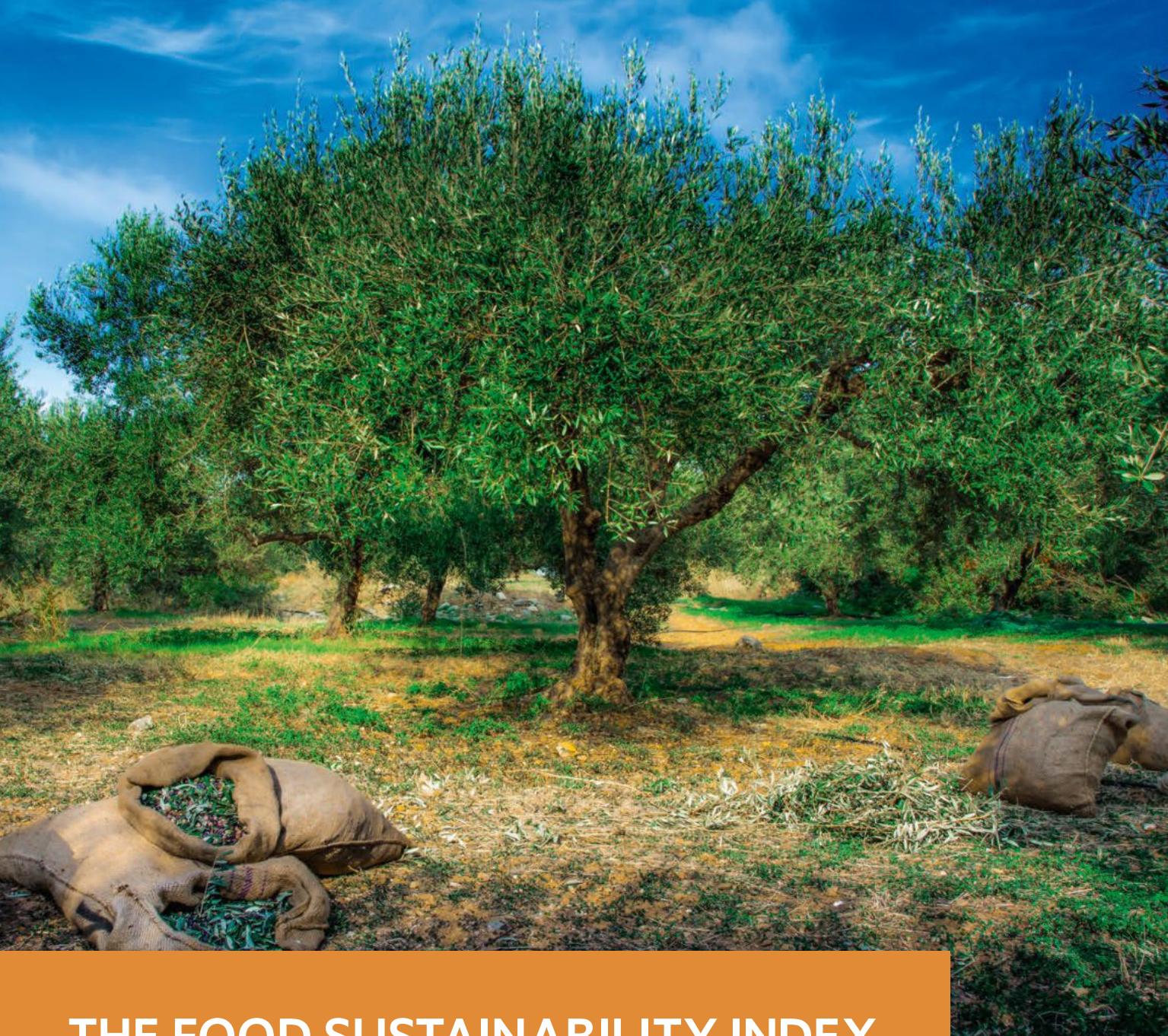
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THE FOOD SUSTAINABILITY INDEX

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Chile's presidential election

Sharp right turn to the centre

SANTIAGO

A win for the conservative candidate reaffirms Chileans' centrist leanings

FOR weeks Chileans had been bracing for a nail-biter. After an inconclusive first round of the presidential election in November, the result of a run-off on December 17th looked uncertain. In the end it wasn't even close. Sebastián Piñera of the centre-right Chile Vamos (Let's Go Chile) coalition trounced his centre-left rival, Alejandro Guillier, a senator and former television anchorman, by 55% to 45%. The moderate right has done well of late in South American countries such as Argentina and Brazil, which have become weary of left-wing populism. In Chile Mr Piñera's victory can be seen as more a vote for continuity than radical change.

In his acceptance speech on the Alameda, the main drag of the capital, Santiago, a jubilant Mr Piñera promised unity, dialogue and consensus. Crowds of supporters cheered, but also breathed a sigh of relief. Earlier opinion polls had shown the candidates neck and neck. That might have stirred more of Mr Piñera's supporters to vote; unusually, turnout of just under 50% was higher than in the first round.

The result has shaken the centre-left. Mr Guillier, who ran as an heir to President Michelle Bachelet, called it a "hard defeat". The bloc never recovered from a graft scandal in 2015 involving her son (though not the president herself). It has split over the pace and depth of her leftist reforms, such as higher corporate taxes, tighter labour laws and free college. In the first round Mr Guillier was nearly bested by the candi-

date of a new leftist party.

By contrast, Chile Vamos ran a united, disciplined and well-funded campaign. A centrist message of economic growth, coupled with more handouts for the needy, appealed to voters outside its heartland. Mr Piñera, a 68-year-old billionaire businessman, seemed a safer pair of hands than Mr Guillier, whose ambiguous manifesto and increasingly left-wing rhetoric may have put off many Chileans.

Back to the future

Unlike his rival, Mr Piñera is a seasoned politician, with a PhD in economics from Harvard. He served as a senator from 1990 to 1998. After losing to Ms Bachelet in 2006, he beat the left's presidential candidate four years later, then presided over economic growth that averaged more than 5% a year, boosted by the high price of copper, Chile's main export. But he underestimated swelling discontent over meagre public support for the growing middle class. Massive protests in his first term by students demanding free college paved the way for Ms Bachelet's landslide win in 2013.

Mr Piñera is not immune to controversy. He was once fined for breaching securities law and accused of massaging employment and poverty figures to flatter his government's economic record, though he denied it. His victory should nevertheless lift animal spirits. He promises to double growth, once he takes office in March, from a sluggish 1.8% a year on Ms Bachelet's

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52 Canada's lorry war

Bello is on holiday

watch, and to create more and better jobs. Helpfully, the price of copper is recovering.

To mollify the middle class, he has called for extra public spending of \$14bn over four years, or 1.4% of GDP per year. This would go towards pensions, health, infrastructure and education, including free nursery schools. Half of this will be financed by higher growth, Mr Piñera says; the rest by slashing "ineffective" and "unnecessary" spending. The overall tax burden will stay at around 20% of GDP.

To many conservatives' dismay, Mr Piñera has promised to keep Ms Bachelet's free university tuition for the poorest 60% of students. In the campaign's final weeks, he agreed to extend free education in vocational colleges to all students but the richest tenth. He must also tackle the country's strained pension system. In 1980 the then-dictator, Augusto Pinochet, introduced obligatory private pension funds (as it happens, the brainchild of Mr Piñera's brother, José). But rising life expectancy and the fact that many workers have contributed only intermittently to their pots mean that many have ended up with smaller pensions than they hoped for. Mr Piñera wants extra top-ups for the lowest pensions. He also wants to encourage more funds to compete to manage pensions, and perhaps to create a state-run fund.

Although Mr Piñera's mandate looks strong, Chile Vamos lacks a majority in congress. He will therefore have to rely on other parties—probably the centrist Christian Democrats and independents—to pass laws. This helps explain his moderate tone.

Yet moderation is also what Chileans want. Despite the more radical left's strong performance, Chile still looks most comfortable in the centre: at once pro-market and socially aware. Although less egalitarian than European social democracies, it wants to resemble them. Chileans will reward politicians who grasp this. ■

Peru's president

Kuczynski kaput?

LIMA

A continental scandal could soon claim another victim

SINCE narrowly winning Peru's presidential election in June 2016, Pedro Pablo Kuczynski has had it tough. His centre-right Peruvians for Change party holds only 18 of the unicameral congress's 130 seats. Popular Force, led by his defeated opponent, Keiko Fujimori, boasts 71. It has censured the president's ministers and thwarted his legislative plans, such as an effort to reform Peru's corrupt and inefficient judiciary. It was just waiting for an excuse to go after Mr Kuczynski himself.

One presented itself on December 13th, when evidence emerged detailing payments of \$780,000 between 2004 and 2007 to Westfield Capital, a Florida-registered firm Mr Kuczynski founded in the 1990s, made by Odebrecht, a Brazilian construction giant which had bribed its way to government contracts across Latin America. He had repeatedly denied any ties to Odebrecht, including to a congressional committee. So on December 15th congress summarily voted by 93 to 17 to launch impeachment proceedings against him. "Repeatedly lying" to Peruvians, the motion asserted, makes Mr Kuczynski morally unfit for office.

The president will present his case to congress on December 21st. After that lawmakers will decide his fate. He remains defiant, and insists that he never received direct payments from Odebrecht. But the odds are stacked against him. Even if he musters enough support to deprive his opponents of the two-thirds majority needed to oust him, he looks increasingly unlikely to finish his term, which extends to 2021.

Mr Kuczynski would not be the first high-profile victim of the Odebrecht affair. It has landed one of his predecessors, Ollanta Humala, in jail. Another, Alejandro Toledo, is wanted by a judge in Peru (he lives in the United States). Earlier in December Ecuador's vice-president, Jorge Glas, was sentenced to six years for corruption. In Brazil it is hard to find a prominent politician who is not caught up.

The difference is that no one has accused Mr Kuczynski of bribe-taking. Popular Force, which gave him 24 hours to quit if he wanted to avoid the spectacle of impeachment, accused him of mendacity and a conflict of interest: he was Mr Toledo's finance chief, and later prime minister when the payments to Westfield were made. The president points out that while he served in Mr Toledo's administration, Westfield Capital was run by Gerardo Se-

Trade in Canada

Unifying

OTTAWA

The premier wants to make Saskatchewan great again

WHEN it comes to erecting barriers, Brad Wall lives up to his name. On December 6th the premier of Saskatchewan banned lorries registered in neighbouring Alberta from new government-backed roadworks in his province. When a week later Alberta complained that this violated an interprovincial trade deal, Mr Wall thundered: "We won't be backing off." Saskatchewanians faced similar discrimination in Alberta, he said.

In theory Canada's ten provinces and three territories form a vast single market where goods, services and people move freely. Yet provincial leaders find ways to protect their workers and businesses against rivals next door. Before 2008 Quebec banned yellow margarine, lest its shoppers mistake the grain-based spread (shipped in from the west) for proper butter (churned by its own dairy farmers). In 2012 a man from New Brunswick was arrested and fined for bringing alcohol back home from Quebec, vio-

lating a provincial prohibition on booze sold outside state-owned liquor stores; his case has reached Canada's Supreme Court.

By one estimate, such barriers cost Canada C\$100bn (\$78bn) a year. Every now and again provincial leaders vow to live up to their country's neighbourly image. A few months ago they agreed to let plumbers, welders and other tradesmen move province without having to recertify. The bonhomie never lasts.

Mr Wall's lorry war looks particularly frivolous. In explaining the premier's decision, his economy minister, Steven Bonk, griped that Alberta discriminates against out-of-province beer (perhaps worried that thirsty Saskatchewan workers there were being deprived of their own lager). The Saskatchewan Heavy Construction Association, a lobby group, groused about the unfair advantage Albertan drivers enjoy because they pay no provincial sales tax on vehicles.

Alberta denies mistreating anyone. Cody Bexson of the Lloydminster Construction Association, which represents workers in both provinces, has heard no reports of Saskatchewanians being turned away from building sites in Alberta—or of Albertans in Saskatchewan.

The suspicion is that the spat is less about trade than politics. Ever since Justin Trudeau led his centre-left Liberals to victory in the general election of 2015, Mr Wall has emerged as one of Canada's loudest conservative voices. He harangues Mr Trudeau's government, and Alberta's provincial one, for things like letting in too many refugees and backing a carbon tax. The licence-plate ban could be the last hurrah for Mr Wall, who plans to retire in January. If a dispute panel finds it illegal, Saskatchewan could be fined C\$5m. The cost to its reputation may be greater.



púlveda, a Chilean financier. Odebrecht has confirmed that Westfield's consulting services were legitimate, that invoices for them came from Mr Sepúlveda, not Mr Kuczynski, and that it was the Chilean who had received payment. But on December 17th the president admitted to journalists that he had been paid dividends from Westfield. His opponents seized on this as proof of an undeclared conflict of interest.

Popular Force is also tainted by the scandal. Ms Fujimori's first name features in the Odebrecht paper trail. She denies that it refers to her, or that she received

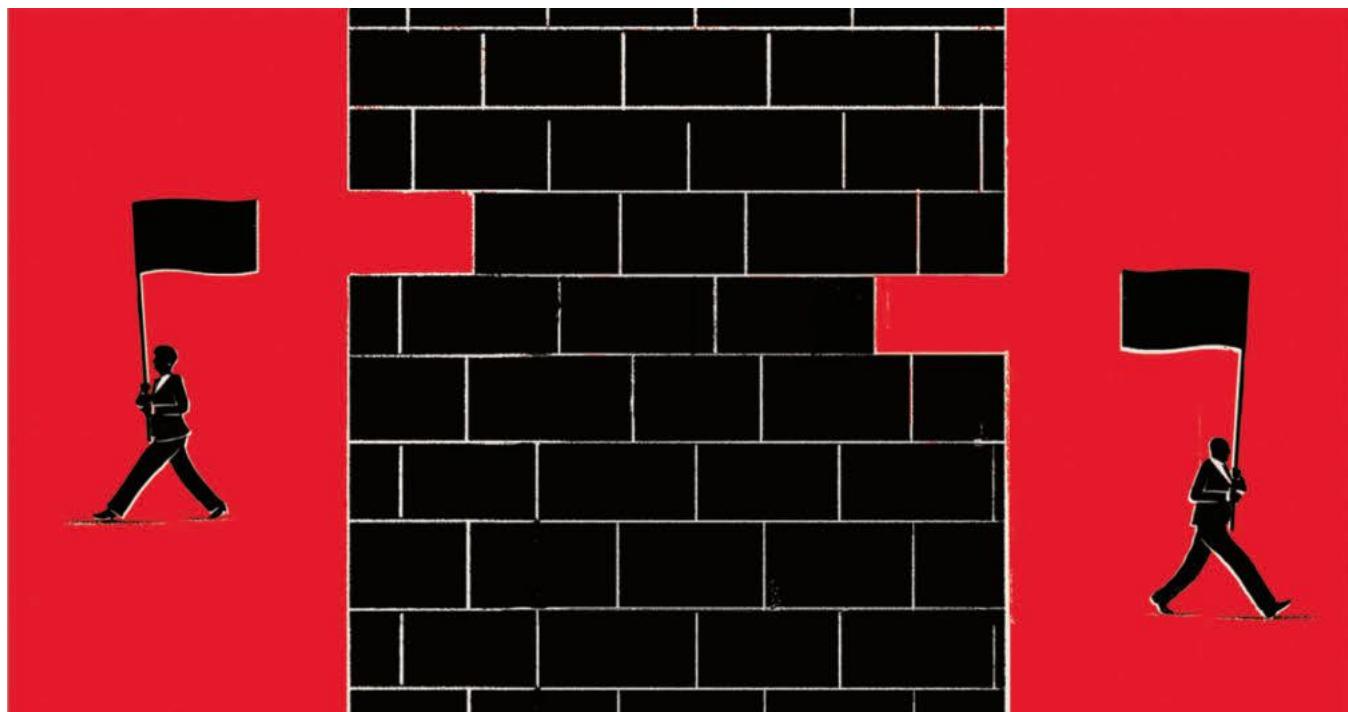
bribes. Mr Kuczynski claims, with some justification, that the "express impeachment" constitutes an "assault on the democratic order".

Should it nevertheless succeed, Mr Kuczynski would be replaced by his first vice-president, Martín Vizcarra. If Mr Vizcarra fell, too—he had to resign as transport minister in May over an airport contract—the next in line is Mercedes Aráoz, the prime minister. If she declined or were ousted, the job would go to congress's Speaker, who must immediately call elections. The likely winner? Keiko Fujimori. ■

Nationalism

Vladimir's choice

The belief that nationalism could fade away was always naive. The real question is what form it will take



MOSCOW, TORONTO AND WARSAW

JAN PIETRZAK has just one demand. He's not fussy about the design of the centennial arch with which he wants to mark the Polish victory over the Bolshevik armies in 1920. But he does insist that it must be taller than the 237-metre (778-foot) Palace of Culture and Science, given to the Polish nation by Stalin.

Mr Pietrzak is a gruff old man with white hair and a fine, bushy moustache, a popular entertainer best known for a patriotic song that became an anthem for Solidarity in the 1980s. Although the Warsaw authorities have balked at his dream of a triumphal arch, he has the backing of the Law and Justice party, which forms the national government. It will be a symbol, he says: "Young people ... will know that Poland was victorious—like Trafalgar Square."

The Battle of Warsaw was indeed glorious. The Polish army, facing utter defeat, miraculously stopped the Russians' advance on the capital. Your correspondent married into a family that still remembers how, during the fighting, grandfather Leon had 17 horses shot from under him. Twenty years later, as Poles were being lined up and murdered in the forest of Katyn, a Russian officer he had spared returned the favour, offering him the choice of the bullet or the gulag. Against the officer's advice, Leon asked to live.

Commemoration is never just about past valour and suffering. It is about present priorities. Poland is in the grip of a new nationalism. Mr Pietrzak says Law and Justice, which took power in 2015, is the first government to serve Poles well; its predecessors were responsible for a "long tradition of betrayal and treason" with respect to Germany and Russia. Not long ago only a few hundred people turned up to the annual Independence Day parade. This November 60,000 Poles marched alongside two radical-nationalist groups toting banners saying: "Clean blood" and "Eu-

rope will be white or deserted".

Wherever you look, nationalism is rising. Sometimes it takes the form of self-declared nations demanding the right to determine their future: Catalonia in Spain and Kurdistan in Iraq, Scotland in Britain and Biafra in Nigeria. More often it is a lurch to the populist and reactionary right. The Alternative for Germany has won 94 seats in the Bundestag. Marine Le Pen of the National Front won a third of the vote in France's presidential election. In Hungary, Austria and the Czech Republic nationalists have taken power, just as they did in Poland. In post-referendum Britain they have "taken back control", or at least pretended to. Turkey is militant, Japan is shedding its pacifism, India is toying with Hindu supremacy, China dreams of glory and Russia is belligerent.

Most remarkable is the nationalist turn in the United States. America was the first nation to declare itself independent of all sovereigns save its people and constitution. It has always seen itself as a place apart. But for most of its history this exceptionalism has been a form of self-regarding universalism; in time, the rest of the world would catch up. Now it has an angry, nativist president who sees America not leading, but being left behind—and vows to make it great again.

People who cross borders and cultures easily, and who prosper as they do so, find this new nationalism disturbing. They see it hindering peaceful countries from trading, mingling and co-operating on the ►►

► world's problems. But they tend to think that it will pass, like a fever. It may put off the day when the differences between nations finally melt away; it does not mean that day will never come.

That is to brush aside what is happening far too lightly. Nationalism is an abiding legacy of the Enlightenment. It has embedded itself in global politics more completely and more successfully than any of the Enlightenment's more celebrated legacies, including Marxism, classical liberalism and even industrial capitalism. It is not an aberration. It is here to stay. Putting aside the concerns of a cosmopolitan elite, this is not necessarily a bad thing. Like religion, nationalism is capable of bringing out the best in people as well as the worst. It can inspire them to bind together freely in pursuit of the common good. But it can also fill them with a terrifying, righteous certainty, breeding strife and injustice.

Sadly, the new nationalism plays to the paranoid, intolerant side of this legacy. It sees every "citizen of the world" as a "citizen of nowhere", in the mocking phrase of Theresa May, Britain's prime minister. When the citizens of the world call them bigots, the nationalists retort that the citizens of nowhere are traitors. That turns politics into a test of loyalty. When nations eye each other with contempt, the global order which was stitched together after the second world war under American leadership starts to come asunder. Geopolitics becomes a free-for-all.

To see where this leads you need a handle on what nationalism is and how it works. What connects a skinhead wrapped in the flag of St George to a granny waving at the Queen with a Union Flag on a stick? When Jaroslaw Kaczynski, the head of Law and Justice, whips up one of the mass-meetings at which he peddles conspiracy theories on a chilly Tuesday evening, what alchemy persuades each member of his audience that he is summoning an ancient and personal loyalty? Why would someone avoid talking to a stranger on the bus but lay down her life for him on the battlefield? The answers draw on politics, philosophy and psychology. But they begin with history.

NAIONS have existed for centuries. Nationalism came of age in Valmy, in northern France, on September 20th 1792, round about noon.

That was when, in an engagement as mythologised as the Battle of Warsaw, French volunteers confronted a superior army of Prussian regulars under the Duke of Brunswick. In the crucial moment, General François Kellermann brandished his hat on the end of his sword and roared "Vive la nation!" From battalion after battalion the cry went up, a wave that carried the citizen-soldiers to triumph.

It was the first victory of the Revolutionary War, claimed for the nation not the king. It inspired the National Convention in Paris to be done with the monarchy. A stunned Europe grasped that the divine rule of kings really was coming to an end. The order that replaced it was built on three philosophical claims:

1) Legitimacy is not handed down from God; it surges up from the people. Thinkers like Jean-Jacques Rousseau and John Locke drew on a well-established sense of nationhood, particularly visible in England, to explain how individual citizens have the right to join freely in a nation that will protect and benefit them. Three years before Valmy, Article III of the Declaration of the Rights of Man had said: "The principle of all sovereignty resides essentially in the nation. No body nor individual may exercise any authority which does not proceed directly from the nation."

2) Government is not just an agreement between individuals, but also a statement of the nation's general will. As Rousseau argued, individual rights can be qualified: a state wields its power in the name of the collective. Scholars quarrel over whether Rousseau meant to trample on individual rights or protect them from the majority, but governments have used and abused the principle ever since.

3) Each nation is different. By the time Napoleon was invading

A game of nations

Number of independent states*

1816-2017

Breakup of
Soviet Union
1991



Source: K. Gleditsch
and M. Ward

*Independent political actors
with control of territory

his neighbours, France's fraternal claim to be spreading the universal virtues of liberty and equality looked to the rest of Europe very much like brazen conquest. German thinkers turned to the philosopher Johann Gottfried Herder, who insisted that each nation is shaped by its own unique past and that its true essence emerges from history, culture and, ultimately, race. The French could not impose their version of liberty and equality; only Germans could know what those ideas mean for the powers and principalities that would eventually form Germany.

Nationalism slips and slides between these three divergent claims. Flag-waving patriots who get weepy over the Olympic games and the poems of Rudyard Kipling draw on history and culture, but go easy on the general will. Civic nationalists, from places like Brazil, America and Australia that are largely made up of immigrants, exalt universal values and the example their nation sets in pursuing them. They dally with Rousseau's general will, urging newcomers to assimilate, but tread lightly on race and culture, which are not shared. Ethnic nationalists mine race and history to create a politics that sacrifices individual liberty to the will of the majority.

Some seek to have the good parts of this melange without the bad. Thinkers like George Orwell and Elie Kedourie have argued that patriotism—tolerant, welcoming and reasonable—really has nothing to do with nationalism. It is a comforting thought; it separates decent people from the bigots who cling blindly to their own nation's superiority. But one person's patriotism is another's prejudice. In 1917 the Indian writer Rabindranath Tagore lamented how "the people which loves freedom perpetuates slavery in a large portion of the world with the comfortable feeling of pride in having done its duty." Genial English patriots were blind to the harm they caused.

The late Benedict Anderson, an Irish political scientist, called modern nations "imagined communities"—imagined because people are drawn together within them who have not met and never will. It is the power of such imagination that allows an essentially modern doctrine like nationalism to feel so deeply rooted in the past. Today's Polish nationalists hark back to the country's commonwealth with Lithuania, which at its height, in the 17th century, was one of Europe's great powers. Zimbabwe takes its name from ruins abandoned hundreds of years before the country's boundaries were carved out by colonialists. Germany's 19th-century nationalists romanticised the tribes who fought the Roman legions—which is why Wagner ►

► throngs with spear maidens and knuckleheaded heroes.

Today's nations are, in a sense, products of nationalism, rather than, as nationalists might claim, it is of them. Ten years ago Poland had a couple of magazines that dealt with history; now it has a dozen. The Battle of Warsaw is celebrated, with other landmarks, on t-shirts produced by a popular fashion brand, called Red is Bad. Though having such history to hand is a help, pure fantasy can be drafted into the mythmaking, too. Other Red is Bad designs feature valiant Poles battling Nazi cyborgs and Teutonic knights depicted as villains from "The Lord of the Rings".

The manipulation of history and culture has a long tradition. The French army beat the Prussians at Valmy because of its professional gunners, rather than its citizen volunteers. Diponegoro, whom Indonesians hail as a national hero for opposing Dutch colonial rule in the 19th century, intended to conquer Java, not to liberate it; Anderson noted that he seems to have had no concept of who the Dutch were nor any desire to expel them. When Italy was unified in 1861, only 2.5% of the population spoke standard Italian. Massimo d'Azeglio, a leading patriot, declared: "We have made Italy; now we must make Italians." So much for Herder's unique community bound by language and culture.

This process of national construction can be harnessed for violence and hatred. Simon Winder, an author and publisher, exaggerated when he said on BBC radio some months ago that "nationalism always starts off with folk-dancing and ends up with barbed wire". But such journeys are all too easy, especially when nationalism is contaminated by theories of racial purity. Then it was able to fuel the Nazi drive to "protect" ethnic Germans in neighbouring countries, and to permit the building of concentration camps and gas chambers. That spectre has haunted nationalism ever since.

But nationalism has liberated oppressed people as often as it has fired up anti-Semites. In the 19th century, beneath the carapace of the Austro-Hungarian and Ottoman empires, liberals and radicals built movements of national liberation. After the first world war, when Woodrow Wilson, America's president, championed the principle of national self-determination, these new nations emerged, blinking, into sunlight, a process typically accompanied by national anthems that sounded like subpar Verdi.

Once Europeans had accepted self-determination, it was just a matter of time before Africans and Asians founded national-liberation movements of their own. James Mayall, a British academic, points out that European powers could sustain empires only so long as they believed that their imperial subjects were barbarians who did not count as people with rights. When the Europeans' arguments were turned back against them, their great empires collapsed under the weight of their own contradictions.

A new internationalism was born; cosmopolitans looked with pleasure on the United Nations, alike in dignity, diverse in their national dress. They saw a world of nations which, in the words of the 19th-century writer Ernest Renan, "serve the common cause of civilisation; each holds one note in the concert of humanity." Liberal multiculturalism carries an echo of the same feeling, promising a civic nationalism so strong and legitimate that Herder's different peoples can jostle along within it, separate yet united.

A lot of movements—most notably Marxism—have aimed to surpass the nation. None has succeeded. Delegates to a pan-Slavic congress in the mid-19th century could not understand each other and had to fall back on German. Pan-Arabism and Negritude failed to unite the Middle East or Africa. Far from creating a post-national caliphate, Islamic State and al-Qaeda have divided Sunni Islam.

The most ambitious attempt to lay nationalism to rest is the European Union. It has succeeded in that war between EU members is unthinkable. But the European nation state has not withered away as some

of the pioneers hoped. National governments still run Brussels, national machinery is hard to dismantle and institutions, such as the press and the bureaucracy, cannot easily be unplugged. Someone, somewhere always seems to want to hang on to power.

Instead, as empires have fallen apart, Wilson's principle of national self-determination has spread around the world. The philosophy that nations are sovereign and uniquely able to say what suits them is incorporated into the bedrock of the UN, the Bretton Woods institutions and the whole of international law. Everything else follows from it.

Indeed, nationalism has become so much a part of the backdrop that you hardly notice it—except, as today, when there is a crisis.

TO REACH the Moscow office of Aleksandr Dugin you must first pass through the looking glass.

The lift is so small and cramped that you can smell last night's vodka. On Mr Dugin's floor you file along endless half-decorated corridors that seem to confound geometry by turning left at every corner. The man himself, tall and ascetic, hair swept back from a high forehead, is a visitor from the 19th century.

His ideas are very influential among Russian nationalists. They are also odd and mystical, involving Vladimir Putin, Russia's president, as a sort of tsar who subsumes the identity of all Russians. "For us, the tsar is the subject and we are people of the subject," he says enigmatically. "Human rights are the rights of the tsar."

Some of his compatriots would differ on this point, Mr Dugin concedes. But he insists that, were he to recast it as Russia's holy right to be reunited with Crimea, he would command wide agreement. It is always the same: when the West tries to impose what it sees as universal human rights, democracy and the rule of law, it is a denial of the Russian way of life. The West could leave us alone, he says, "but you never do... You think everyone should be like you."

Here, Mr Dugin is surely right. Since the second world war the West has preached that liberty, law and democracy are universal—something *The Economist* endorses. Much of the world is not so sure.

After the collapse of the Soviet Union, Francis Fukuyama, an American political scientist, famously wrote that humanity had reached the end of history, because the only system of beliefs left standing was liberal, democratic capitalism. Led by America, the West energetically promoted this vision, both in its formal foreign policy and through NGOs and think-tanks. Its suasion mostly used example and encouragement, urging supply-side reform, deregulation and privatisation. Occasionally, in the former Yugoslavia, Iraq and Libya, it used force.

But when Communism fell, liberalism was not the Enlightenment's only remaining legacy. Mr Fukuyama reckoned without nationalism, which he expected to fade away. Just as 19th-century Germans thought Revolutionary cries of liberty, fraternity and equality were camouflage for French conquest, so the leaders of Russia, China, India, Turkey and others have seen the West's promotion of universal values as a cynical ploy to subvert their rule and their ambitions.

In 19th-century Europe the Germans insisted that only they could say what was best for the Germany they were building. Likewise, today's nationalists make Dugin-like claims that their values are different ►

Nationalism has embedded itself in global politics more completely and more successfully than any of the Enlightenment's more celebrated legacies





▶ from the West's and just as valid. A new, confident middle class in, say, India and China often agrees. Many of its members want respect, not lectures on how to behave.

The attempt to repel Western universalism has been stunningly successful. The International Criminal Court, which opened its doors in 2002, and the doctrine known as the Responsibility to Protect (R2P), approved by the UN as recently as 2005, were supposed to embody the new, end-of-history consensus that the international community should police crimes against humanity. But the court has been a disappointment and R2P has fallen into disuse. The ethnic cleansing of Rohingya from Rakhine state in Myanmar this year has elicited a lot of noise, but very little action. As famine and disease pick over the carcass of Yemen, torn apart by a pointless war, the world is busy looking the other way.

Once, America would have stepped in. But the champion of universal values has undergone a dramatic change of heart. Rex Tillerson, America's secretary of state, told his dismayed diplomats this year that his priorities were security and the economy. Promoting American values had, he said, become an "obstacle".

President Donald Trump could not have been clearer when he addressed the UN's General Assembly last September: "We do not expect diverse countries to share the same cultures, traditions, or even systems of government. But we do expect all nations to uphold these two core sovereign duties: to respect the interests of their own people and the rights of every other sovereign nation."

To grasp how much ground Mr Trump has surrendered, consider that two world wars led America's leaders to conclude they needed to make the world safe for their country. That meant forging a broad-shouldered alliance based on democracy, the rule of law and an open economy. It was the most powerful alliance in history, based on an intense civic nationalism that promoted Western values. By endorsing the world of blood and soil, Mr

Trump has tossed aside that common cause. If each country defines its own values, what holds the alliance together?

The new nationalism does not just insist on the differences between countries, it also thrives on the anger within them. Michal Bilewicz, a social psychologist at the University of Warsaw, explains this anger in terms of what his profession calls "agency"—the power to control your own life. Nationalism is determined not by patriotic ardour, he argues, but by self-esteem. Loyalty to the nation combined with confidence and trust favours altruism. By contrast, feelings of frustration and inadequacy tend to lead to narcissism.

Men and women lacking in, or deprived of, agency look to nationalism to assure them that, in their own way, they are as good as everyone else—better, even. It is just that the world does not give them the respect they deserve. They are quick to identify with those they see as on their side and to show contempt for others, Mr Bilewicz says. At the same time they are obsessed by how others see them. Their world is that of Carl Schmitt, a German Nazi and constitutional lawyer, who believed such conflict to be the fundamental stuff of politics, both within nations and between them: "The distinction specific to politics...is that between friend and enemy." In Schmitt's view, politics is a kind of civil war. Everything boils down to loyalty.

Here is how altruists contrast with narcissists:

Look to the future—Rake over the past

Positive-sum—Zero-sum

Share—Exclude

Work together—Gang up

Improvement—Struggle

Opponents complement—Opponents are traitors

Immigrants add variety—They threaten our way of life

United by values—United by race and culture.

Altruists acknowledge a chequered past, give thanks for today's blessings and look forward to a better future—a straight line sloping up across time. Narcissists exalt in a glorious past, denigrate a miserable present and promise a magnificent future—a rollercoaster u-curve, with today in its pit. This geometry explains why nationalist books such as "The French Suicide" and "Germany Destroying Itself" can succeed while appearing to do down the very nation they worship. If you need a rule of thumb for assessing a nationalist movement, ascending ramp v switchback u is as good as you are likely to get.

The citizens of nowhere have a point when they root the new nationalism in economic inequality; but the driving force is not absolute poverty so much as a relative loss of agency. Mr Bilewicz's narcissistic nationalists feel that the disruptions to the economy caused by globalisation and technological change have increasingly rigged it against them. Their hard work—real or imagined—goes unrewarded while self-serving elites and the minorities who enjoy their favour reap privileged access to wealth and power. Bureaucrats obsessed by political correctness give immigrants jobs, houses and places in local schools, while the nationalist's loyalty to the nation, which is held to stretch back generations, is rewarded only by sneering and disdain.

The impotence and insecurity felt by large numbers in developed countries shows that an important lesson has been forgotten. In "Ill Fares the Land", written in 2010 as he lay dying, the British historian Tony Judt described how post-war democracies were trans-

fixed by the fear that fascism or Bolshevism could once again spellbind the masses. Democracy was fragile, they thought; they were determined that the mistakes of 1914 to 1945 should never be repeated. So they tried to ensure that economies grew in ways that benefited all those who participated in them and provided safety nets for those who could not. Karl Marx believed the working class needed a revolution to get justice. Western democracies gave it welfare states and Great Societies instead.

Judt's argument was that this system was breaking down. He blamed the market reforms of the 1980s for enriching the elite at the expense of the rest and for destroying the sense that everyone is in the same boat. Yet, in some ways, he was not sufficiently pessimistic. In his eagerness to condemn the market-loving Ronald Reagan and Margaret Thatcher, who led America and Britain in the 1980s, Judt ignored the ways in which wasteful and unresponsive bureaucracies had, even in their heyday and their European redoubt, frequently failed the people they were supposed to help.

Judt issued a dying warning: "We have entered an age of insecurity: economic insecurity, physical insecurity, political insecurity." Populist politicians—almost always nationalist—exploit those insecurities. Claiming a special connection to "the people", they tell and retell their narratives of corrupt elites, crooked immigrants, misleading media and sinister conspiracies. Social media, which amplify outrage, are the ideal vehicle to spread the word. Rodrigo Duterte, president of the Philippines, has a "keyboard army" to purvey his half-truths. Mr Trump uses Twitter to shout his Schmitt-like distinctions between friend and foe. Nigel Farage, of the UK Independence Party, fans grievance and discontent.

Often the populists are from the hard right. Edmund Fawcett, a writer on political philosophy who was on the staff of this newspaper for many years, points out that the right has always rebelled against the creative destruction wrought by progress. Liberals (in the British sense) try to deal with change through tolerance, education, material improvement and ensuring that no set interest ever dominates. Conservatives, however, look to tradition, hierarchy, deference, protectionism and orthodoxy to keep the chaos at bay. Some have never abandoned their belief that only a strong, ethnic culture and a powerful government can keep them safe. Such people are the backbone of the new nationalism.

SOcial scientists tell a story about a peasant called Vladimir. One day God comes down to him and says: "I will give you one wish. You can name anything you want and I will grant it to you."

Vladimir starts to celebrate, but then God lays down a condition. "Whatever you choose," He says, "I will give to your neighbour twice over."

Vladimir frowns and thinks. And then he clicks his fingers. "I have it," he says. "Lord, please take out one of my eyes!"

In a sense, Vladimir was blind all along. Fixated by status, he could not bear to see his neighbour do better than him, even if he had to suffer to prevent it.

Social scientists use Vladimir's choice to explain the seemingly irrational behaviour of subjects in psychological experiments. But it is tempting to project that same frame of mind onto nationalists obsessed by their own greatness. You might think that the answer to economic insecurity would be schools, roads and other civic improvements, but the new nationalists prefer triumphal arches to cycle lanes. Monuments are a (temporary) remedy for their lack of self-esteem. Nationalism gets in the way of clear thinking, because it turns politics into Schmitt's contest between friends and enemies, rather than the creation of common projects arrived at from diverse outlooks.

Time and again, nationalists make choices that

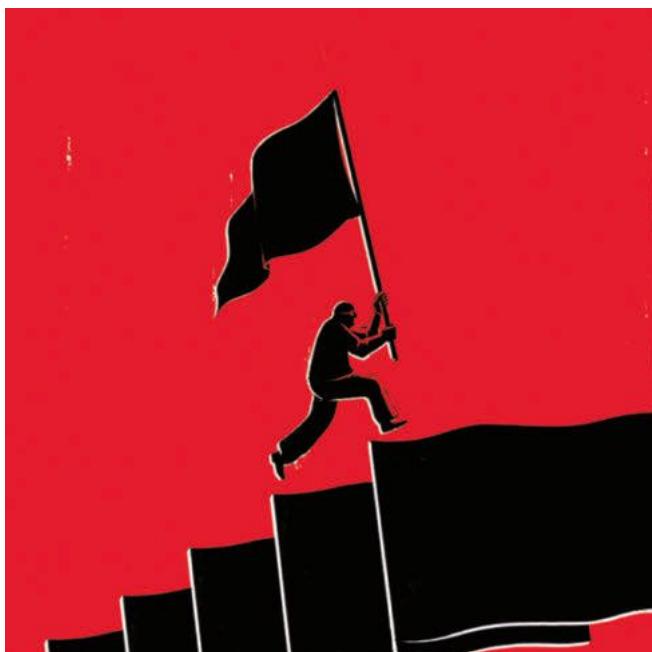
cause themselves harm. If there are enough Vladimirs, these choices will feed off each other. Nationalist leaders are highly sensitive to their own injured pride. They are less sensitive to the fact that other countries have pride, too. Poland has fallen out with its most important ally, Germany. Turkey is blasting the EU, its biggest trading partner. Venezuela's pursuit of the Bolivarian revolution has taken the country over a precipice.

In this light, Britain's vote to take back control from Eurocrats, the European Parliament and the court in Luxembourg looks like an uprising by the English—or rather the English outside London—who opted for Brexit. (The Welsh chose narrowly to leave, Londoners, the Scots and the Northern Irish to stay.)

Fintan O'Toole, an Irish journalist, thinks this uprising showed how the English have refused to accept their decline. The United Kingdom and great-power politics once amplified Englishness: both have now fallen away. The surrender of sovereignty to Brussels felt like another rung on the ladder towards mediocrity. But, says Mr O'Toole, English nationalism is naive. "Wrapped for so long in the protective blankets of Britishness and empire," he says, "[England] has not had to test itself in the real conditions of 21st-century life for a middle-sized global economy."

In its negotiations with the remainder of the EU and the rest of the world, Britain will have to surrender sovereignty once again while at the same time coming to terms with its lost influence—evaporated when it decided to relinquish its membership of the EU. Britain never faced up to the hard-nosed calculations about whether Brexit is likely to leave it better off. Anyone who expressed doubts in the campaign was accused of insufficient patriotism. Since the vote, that charge has swollen into full-blown treachery.

Bigger still is what Mr Trump's nationalism means for the United States. In that speech to the UN General Assembly he described a world in which each country ►►



looks out for itself, a "world of proud, independent nations that embrace their duties, seek friendship, respect others, and make common cause in the greatest shared interest of all: a future of dignity and peace for the people of this wonderful Earth."

A "pluralism of national bigotries", as one thinker once called such a system, may indeed lead to a stable world. Roger Scruton, a conservative British philosopher, argues that nations find it easier to live side by side than religions do. For peace and security, John Stuart Mill argued, self-determination is necessary.

But is it sufficient? The institutions that shape the world and keep it running smoothly have required an order guaranteed by America, as well as the self-determination of others. Mr Trump's readiness to walk away from the system could do it permanent harm.

Take, for example, his decision to quit the Trans-Pacific Partnership (TPP) right at the start of his presidency. Throughout the campaign, Mr Trump rabbished the 12-member trade pact as a bad deal for America—partly because he thinks America has more negotiating clout in bilateral deals, partly because he wants to do down his predecessor, who had championed it.

Ditching the TPP was not only bad for America's economy. It also hurt Asian security. The deal would have created a conduit to channel China's expansion, aligning it with today's institutions and removing its incentive to overturn them. Mr Trump said he was acting to make America great again. Instead, he let down its allies and handed China an invitation to shape the world.

Mr Trump's foreign policy has its episodes of engagement, such as the cruise-missile attack which followed Syria's gassing of civilians. But it is dominated by structural withdrawals, as from the TPP and the Paris climate-change agreement. Eventually this could leave the world without a leading power for the first time since 1945. Insecurity—instability—would go global. The closest parallel would be 19th-century Europe after the fall of Napoleon. For almost a century Metternich, Talleyrand, Castlereagh and their successor statesmen managed a delicate balance that avoided continental-scale wars even as national fortunes ebbed and flowed.

To re-run that diplomatic feat would be extraordinarily hard. Unlike today's leaders, 19th-century Europeans came from a single intellectual tradition. Britain, as the strongest power, shifted its weight to ensure that no other country ever thought that it could prevail through war. In the world of 2017 no country is available to play that role. Back then there was no Twitter or 24-hour news, leaving statesmen freer to make concessions over brandy and cigars. Nineteenth-century European powers competed against each other by building empires; that option is no longer available.

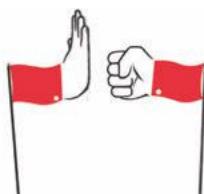
The European peace came crashing down in 1914, partly because Germany's rise led it to outgrow the system holding it back. Today's peace will also be tested, as America faces up to the need to accommodate an ambitious China. Mr Trump's promise to Make America Great Again will not make that any easier.

Unlike in the 19th century, some nations have nuclear weapons. That will focus minds on peace. Until it doesn't.

IT WAS 2pm on October 13th 2017 and 48 people were about to become Canadian citizens. The judge welcoming them to the Ontario Science Centre that Friday afternoon was Albert Wong, himself an immigrant.

In most countries those who are born citizens think that immigrants are lucky to get in. But Mr Wong thanked his 48 new compatriots for the sacrifices they had made in leaving behind their homes. Later Yasmin Ratansi, MP for the local riding, stressed that Canada has expectations of its citizens—to contribute to the community, respect women and obey the law. "You must ensure that Canada is as proud of you as you are of Canada," she said. After-

Nationalist books such as "The French Suicide" and "Germany Destroying Itself" can succeed while appearing to do down the very nation they worship



wards, when everyone had eaten a slice of cake, some members of the Ojibway nation invited Canada's newest citizens to join them in a tribal dance that snaked around the meeting hall.

Canada is fiercely nationalistic in its way. Just like any other form of intense nationalism, the Canadian sort can be off-putting. But even though it sometimes strays into smugness and sermonising, Canada has something important to teach an uncertain world.

In emerging countries a growing new middle class wants its own set of civic clothes, not a collection of ill-fitting ideological hand-me-downs from the West. They have yet to decide whether to join the pageant of liberal democracies in a way they think will suit them, or to turn aside and march on alone. In the West nationalists have to choose between looking out and looking in. Will they be sucked into a fascination with triumphal arches, glorious sacrifices and the obsession with loyalty and betrayal? Or will they embrace a civic sort of nationalism instead, comfortable with themselves and the world around them?

Canada hints at a resolution of these conflicts between civic and ethnic nationalism. Its politics gravitates towards cohesion. Michael Adams, who has a new book arguing that the Trump revolution could not have happened north of the border, points out that a Canadian prime minister has to win the cities; and you cannot win the cities by pitching for the white vote alone. He says that what Canadians see in America only reinforces their openness. "We're global," he says, "and we're becoming more xenophilic."

The country marked the 150th anniversary of its confederation with refreshingly unstuffy and nostalgia-free celebrations. In the capital, Ottawa, they held a skating race on the Rideau Canal, a world-heritage site. A French street-theatre company entertained the crowds with giant puppet-figures. Canada is—belatedly—facing up to its mistreatment of its first nations. A light show at Miwate acknowledged the sacred importance of the Chaudière Falls to the Algonquins and marked the end of their industrial exploitation. Guy Laflamme, the main organiser for the city, admits that Canada still has problems with race. "But," he says, "we've developed a model that's pretty exemplary."

That model celebrates difference and rewards collaboration. Canadians like to say that the cold winters forced them to work together to survive. Quebec, where years of anti-French prejudice led to a powerful drive for independence, obliged them to accept that there is room for more than one culture on equal terms. They have a mosaic, not a melting pot. They have found a way to celebrate cultural differences and wrap them in a bundle of all-enveloping tolerance. It is not a choice between cultural exceptionalism and moral universalism, but a benign mix of both.

Towards the end of the citizenship ceremony, Paul Martin, a former prime minister, rose to speak to the people who had come to his country from around the planet. He told them that Canada was now theirs to mould and improve. He congratulated Mr Wong on having the best job in the world. And he spoke about how his own father, as secretary of state in 1967, had opened Canada's borders to immigrants from outside Europe. "It was the right thing to do then," Mr Martin said, "and it is the right thing to do now."*

Icelandic

An old tongue's new tricks

A language both ancient and modern



REYKJAVIK

IT IS hardly surprising that Icelanders have names for the many different fish that abound in their surrounding waters—the various types of cod, herring and so on which they have been catching for centuries. It is rather more surprising that they have not just one word for the coelacanth, but three. After all, the living fossils of the Indian Ocean's depths hardly impinge on their Atlantic way of life—and if an Icelander found a pressing need to talk about them, why not just use the Greek word, as other nations do? But Icelanders are keen namers of things—and would never dream of simply adopting a transliterated version of someone else's word. So they call the coelacanth *skúfur*, which means "tassel". Or *skúfugi*: tassel-fin. Or sometimes *forniskúfur*: "ancient tassel".

Icelanders are fiercely proud of their tongue and stay actively involved in its maintenance. On Icelandic Language Day they celebrate those among the population of 340,000 who have done the most for it. They love the links it gives them to their past. Ordinary Icelanders revel in their ability to use phrases from the sagas—written around eight centuries ago—in daily life. The commentator who says that a football team is *bíta í skjaldarrendur* ("biting its shield-end") as it fights on in the face of great odds, is behaving quite normally in borrowing an image from ancient tales of Viking derring-do (one of the castles in the British Museum's 12th-century Lewis chess-set records the metaphor in walrus ivory).

The result is something close to unique—a language that is at the same time modern (it can happily express concepts such as podcasting), pure (it borrows very few words from any other tongue) and ancient (it is far closer to the ancestral Norse tongue than its increasingly distant cousins, Danish and Norwegian). Its complex grammar has barely changed in almost a thousand years and has a distinct old-worldliness. But if, like the *forniskúfur*, Icelandic is a living fossil, it is a lovely and lively one.

Ingólfur Arnason brought the first settlers from Norway to Iceland in 874AD. They spoke the common language used throughout Scandinavia often called "donsk tunga" ("Danish tongue") or, by others, some version of "northern" (the origin of "Norse", "Norwegian" and "Norman"). From early on they were partic-

ularly keen on using it to write things down; much of what is known about Viking culture comes from Icelandic texts. In the 13th century Snorri Sturluson produced the Prose Edda, one of the earliest and most important accounts of the antics of Thor, Frigg, Loki and their kith and kin. Icelanders also looked self-consciously at their own history, producing the sagas: generation-spanning tales of family, honour, feuds and outlawry that fall somewhere between history and myth. They are remarkable documents; Milan Kundera, a Czech novelist, once remarked that they would be rightly considered "an anticipation or even the foundation of the European novel" if only they had been written in a language anyone else spoke.

They came from the land of the ice and snow

Religious works also got recorded on sheepskin parchment. In 1000 a close-run decision at the Alþingi (an annual parliament) saw the Icelanders trade in Odin for the Holy Trinity. Fairly soon, theological texts were being translated into Icelandic; the common tongue became "a respectable alternative to Latin" centuries before the Reformation brought a comparable transition in the rest of Europe, according to Kristján Árnason, a linguist at the University of Iceland.

The idea that scholars and clerks needed to take seriously the language people actually used was not unique to Iceland. Dante Alighieri, a Tuscan poet, made the same argument in "De Vulgari Eloquentia". But he did so, tellingly, in Latin—and in the early 14th century, Iceland's "First Grammatical Treatise", which explored ways to write Old Norse using the Latin alphabet, was written by an unknown hand 150 years earlier.

The wealth of early vernacular literature and scholarship is one reason Icelandic is preserved in its ancient form, with a complex grammar other Scandinavian languages have lost. (Icelandic has three genders and four cases, which affect the endings on nouns and ►

The common tongue became "a respectable alternative to Latin" centuries before the Reformation

► adjectives based on their roles in sentences. For the most part the continental Scandinavian languages have lost a gender and almost all of their case systems. Icelandic verbs have six forms for the six grammatical persons. The others have stripped this down to one.) Another reason for preservation was straightforward isolation. Iceland is 700km (380 nautical miles) of rough ocean from the nearest inhabited land, the tiny Faroe Islands—which have their own grammatically conservative Scandinavian language. One study of more than 2,000 languages found that those with few speakers that are spoken in small areas with few neighbours tend to have precisely the kind of complexities Icelandic and Faroese have retained and Danish has abandoned. “Big” languages can keep Icelandic-style intricacy—Russian is one that has done so. But they are the exception.

Another factor is that Iceland was unpopulated when settled. Conquest often leaves “substrate” influences on the language of those taking charge. And class was largely irrelevant; the prestigious written language was spoken by educated and illiterate alike. The result, say many Icelanders, is that they can read 13th-century sagas “like a newspaper”. Such claims should be taken with a pinch of the island’s black salt. The grammar may have changed little, but the sagas assume knowledge of kinship ties and myths that modern Icelanders must learn about at school. Many compare the difficulty of reading them to English-speakers’ struggles with Shakespeare. But that is still extraordinary; the sagas were not written in Shakespeare’s time. They were written a century before Chaucer.

To fight the horde, and sing and cry

The stability of Icelandic is a subject for debate and speculation. Its lexical purity is more easily explained. It has borrowed many words in its history. But in the 17th century Icelandic intellectuals began to kick them out. A Danish-Icelandic dictionary shows how different the two cousins have become. Danish has borrowed a slew of pan-European words: *passiv*, *patent* and *pedicure* appear on one page. The Icelandic equivalents are *hlutlaus*, *einkaleyfi* and *fótsnyrtning*. A huge stock of words with Latin and Greek roots is shared across almost all European languages, from “telephone” to “address”. Not so with Icelandic. “Telephone” is *sími*, from an old Norse word for “thread”. “Address” is *heimilisfang*—literally, the place where one may be caught at home. A foreigner encountering Icelandic-only signage is usually unable to decipher a single word. Forbiddingly long compound words like *hjúkrunarfræðingur* (nurse) have no familiar elements. (*Hjúkrun* comes from roots for “serving” and “caring”, and *fræðingur* is a specialist) The letters ð and þ, representing two “th” sounds (the first as in “this”, the second as in “thin”), add to the exotic feel.

That said, some words do look similar to English ones: *bók*, *epli* and *brauð* are “book”, “apple” and “bread”. This is because the Scandinavian languages, like the west Germanic languages (English, Dutch and German), share a proto-Germanic ancestor. More

“She is biding at home,
heat-weak and
head-wrought”

overlapping vocabulary comes from the fact that Viking invaders left some words behind in England: “knife”, “leg”, “husband”, “window” and even “they” (þeir in both Old Norse and modern Icelandic).

To English ears, this means that many words, bewitchingly, are neither as alien as *hjúkrun*, nor as easy as *bók*, but both familiar and not. To be ill is *veik*, or “weak”. Something’s price is its *verð*, or “worth”. To wait is *biða*, or “to bide”. A fever is *hita*, or “heat”. Put together *höfuð*, “head”, and *verk*, cognate to words like “work” and “wrought”, and you get a headache, *höfuðverk*. Thus to learn Icelandic feels a little like becoming pre-modern, or entering a fantasy. “She is biding at home, heat-weak and head-wrought” is the sort of diction you might imagine for characters in “Game of Thrones” (filmed partly in Iceland, as it happens).

Some of these similarities, though, can mislead. An English-speaker who knows that *dóm* is cognate to the English word “doom” may find the Reykjavik building marked *dómsmálaráðuneytid* rather menacing. But it is just the ministry of justice: “doom” in English was once mere judgment; only later did it take on first the meaning of condemnation, then ruin.

It is not clear in quite what way J.R.R. Tolkien meant the word when he named the climactic locale in “The Lord of the Rings” Mount Doom. But as a philologist interested in Norse and other ancient tongues, and keen on the archaic, he certainly knew his Icelandic. The name of the wizard Gandalf is taken from the *Eddas*. The Tolkiens’ Icelandic nanny, Adda, not only took care of the children; part of her role was to help him practice Icelandic. Mrs Tolkien was not pleased by the attention.

W.H. Auden—a great fan of “The Lord of the Rings”—was also entranced by Iceland’s stories and language. He liked the local smoked lamb and dried fish less, preferring to live on endless coffee and cigarettes during his stay there in the 1930s. And he disliked some of the island’s other devotees, too. In a letter to a friend he described catching a bus “full of Nazis who talk incessantly about *Die Schönheit des Islands* [the beauty of Iceland], and the Aryan qualities of the stock.” This is the downside to a reputation for isolated, undiluted purity. The country remains the recipient of unwelcome attention from fascists. David Duke, a former leader of the Ku Klux Klan, has said that “there’s only one country anymore that’s all white, and that’s Iceland. And Iceland is not enough.” Paul Fontaine, a journalist at the *Reykjavík Grapevine*, says that white-supremacist comments on the newspaper’s Facebook page warn Iceland not to “make the same mistakes” as other countries: letting in asylum-seekers or Muslims. ►





► This is one reason why Ari Páll Kristinsson, head of the island's language planning council, cringes at the idea of linguistic "purity", and suggests shyly that one speak simply of the "Icelandic vocabulary tradition". But he works hard at keeping the language as close to uncontaminated old Norse as is feasible. Compared to other countries with the same goal, his team does very well. In France, an Academy of 40 grey-haired worthies pronounces on what is and is not proper French and terminology committees in government ministries busily coin new words. The French, merrily ignorant of most of their pronouncements, continue to like posts from Facebook friends and bruncher with their real-world friends regardless. In Iceland Ari Páll and his staff of three listen to what the public wants and get listened to in turn. The council has around 50 unofficial groups of enthusiasts with an interest in language as well as subjects such as cars, electrical engineering, computers or knitting. Those committees suggest new words with solid Norse roots, taking in the council's advice on how to make them fit the sound and grammar of Icelandic.

In perhaps their most famous example of purist creativity, when a word for computer was needed in the 1960s, the planners coined *tölva*, combining *tala* ("number") and *völv*, an old word for prophetess. When doctors started talking about AIDS using the English acronym rather than its long, literal Icelandic translation, *heilkenni áunnins ónæmisbrests*, the committee coined two shorter alternatives: *alnæmi*, something like "all-susceptibility", and *eyðni*, which sounds like the English term, but comes from the Icelandic *eyða*, meaning "to destroy". When Icelanders started saying "podcast", the council quickly responded with *hlaðvarp*, from roots meaning "charge" (squint and you can see *hlaða* as a distant cousin to "load") and "throw".

Peace and trust can win the day

The country welcomes new people, even as it makes its own new words. The foreign-born now account for over 10% of the population. Many come from eastern Europe (though Iceland is not in the EU, they don't need visas) but there are also Thais and Filipinos. In 2004 American racists reacted with particular bile against a *Grapevine* cover story featuring a Kenyan woman in Icelandic national dress. Guðni Jóhannesson, the president (who is also a historian, and a friend of your correspondent), says that Iceland's fishing industry might collapse without foreign workers. Iceland may be the world's only country with a "Herring Era Museum" (*Sildarminjasafn*). But fish-processing survives largely thanks to Poles willing to endure harsh factory conditions.

Do these immigrants pose a threat to Icelandic? Not yet, but worries are growing. Subsidised language lessons are available, but support is woefully weak, says Nichole Mosty, who was until recently an American-Icelandic member of the *Alþingi*. Her own Icelandic sometimes draws criticism from Icelanders not quite sure if someone with a foreign lilt can represent them in politics.

It takes grit to get past one's early struggles with the language. When Eliza Reid, who is now the first lady, moved to Iceland with

Guðni in 2003, she soon started learning Icelandic in earnest. The difficulty was that Icelanders, not used to hearing their language spoken by foreigners, would switch to English before she got the first phrase out. She learned to say "I'm learning Icelandic" pre-emptively to stop them. Some 14 years later she gives speeches in the language—but she makes fun of her own conjugation mistakes as she does so.

Not all new arrivals stay as long. Short-term workers from the EU, like the 2m tourists a year, find they have no need to learn Icelandic. Law requires that signs primarily for Icelanders be written in Icelandic. (H&M, a clothing retailer, recently flouted it with a sign reading "Grand Opening!"). But much of Reykjavik no longer seems to be "primarily for Icelanders".

Technology may pose an even greater threat than foreigners. Icelanders cannot use Siri on their *farsímí* or Alexa at home: Apple and Amazon do not support the language. An Icelandic engineer at Google convinced the company to add Icelandic speech-recognition to Android smartphones, a task that required recording thousands of hours of Icelandic and having it transcribed into text. Google made this data freely available to others. But how much it will be used is not clear. Eiríkur Rögnvaldsson of the University of Iceland says that while Microsoft Windows added Icelandic fairly early, the translation was bad enough that many users stuck with English. It was later improved. But when he recently asked a class of 20-30 native students in his Icelandic university course how many used Windows in Icelandic, not one did.

That it is the language of technology contributes to a sense among the young that English is cool, practical and international, while Icelandic is stolid, difficult and local. When asked, young people repeat their parents' beliefs about the need to keep the language pure. But they adore English. In 2017 Stefanie Bade, a German doctoral student at the University of Iceland, found that listening to recordings of their own tongue spoken with different accents, Icelanders rated the local accent as the most "attractive" and "relaxed", but the American the most "intelligent", "reliable" and "interesting". They gave the American accent the most positive rating overall.

But Icelanders have survived isolation, ice and volcanoes for more than a millennium. It will take more than tourists, foreign workers and Siri to make them give up on their most treasured cultural inheritance. Where else in the world could you find such an arresting word for a lucky windfall—*hvalreki*, a beached whale that offers months of food? Icelanders will not make the mistake of treating their lovely language as such a happy accident. It is an ongoing achievement to be cherished. It may be something of a living fossil, but keeping it alive is both their duty and delight. *

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Offshore finance

The whistle-blower's story

RORBAS, SWITZERLAND

WHEN he saw armed men striding towards him across the underground car park beneath his home on January 19th 2011, Rudolf Elmer's first thought was that it was a contract killing. After that brief moment's panic, he quickly realised the men, some of whom wore ski masks, were police. As he and his wife stepped out of their car, Mr Elmer was taken into custody. The police searched their house and left with an array of seized devices, including his 11-year-old daughter's laptop and camera.

The arrest came hours after a Zurich court had convicted Mr Elmer of breaching Switzerland's strict bank-secrecy laws—for leaking client data from Julius Bär, a bank where he had previously worked—and threatening a former colleague. The sentence, a SFr7,200 (\$7,700) fine, was much more lenient than the prosecution's demand of 12 months in prison.

The subterranean arrest opened up another legal front, related to something very public that Mr Elmer had done two days before: to publicise his legal battle, he had held a press conference in London's Frontline Club. He spoke there about the damage being caused by dodgy financial goings-on in “secrecy jurisdictions”. The founder of WikiLeaks, Julian Assange, then appeared at his side, and Mr Elmer handed him two CDs. This prompted Swiss prosecutors to file a fresh set of charges for violating bank secrecy.

It was just the latest development in Mr Elmer's long-running stand-off with the Swiss authorities. They had brought their first case against him in 2005. He and WikiLeaks had connected in 2008; soon afterwards the site published a first batch of Julius Bär client data. The bank responded by securing an order from an American court to shut WikiLeaks down—the only time it has been ordered offline. That prompted a wave of international support for the site and contumely for the bank as an enemy of free speech. The court ruling was quickly reversed, partly on first-amendment grounds.

In 2016 the American government filed criminal charges against Julius Bär over its role in helping American clients hide undeclared money. The bank paid a \$547m fine and admitted conspiring to shield accounts in sham structures. It is not clear if the Americans made use of data provided by Mr Elmer.

But he has definitely played a role in the broader increase in scrutiny of offshore finance. His actions encouraged the American assault on Swiss finance that began in 2007 and culminated in criminal charges and hefty fines. That forced the Swiss government to begin stripping away much of the once-iron-clad secrecy with which the country has, in the past, protected its banks.

In doing so, Mr Elmer's case has shown up his country's dark side. The Swiss are, by and large, unwilling to get into each other's affairs. They offer support to friends and neighbours, they care about received opinions, but they prize their independence, sometimes to the extent of being stubborn, even awkward. When it comes to banking, though, the nation has often shown a deferential willingness to accommodate—one which, since laws introduced in the 1930s made it a centre for offshore finance, has been extended to unsavoury characters and ill-gotten gains along with everyone else. And the smooth, impersonal and lucrative amiability shown on the face Switzerland turns to the world in these matters has been backed up by a dead-eyed animus towards any individualist rocking the boats at home. As in other countries that

One man's fight against the Swiss banking system



rely heavily on providing homes for money people do not want taxed elsewhere, the financial establishment and the courts typically seek to crush those who threaten them with what can seem like a single will.

Unlike other bank whistleblowers in Switzerland, such as Hervé Falciani, who fled to France after exposing tax-dodging through HSBC in 2008 (and has received a five-year sentence in absentia), Mr Elmer insisted on staying even though he did not have to—Germany offered him witness protection. He has paid a heavy price, including demonisation, mental illness and seven months in custody under an archaic law allowing extended detention for interrogation.

But Mr Elmer has not had the fight knocked out of him. More than a decade since the first case against him, he is still locking horns with the authorities. He has had more than 30 encounters with the courts and endured 48 prosecutorial interrogations. His lawyer, Gander Tethong, has 140 ring binders of documents related to his cases. At least 13 Swiss federal offices have been involved.

Julius Bär, whose headquarters are in Zurich, is not a party to any of the cases. The bank has long maintained that Mr Elmer was the classic disgruntled ex-employee, motivated by revenge. It calls the whole affair “unfortunate and very tedious”.

Mr Elmer was born in 1955 and his early years seemed to set the stage for an uncontroversial career. He grew up in a working-class neighbourhood of Zurich. His father was a train conductor. Rudolf was a keen sportsman; for a brief spell he was goalkeeper at ➤

► Cambridge United, an English football team. Later he served in the Swiss army. He trained in accounting and worked for Credit Suisse, a bank, and KPMG, an accountancy firm, before moving to Julius Bär, where his mother worked as a cleaner for the founding family.

In 1994 the bank appointed him as compliance chief to its subsidiary in the Cayman Islands, the Caribbean tax haven through which it booked much of its global profit. At some point his relationship with his local boss soured, for reasons that are unclear. Mr Elmer says he was falsely accused of taking documents and that colleagues resented his blocking of certain transactions. An internal report branded him a “critical thinker”; it was not a compliment. The bank asked him to take a lie-detector test. He reacted angrily. He was sacked in late 2002.

When the bank shipped his possessions on to him it inadvertently also sent back-up files containing account data. Mr Elmer, as compliance officer, had been entitled to keep such files at home. After contacting the bank and certain clients to say he had potentially incriminating information, he sent the files to Switzerland’s tax authorities. They were unable to do anything with them because the Swiss prohibition on disclosing bank secrets makes no exception for disclosure to government agencies. It was then, Mr Elmer says, that he concluded he needed help from abroad, and began contacting foreign governments, journalists and NGOs.

Over time the stress of fighting the bank began to cloud his judgment, leading him to do some ill-advised things. He wrote threatening e-mails to bank staff and a client. He made silent late-night phone calls to Julius Bär’s general counsel, Christoph Hiestand. He even wrote a letter to the NPD, a far-right German group, offering the client data (but says he never sent it).

No Chancellor

And then there was the Angela Merkel letter. Among the documents published by WikiLeaks was a letter purportedly from the bank to the German chancellor, asking her to close her offshore accounts. The letter, littered with spelling mistakes, is clearly a fake; there is no evidence Mrs Merkel had any such accounts. Mr Elmer wrote it himself. He says he added it to the batch forwarded to WikiLeaks as a test, to see if they would filter material before publishing. Whatever his motive, it undermined his credibility. In 2016 it led to his conviction for falsifying a document. (He denies other unstable behaviour attributed to him, including the allegation—floated in a court filing by the bank’s lawyers—that he sent a threatening letter to Julius Bär’s New York office containing white powder and making reference to “9/11”.) He talks candidly now about his mental fragility at the time. He was diagnosed with PTSD, later suffered a breakdown and was hospitalised. He asked his mother to lock his two army pistols in her safe, fearful that he might do something he regretted with them.

“People like Elmer are not always nice, their motives not always pure. They get agitated...and make mistakes. But that doesn’t mean they’re not on to something,” says Mark Pieth, a corruption expert from Basel University who has provided legal opinions that support Mr Elmer’s defence. Sol Picciotto of the Tax Justice Network, an NGO, who also knows Mr Elmer, applauds him for “taking a principled stand on an important issue” but accepts he isn’t always easy to deal with: “He’s understandably totally obsessed by his case and the treatment he has received, to the point where he may have over-personalised it.”

Such reactions are hardly uncommon when a whistleblower lacks a support network and is put under pressure—and much was heaped on Mr Elmer. He may have made threats but he also received some nasty ones. One e-mail, later traced to a public internet terminal, said “Your daughter will be killed if you do not stop.” He and his family became convinced they

“People like Elmer are not always nice, their motives not always pure. But that doesn’t mean they’re not on to something.”



were being followed around by men in black cars with German number-plates.

This was not mere paranoia. When Mr Elmer’s wife, Heidi, noticed she was being tailed one day in 2005, she called the police. They told her to stop at a petrol station. The other car followed her there. The police arrived and questioned its driver, who admitted to working for a private detective firm. That sparked a legal complaint which revealed that the shadowers were employed by Julius Bär. The bank said it had hired them as a defensive measure after Mr Elmer made threats. Some of the bank’s top executives, including its board president, Raymond Bär, suffered the embarrassment of being grilled by a prosecutor. The case ended in 2011 with the two sides agreeing a settlement of SFr700,000, more than 20 times the norm for such a case, payable to Mr Elmer’s daughter. He placed this in a (fully taxed) offshore trust for her.

He also suffered mistreatment at the hands of Zurich’s cantonal prosecutors and courts, which played fast and loose with the law to nail him. They seemed indignant at his full-frontal attack on the city’s economic bedrock, and were determined to send a message to anyone else thinking of leaking data.

At every turn they made life hard for him. They turned down his requests to supply witnesses. The prosecutors dragged out the pain, taking five years to produce an indictment. The seven months in total that he spent locked up was highly unusual in a white-collar case. Mrs Elmer was barred from visiting him because she, too, was under investigation, as a suspected accomplice (that case was dropped after his release).

Some charges were built on flimsy evidence. Some judges could barely hide their scorn. One, Peter Marti, offering a “personal opinion” from the bench, branded Mr Elmer a “common criminal”, even as he was acquitted of the secrecy charges—an outburst criticised by other judges. Mr Marti is affiliated with the Swiss People’s Party, the political party most wedded to protecting banking secrecy. Already hostile to Mr Elmer, the judge may have grown even more so when, during his reading of his ruling, Mr Elmer sought to wind him up by requesting a toilet break three times in less than half an hour.

The Tax Justice Network argues that Switzerland “corrupted its courts” to teach Mr Elmer a lesson and discourage would-be whistleblowers, meting out “the sort of treatment one might expect from a totalitarian regime”. His efforts to undermine an industry that had brought great prosperity were viewed by much of Zurich’s judiciary as akin to treason.

The canton’s courts acted “like a holy inquisition” in dealing with Mr Elmer, says Mr Pieth. “If they couldn’t prove his guilt on one charge, they’d find another one to get him on.” Another academic who was brought in to offer a legal opinion, Wolfgang Wohlers, also of Basel University, recalls the prosecution radiating vengefulness. Why? “Elmer was considered a *Nestbeschmutzer*

The prosecutors have staunchly defended their approach in the past, but declined to comment for this article because the case is under appeal. Many legal experts and politicians believe government lawyers mishandled the case. “The way they went after him was ridiculous,” says one government official, adding that the Switzerland of today is different. It has accepted the need for more transparency and signed up to an OECD-led standard for exchanging account informa-



tion with other countries' tax authorities from 2018.

However, a proposal that banks be required to check all clients' tax compliance has been dropped. The Swiss are instead likely to implement a "zebra" strategy—part white money, part black. This would entail exchanging account data with other rich countries but not with many of the African, Asian and Latin American states that are the source of much of the world's illicit wealth. The Swiss have good reasons to worry about some of these countries' data-protection standards, but campaigners fear concerns will be exaggerated to avoid exchanging information.

Meanwhile, Switzerland's treatment of whistleblowers remains shoddy—and, unlike in most developed countries, risks getting worse. It offers no legal protections at all to private-sector whistleblowers, and none are in sight. The penalties for breaching financial secrecy have increased since Mr Elmer was first arrested. A whistleblower who sells data now faces up to five years in prison. Switzerland is almost alone in refusing to help other countries if their financial-crime investigations rely on stolen data.

Outside the law

As rough a ride as Mr Elmer has had, legally speaking it could have been worse. Last year the higher court of Zurich found him guilty of making a threat as well as doctoring the Merkel letter, but acquitted him of all of the more serious charges related to violating bank secrecy. He received a 14-month suspended sentence.

It was shrewd tactics on the part of Ms Tethong, Mr Elmer's lawyer, that won him the bank-secrecy acquittal. He had wanted to focus his defence on public-interest arguments. She instead turned the legal tables by arguing that he had not violated Swiss secrecy laws. His employment contract was not with a Swiss bank but with a Cayman trust company. Mr Elmer chuckles at the irony: the very reason for banks like Julius Bär to create independent subsidiaries in places like Cayman is to be outside Swiss law, thereby enabling clients to avoid tax and other regulatory requirements in Switzerland and their home countries.

Mr Elmer still has critics. Alex Baur, a journalist with *Die Weltwoche*, a Zurich-based magazine, dismisses him as "a simple blackmailer", motivated by revenge and money. Mr Baur also

claims that the data Mr Elmer exposed were of poor quality and have led to few if any criminal cases.

That is hard to know; governments don't reveal the sources of their investigations. Information provided by Mr Elmer probably was not as useful as that dished up by HSBC's Mr Falciani, or by Bradley Birkenfeld, whose revelations about Americans' use of UBS to stash untaxed money originally set off America's assault on Swiss finance. But Mr Elmer's files certainly shed fresh light on dubious trusts and banks' questionable handling of "politically exposed" clients.

As for his motives, he may initially have just been angry about being fired. But over time his battle turned into more of a moral crusade. Such a conversion is not unusual. Mr Birkenfeld, who now speaks out against the economic damage done by offshore malfeasance, spilled the beans because he discovered by chance that his superiors had drawn up documents that left managers like himself exposed to prosecution while covering their own backs. He acted to get them before they got him.

Mr Birkenfeld received a \$104m whistleblower award from America's Internal Revenue Service after serving 31 months in prison. Mr Elmer has now applied to the American government for such an award, having previously chosen not to. He is doing it in order to stave off personal bankruptcy, he says. Zurich's courts have ordered him to pay most of the costs of his case, amounting to some SFr300,000. He says he cannot pay.

When will the legal wrangling end? Both sides have appealed to Switzerland's Supreme Court against the most recent ruling. It could drag on for years. Part of Mr Elmer seems content with that. He revels in his gadfly status and has developed a taste for litigating. He has filed around 60 legal complaints of his own—against the bank, its top lawyer Mr Hiestand, judges and journalists, including Mr Baur. He is taking a defamation complaint against Judge Marti to the European Court of Human Rights. "I'm tired of it all, to be honest," says Mrs Elmer. "But Ruedi's not one to give in."

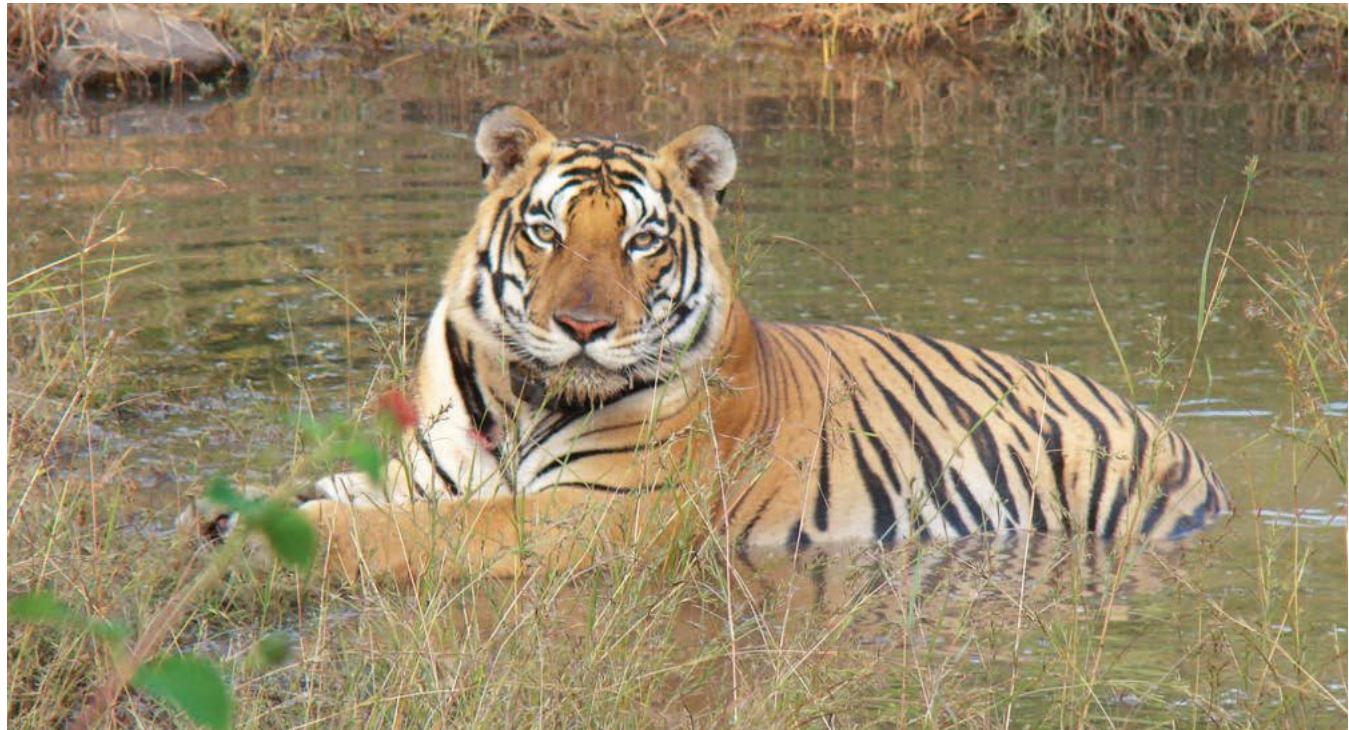
He has time for such pursuits. Prosecutors' efforts to have him banned from banking failed, but he would struggle to find work in his old profession; the Elmers rely on Mrs Elmer's work as a secretary for their modest income. He has dabbled in politics, standing unsuccessfully on the left-wing Alternative List ticket in cantonal elections in 2015. There may yet be more whistles to blow: if the Supreme Court upholds his acquittal on the secrecy charges, he may release more data. He says he has made only 5% of his cache public.

The saga has taken its toll. Years of negative press have pushed friends and family away, including Mr Elmer's siblings. "Our social life is very limited," shrugs Mrs Elmer. But Mr Elmer, now 62, is quite jolly. And he is less vilified than he once was. International disapproval and the global financial crisis have left the Swiss less defensive of their banks. The media, once almost universally hostile towards Mr Elmer, are now split down the middle. "Things have moved our way," says Mrs Elmer. *Inside Paradeplatz*, an online newspaper with a knack for capturing the financial zeitgeist, describes Mr Elmer as the most underrated opponent the banks have ever faced. Gian Trepp, a journalist who has long championed his cause, says: "Ruedi is stubborn, single-minded. He's like an old peasant. One hundred percent Swiss." *

Conservation and nature

A tiger's tale

One big cat, five elephants, 70 men
and a month-long chase across India



DELHI AND PANNA

THE tiger padded south. Slipping through the grey-green teak forest he wound around thickets of wild sage, cloaked behind its orange flowers. Gorges in the ruddy sandstone of the Vindhya plateau gave him respite from the midday heat. By evening, he had reached the banks of the Ken river, still swollen with monsoon rains. The forestry workers tracking his radio collar thought he would stop there. But he plunged in, swimming the Ken's 400-metre span and carrying on south, leaving the Panna tiger reserve behind him.

Panna's forest guards gave chase, crammed into Bolero jeeps, rattling yet indestructible. Behind them came colleagues on mighty tusker elephants. Their aim was not to capture the tiger; to do so would have meant a tranquilliser dart and, since the tiger had been sedated twice already in recent months, that would have been risky. Instead they sought to drive him back into the reserve. They used walls of fire set through the forest and great spools of plastic sheeting. They recruited entire villages to bang drums and sing songs. A tiger on the loose was, after all, a matter of life or death—for the tiger. Any Indian tiger outside a reserve runs a high risk of being poisoned, electrocuted or shot. And this one, though known only and rather impersonally as T3, was special.

India used to have a lot of tigers. Estimates put their numbers at the beginning of the 20th century at about 20,000. By 1972 just 1,800 remained. Their decline coincided with a near doubling of India's human population, from 238m in 1900 to 554m in 1970. Forests where tigers had lived were cut down and converted to farmland. The animals which had been the tiger's prey were hunted to meet people's needs—as were the tigers, when they discommoded

people, or when there was money to be made from pelts or other parts.

It was an extinction in progress, and in 1973 Indira Gandhi, the prime minister, decided to do something about it. The government started Project Tiger, which aimed to preserve tigers in their natural habitat. Nine national parks were converted into reserves, covering more than 16,000 square kilometres. The areas were "inviolate", said Ms Gandhi. They were just for tigers, with all other human activity excluded. Villagers could no longer graze livestock or gather wood there. Guards were employed to enforce the new exclusions.

Today, Project Tiger comprises 50 such reserves covering some 70,000 square kilometres, which is a bit more than the size of the Republic of Ireland or West Virginia, though only just over two per cent of the area of India. The total population living within these fortresses is now about 2,000. To have maintained the country's tiger population over four decades during which the human population more than doubled again is a significant achievement. But the limits to the approach are becoming ever more apparent.

This is partly because the reserves, especially the smaller ones, are such imperfect havens. Take Panna, the reserve T3 (pictured) walked out of, a 540-square-kilometre patch of tropical dry forest some 600km south-east of Delhi, in the state of Madhya Pradesh. Raghu Chundawat, an independent conservation ex- ➤

► pert who studies the reserve, says that for a population resilient enough to bounce back from expected levels of poaching you need at least 14 breeding females. (The number of males in a healthy population will vary, but it is smaller; one male's territory can cover that of many tigresses.) But Panna only has room for six, maybe eight, breeding females. That leaves no margin for error; the loss of one or two can doom the whole population. With the market for tiger parts in Chinese traditional medicine a constant source of demand, tigers in such small numbers depend entirely on their human protectors for their continued existence.

In Panna the protectors left something to be desired. In his book "Non-Stop India" Mark Tully, who for decades was the BBC's Delhi correspondent, describes the techniques used to kill Panna tigers in the early 2000s. Poachers would trap the beasts in snares, then beat them to death using sticks. If the tiger made too much noise, a poacher told him, they would shove the end of sticks into its mouth, followed by clods of earth. For this they got up to 400,000 rupees (\$6,200) per animal, a fortune in rural India.

In 2004 Mr Chundawat warned Panna's officials that the number of tigers had dropped too low; without fresh recruits, the population would disappear. His warnings were dismissed as activist hype. Rajesh Gopal, then the director of Project Tiger, accused him of having a "hidden agenda", and claimed that his reports amounted to "media breast-beating". It would take four more years for the officials to face the fact that Mr Chundawat had been right. In early 2009, they admitted that their fortress had failed. Panna was not the home to 35 tigers it had claimed to be. It contained just a single male who had drifted in from elsewhere. At least it seemed to: because he was uncollared the authorities didn't actually know where he was. To save Panna, new females would have to be brought in, and they duly were. But by the time they got there, the male interloper had apparently moved on.

Panna needed its own resident male. A strapping five-year-old in the Pench reserve, 650km to the south, emerged as the prime candidate. So on November 6th 2009, T3 was shot with a tranquilliser dart, loaded on to a lorry, and taken to Panna. It was not so different from his home. It had rocks to lounge on, game to hunt, streams to ripple his thick fur when he dunked himself in them. But T3 did not like it there. So he started walking home.

To herd a cat

T3 crossed the Ken on November 26th. He skirted Patori, a village on Panna's scraggy verge, before finding a seam of forest snaking along under the lee of a sandstone ridge. He followed it up the gentle slope of the Vindhya plateau.

The forests of Madhya Pradesh are mostly teak, but in scrubby areas closer to villages the hardwood gives way to eucalyptus and Coromandel ebony, its leaves used to wrap the local cigarettes, known as beedi. There are white-barked ghost trees that gleam in the sun, mangoes, acacias, and the mahua tree, its flowers beloved by elephants and humans alike. Wild sage, or Lantana, an invasive species from the Americas, fills every available cranny in thick bunches. The air smells of baked earth, and is filled with the noise of songbirds hidden in the canopy. Kingfishers streak over the streams, their paths traced on the retina in time-lapse turquoise.

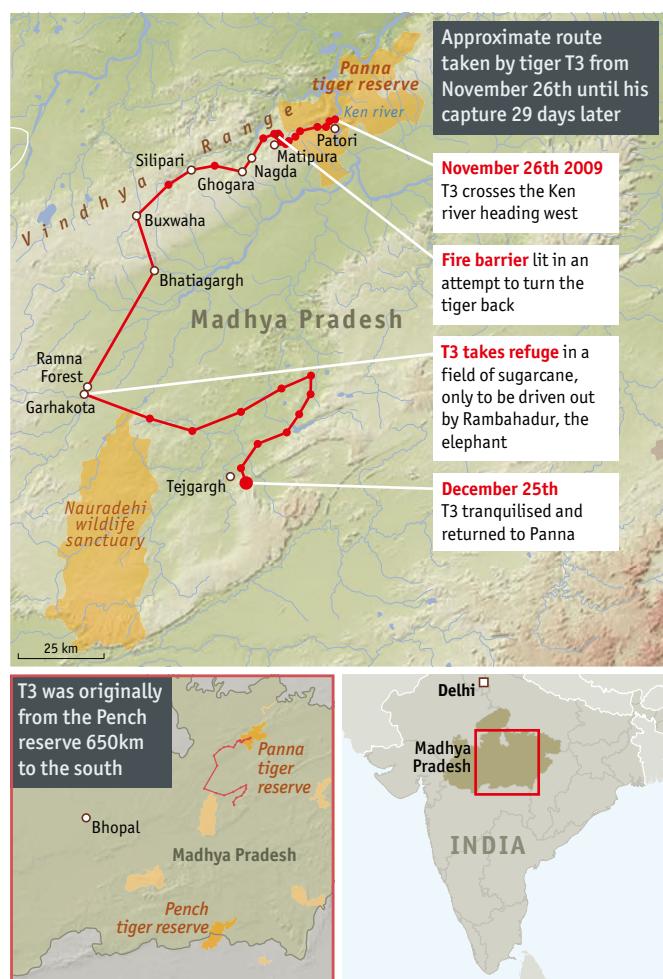
When T3 had to leave the cover of the forest, he padded through fields of lentils and sesame, chickpeas and mustard. Here the scents are more domestic:

Panna was not the home to 35 tigers it had claimed to be. It contained just a single male

parched cow dung, acrid but pleasant, and the sickly-sweet spice of chai, cooked on an open fire. Every moment in this human landscape was a risk. A villager might see and shoot him. If a farmer found an animal T3 had killed, he might add poison to its flesh—thus ensuring the tiger's death when he returned to the kill for another meal.

On his tail, desperate to help him, was Rangaiah Sreenivasa Murthy, the Panna reserve's field director. He had been put in charge just a few months before, in May, to oversee the restoration of the park's tiger population. From the start, Mr Murthy ruled his reserve with a balance of authoritarianism and kindness. Workers remarked on the willingness he showed to sit with them for meals, a breach of caste they took as a sign of support and respect. At the other end of the social scale Lokandra Singh, a member of the local royal family, proclaimed him the "finest forest worker in India". But though in general Mr Murthy is jovial, his sharp temper prompts rapid, angry ejaculations in Hindi when he is disappointed—especially if the disappointment has anything to do with his tigers. This happens with some regularity; no one is as obsessive about Panna's tigers as Mr Murthy.

By the time T3 left the park, Mr Murthy had built up enough goodwill that Panna's entire staff rose up and ►



► gave chase at his command. Their numbers were boosted by villagers paid 250 rupees a day for their services helping the team navigate unfamiliar landscapes (an outlay which also helped to reduce the risk of shooting or poisoning). A roiling retinue of guards and villagers, elephants and jeeps spread out across the countryside. Walk into any of the tiny villages Mr Murthy's men passed through in the weeks that followed and at least a handful of villagers will know his name. It is unusual fame for a forestry officer.

This retinue moved in two different modes: search and chase. T3's radio collar had a battery life of several years, but a range of just a dozen kilometres. When the park workers couldn't pick up its signal, jeeps were dispatched with hand-held antennae to hurtle up and down the red-dirt back roads. (At one point, Mr Murthy had road-building machines brought in to lay down better surfaces for the tired Boleros.) When a ranger on top of an old water tower or on the peak of a small hill picked something up, the location would be relayed back to camp, passing from jeep to jeep through on-board radios until it reached Mr Murthy. The order for pursuit would be given, and the lumbering caravan of men, jeeps and elephants would gather itself up and return to the chase.

Sometimes the signal would vanish; sometimes the tiger would appear. Two days after T3 left the park, when he was still close by, Mr Murthy's troupe tracked his signal down to a stretch of dense forest near the village of Matipura. As darkness gathered they formed a two-kilometre line of men, cars, elephants and fire along a rough track that ran north-south across the tiger's path. The headlights faced east, beaming back towards Panna. Fires were lit every 20 metres. Hundreds of villagers joined the line, gathering around the flames to stay warm, beating drums, playing music and singing. Rambahadur, Panna's biggest tusker, plunged into the jungle, guards and a local villager on his back, aiming to drive the tiger out. He went the other way; a flash of orange slipped between two cars and disappeared back into the forest heading west. By the time they had raised the alarm, he was gone.

On another occasion Deo Singh, who lives in Ghoghara, a village on the ridge T3 followed, was sitting on Rambahadur, acting as guide to a forest guard, when the elephant pushed over some debris to reveal T3. Mr Singh says he remembers how big the tiger was and that it had stripes on its chest "like swords". Directed by his mahout, Rambahadur started to whack the cat with its trunk in an attempt to shoo it back towards the reserve. But, again, the tiger slipped away.

A self-willed world

At Nagda, a village down the road from Ghoghara, an old man on a Zimmer frame (an unusually advanced walking aid for rural Madhya Pradesh) was less impressed by T3. He says he remembers the times when the ridge was often used by what he calls, in Hindi, "jungley tigers". The villagers would see the wild beasts' paw prints and hear their roars. With his radio collar and lagging entourage of humans, jeeps and elephants, the man said he thought T3 was distinctly domesticated.

He has a point. Life in a well-protected tiger reserve is hardly wild, despite the idea that they provide a natural habitat. Corbett, India's oldest reserve, is dotted with over 200 camera traps. The Wildlife Institute of India has experimented with drones. Pregnant females inside parks are under constant monitoring. "Tiger habitats are controlled and manipulated by humans," says Valmik Thapar, a well-known tiger conservationist in Delhi. There are no fences, for the most part. But some are arguing for them, saying they would better protect the tigers.

Mr Singh says he remembers how big the tiger was, and that it had stripes on its chest "like swords"



An exclusion of the human that relies entirely on omniscient human enforcers makes the reserves oddly artificial: they are absolutely natural in what they contain, absolutely unnatural in their conception. It also makes the tigers' situation precarious. Their protection is handled by local forest departments, which often lack wildlife expertise; if the local department is not led by someone who cares about tigers, their protection suffers. And excluding all humans from reserves creates tension with local villagers, who often want to graze their animals or forage for firewood—a problem with nature reserves around the world that is keenly felt in India.

New ideas are emerging of how to replace the fortress approach. Mr Chundawat says Indian conservation should focus on fostering "satellite habitats" around the primary reserves—patches of forest big enough for two or three breeding females which would not require as much protection as a fully fledged reserve. The satellites would offer refuge to tigers which, like T3, lit out for the territories; they would function as a backup to the primary reserves. Mr Chundawat envisions, in time, a network of tiger populations that are more integrated with the humans who live next door.

In this vision, the arrival of a wandering tiger becomes a positive event for villagers, an opportunity to offer tourists homestays, or put on small-scale safaris. Getting local people to embrace this, though, will be something of a challenge. In rural Madhya Pradesh official literacy rates are around 65%, while real rates are often far lower. That makes it difficult to start tourist enterprises which take advantage of possible tigers. Mr Chundawat optimistically suggests starting small, tapping into local knowledge to encourage tourism based on bird-watching and wilderness retreats, for instance. If a tiger comes by it will be a welcome bonus, not an unwanted new neighbour. Such approaches have been making headway in parts of Africa.

You can see something like this in operation on the fringes of Ranthambore, a reserve in Rajasthan. An outfit called Tiger Watch sends camera-trap photos to the phones of local volunteers. They keep watch on ►►

▶ the tigers as part of their normal lives—a more relaxed and more sustainable form of tracking than Panna's maximum-security surveillance. It also leaves the door open for those villagers to build businesses based on their local tigers.

The wanderer returns

The villagers T3 came across were not yet ready to be welcoming. On December 20th a farmer from the village of Ramna, about 200km from Panna and 300km from Pench—almost halfway home!—was heading out to work in a field of ripe sugar cane when he came upon the tiger lurking in lush shadow. Word reached Mr Murthy's troupe quickly, but by the time he arrived the villagers were scared and angry about the tiger's presence. Some enterprising locals declared that, since the tiger had settled in their field, it now belonged to them. Mr Murthy was having none of it. He asked the value of the field, then bought it on the spot, handing over a wodge of rupees. Fires were lit; Rahmbadhur crashed into what was now government sugar cane. Again T3 was flushed out; again he quickly disappeared back into the forest.

The men started to ask Mr Murthy what more they could do when all their best efforts had come to nothing. T3 was intent on travelling south, and there seemed nothing anyone could do to stop him. Mr Murthy called Delhi and asked whether the tiger might be returned to Pench, as he clearly wanted. They refused: Panna was getting T3 or it was not getting a male tiger at all. So Mr Murthy was left with no alternative but the tranquilliser dart. On Christmas Day T3 was shot next to a small pond. The sleeping tiger (pictured on the previous page) was trucked north to Panna. His winding 450km-journey remains the only documented case of an apparent homing instinct in a wild tiger.

His return saved Panna. Soon he met T1, a female brought in from another reserve. By April, she had borne a litter. Today Panna's population is back up to 35 or so; younger tigers have started leaving the park, looking for more space. T3, now a great-grandfather, has settled down.

But Panna's success was won only by becoming ever more of a fortress. Mr Murthy built 11 watchtowers across the park, from which guards look out for the splotches of red light that poachers

use to attract animals at night. Each breeding female wears a radio collar and is monitored around the clock. When a pond went dry a few years back, Mr Murthy installed water tanks to fill it back up. Some say this drove one of the tigresses away, leaving her abandoned cubs to die. Mr Murthy says he had to take extreme measures to pull Panna back from the brink. "What Murthy did, only Murthy could do," says Mr Chundawat.

Now, though, Mr Murthy has gone on to a job in Bhopal, the state capital. The new boss, Vivek Jain, takes a less direct interest in tigers. Panna remains both fortified and fragile. India's human population is still growing, the trade in tiger parts persists. The long-term survival of tigers lies in aligning their interests with an improvement of local people's lives—of being a sight people believe is worth seeing, and which people will come to look at when they can.

For such magnificence to depend for its future on being instagrammable seems to offend against dignity. But what else is there? The obsessively monitored fortresses cannot last forever, and they are hardly the natural habitats they were once believed to be. There will always be wildness in the ways of animals—in what they choose, unbidden, to pursue. But to seek the natural, in India as elsewhere, must also be to accept that the world of the wild is shared with, and shaped by, humans; to be a human who loves nature is to try and make that sharing work. The idea of powerful creatures in the vast untouched wilderness has a sublime thrill to it. It also has a certain cosiness; it is the imaginary ideal where many human ideas about nature grew up. But as T3 discovered after he swam across the Ken, you really can't go home again. "The old world is gone," says Mr Thapar. "We cannot bring it back." *

 Go online for an audio documentary about T3's story: www.economist.com/Tiger17



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Commodities

IN 2016 the world consumed 96m barrels of oil every day. They all started out as algae or plankton, with the odd dinosaur thrown in for good measure. Dead and buried, this ancient life was transformed into a suite of molecules made up of chains and rings of carbon with hydrogen stuck to them, and thus, prosaically known, as hydrocarbons. (They have some sulphur in them, too; it's a pain.)

Hydrocarbons, which sometimes seep to the surface unbidden, have been used for millennia. They can be set alight to frighten your enemy's cavalry, or slathered into the seams between the planks of your ship's hull. Today they power a global economy and can be used to make almost anything.

Using oxygen to burn up hydrocarbons liberates lots of energy. It also creates water, which doesn't matter much, and carbon dioxide, which does. Oil accounts for 35% of industrial CO₂ emissions.

Different hydrocarbons are used to fuel different things. The shorter the carbon chain, the more easily a fuel is vapourised, and in turn burned. A little molecule like butane—four carbons long—is good for a cigarette lighter; a ship's engine may use something 10 times longer.

Every barrel of crude oil contains a mix of all these molecules. Refineries sort them out, exploiting the fact that they vapourise at different temperatures to separate them by distillation. But even "light" crude—the short-chain-rich sort the industry likes best—contains more of the long chains than anyone needs. So refiners use clever chemistry ("fluid catalytic cracking") and brute-force heat ("coking") to break some long molecules into shorter ones.

Distillation and cracking also produce plenty of small molecules containing just two or three carbons; these form the basis for the petrochemical industry, which uses them either for their own properties or as the building blocks for all manner of plastics, fibres and pharmaceuticals. The global market for these is some \$680bn: more than a third as big as the \$1.6trn oil market.

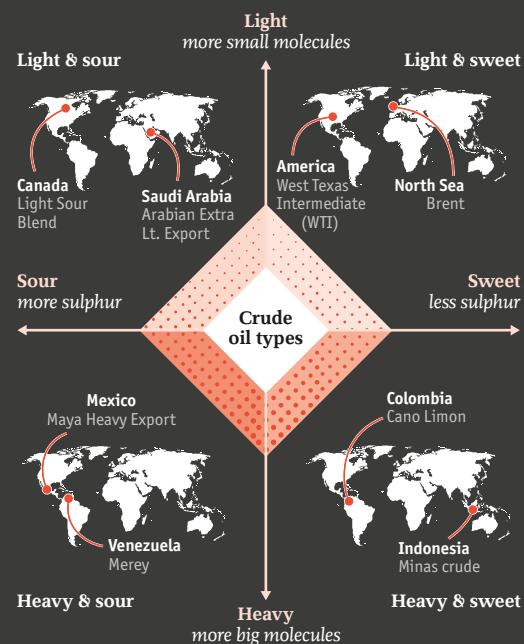
All this takes a lot of energy: most refineries use between five and ten percent of the energy in the crude that passes through them. In years to come that might change. Practitioners of "synthetic biology" are learning to genetically engineer microbes that can synthesise the building blocks of petrochemicals—and indeed the chemicals themselves. In the future, the refinery may well fall prey to the descendants of its long-dead reason for being: algae. *

The world in a barrel

Crude oil is the most traded commodity in the world. What is it made of and where does it go?

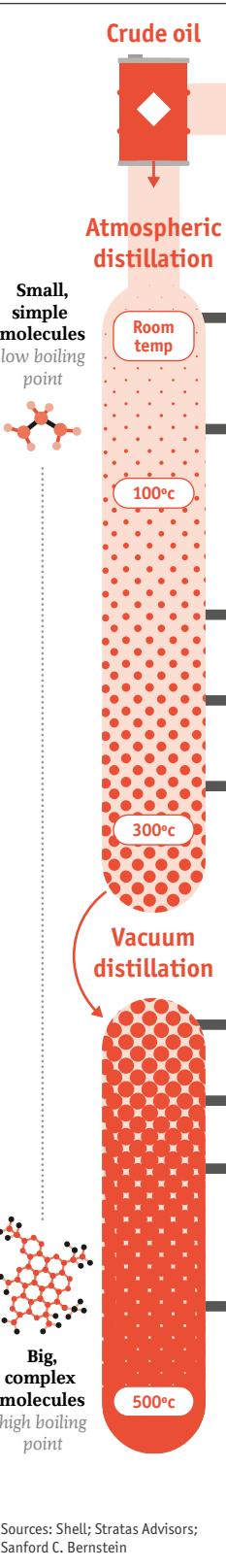
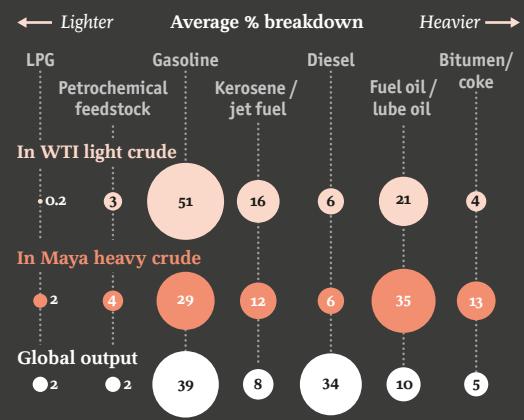
Sweet and sour

There is no such thing as an average barrel of crude: what emerges might be thick, black and gloopy or thin and yellow. In all cases it is a rich cocktail of hydrocarbons. These molecules may have lots of sulphur (sour, to the taste buds of early oil prospectors), or little (sweet). Sulphur can be useful—for instance, in fertilisers—but is energy-intensive to separate.

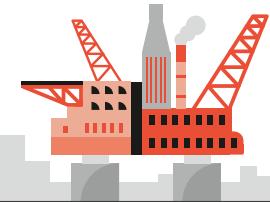


It's so refined

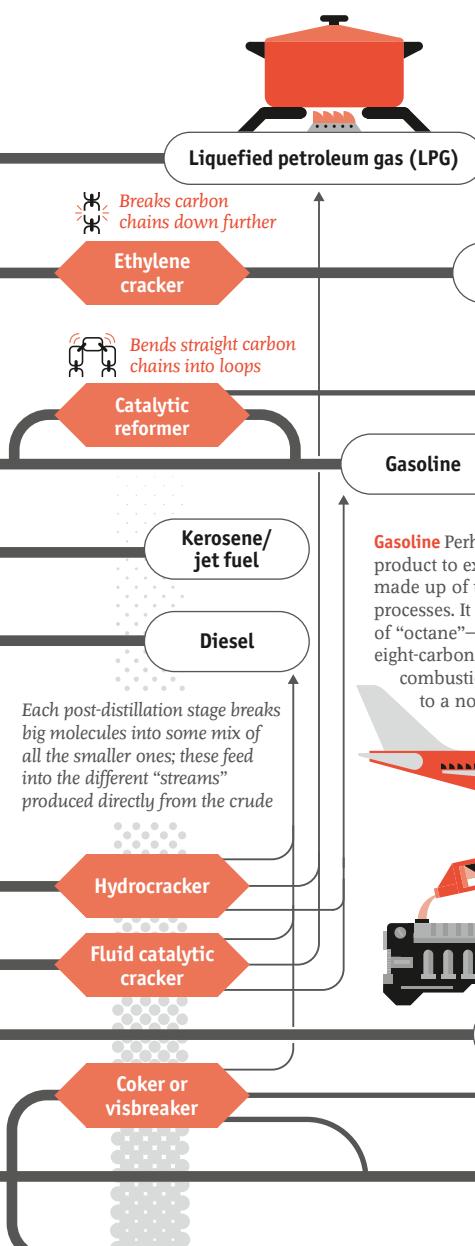
Nowhere does a barrel of oil represent a mixture of exactly what the local market demands: even in light crude, there is too high a fraction of heavier, lower-value molecules. Refining is therefore not just separating what comes out of the ground, but also breaking those big molecules into smaller, more-useful ones.



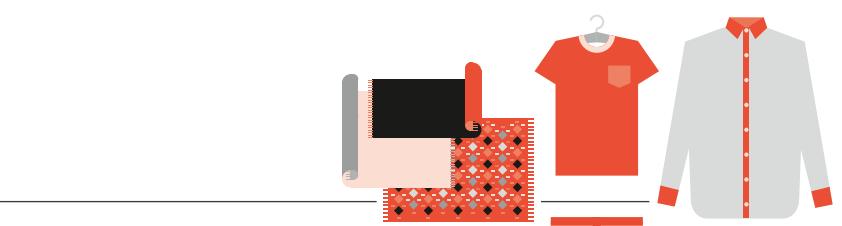
Sources: Shell; Stratas Advisors; Sanford C. Bernstein



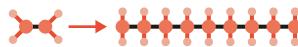
The distillation process The first step is simply to heat the crude oil. Smaller molecules boil at a lower temperature than larger ones, so atmospheric and vacuum distillation (at normal and reduced pressures, respectively) separate these components.



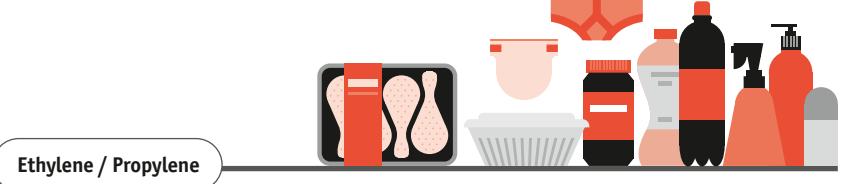
Sulphur atoms in hydrocarbons create oxides when burned ("SO_x") which are harmful to health. So at almost every stage of refining there are steps to remove some sulphur. Since the 1990s, the allowed sulphur content in diesel has dropped from 5,000 parts per million to just 15. The sulphur is sold to sulphate-fertiliser manufacturers among others.



Petrochemicals Cracking and distilling produce some small molecules too valuable to burn. Ethylene and propylene can be carefully assembled into repeating chains of any length. Polyethylene is the world's most common plastic; butadiene is the starting point for synthetic rubber.



Pharmaceuticals Aromatics and other petrochemicals are used and combined to form drugs. Benzene, for example, gives rise to chemicals used to make aspirin and penicillin.



Aromatics These ring-shaped molecules end up in many household chemicals such as paint thinner. Aromatics are also the basis of lots of familiar materials, from nylon toothbrush bristles to polyurethane sofa cushions.



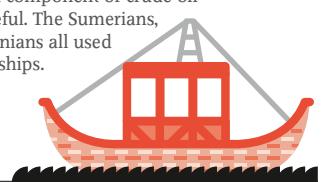
Coke The end of the line for "the bottom of the barrel"—what has not been broken up into higher-value molecules emerges from (and also gets caked into the workings of) various bits of kit, principally the coker or visbreaker. It is sold cheaply into the coal market.



Fuel oil Ships can run on glooier stuff than cars and planes. This makes their exhaust sootier.



Bitumen The tarry stuff on roads and roofs, and probably also the first component of crude oil to be identified as useful. The Sumerians, Assyrians and Babylonians all used it to waterproof their ships.





South Africa

A new hope

SOWETO

Cyril Ramaphosa could save South Africa—if he can reform his own party

HIS broad grin, and his rival's grimace, heralded the big news. On December 18th Cyril Ramaphosa became the new leader of the African National Congress (ANC) and thus its candidate in the next South African presidential election. He will surely take over when President Jacob Zuma's second term expires in 2019—or even sooner.

Mr Ramaphosa is a former trade union boss and anti-apartheid campaigner. He was once tipped to succeed Nelson Mandela, but the party picked Thabo Mbeki instead and Mr Ramaphosa spent the next several years making money. This time he campaigned more effectively, defeating Mr Zuma's preferred successor (and ex-wife), Nkosazana Dlamini-Zuma.

The result was uncomfortably close. Mr Ramaphosa won by fewer than 200 votes out of nearly 5,000 cast at the ruling ANC's five-yearly elective conference. Had the courts not kicked out more than 400 delegates, many of whom supported Ms Dlamini-Zuma, after finding irregularities in their selection, the Zuma dynasty might have kept its lock on power.

Mr Ramaphosa hopes to bring South Africa back from the brink of economic crisis. During the campaign he promised a "moral renewal" of the country and the ruling party. Although he carefully avoided naming names, it was clear that he was talking about the "state capture" that has flourished on Mr Zuma's watch. Well-con-

nected thieves have misappropriated the equivalent of as much as 5% of GDP, by one estimate. Few areas of government are untarnished. Mr Ramaphosa vowed to stop the pillage.

Ms Dlamini-Zuma, by contrast, barely mentioned it. Instead, she proposed to turn South Africa sharply to the left and damn the consequences. She vowed to nationalise industries, mines and land, end the independence of the central bank and create jobs by making the state and state-owned firms employ more people.

Trouble at the top

In response to Mr Ramaphosa's victory the local currency, the rand, surged by almost 5% and the prices of South African government bonds rose. Some of this optimism may be premature. Mr Ramaphosa inadvertently gave a hint of how difficult his task ahead may be when his smile faded as the results of the vote for other leadership positions trickled in.

Of the ANC's new "top six" leaders, three are close allies of Mr Zuma. They include David Mabuza, a provincial party boss and premier (governor) of Mpumalanga, who was elected deputy president of the party. Mr Mabuza, who calls himself "the cat", for his many political lives, is a longtime supporter of the president. According to ANC tradition, as deputy president of the party he is first in line to succeed Mr Ramaphosa as president of the

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party in 2022 or 2027. Joining him in the leadership is Ace Magashule, the premier of the Free State, who was chosen as the party's new secretary-general. Like Mr Mabuza he is a member of the "premier league", the informal name for a group of provincial leaders who are loyal to Mr Zuma and supported his ex-wife.

The presence of Zuma loyalists at the top of the party may constrain Mr Ramaphosa. He has been handed "a poisoned chalice", says Richard Calland, a governance expert at the University of Cape Town. "The [Zuma] candidate has lost, but the faction has won."

Much will depend on how many allies Mr Zuma can muster on the party's 80-member national executive committee. Voting for this had not yet begun when *The Economist* went to press. Some analysts worry that this committee has the power to demand that the party's president step down—as happened with the "recall" of President Thabo Mbeki in 2008. The previous national executive committee was stacked with Zuma supporters who kept him in power despite his unpopularity among rank-and-file members (never mind voters in general).

Such worries are probably overblown. With Mr Zuma entering the twilight of his presidency, power is likely to flow away from him and towards Mr Ramaphosa. The transition could be stormy. John Ashbourne of Capital Economics, a consultancy, warns of a power struggle between Mr Ramaphosa and Mr Zuma over the coming months, until the next national election.

With Mr Ramaphosa at the helm, the ANC is more likely to win the vote in 2019 than it would have been under Ms Dlamini-Zuma. Nonetheless, the party's popularity has been sliding, thanks to the incompetence and corruption that South Africans see in their government. Despite ➤

its aura as the party of liberation from white rule, the ANC can no longer be confident of winning an outright majority.

In a final, defiant speech as ANC leader, Mr Zuma admitted that the party was at a crossroads. Naturally, he blamed his critics. Corruption in the private sector is just as bad as that in government, he declared, without evidence. The media are a force hostile to the ANC and the country, he thundered. Mr Zuma also berated the courts, civil society, party veterans and the ANC's alliance partners, the South African Communist Party and the Congress of South African Trade Unions.

Mr Ramaphosa has a reputation for charm, integrity and pragmatism. If he can reshape the ANC as a party that fixes schools and purges looters, he can perhaps restore its fortunes, and South Africa's. ■

Uganda's royalist tensions

Fall of the mountain king

KASESE

One year after a massacre, conflict in western Uganda remains unresolved

THE palace gates are locked, but the bullet holes remain. It is a year since the Ugandan army and police raided the compound of the Rwenzururu king in the western town of Kasese. More than 100 people were killed, the bloodiest incident in the country for more than a decade. The king, Charles Wesley Mumbere, and nearly 200 people were arrested; they still await trial, on charges including murder, terrorism and treason. "The situation is only calm on the surface," says Geoffrey Madebeya, a local councillor. "Inside, we have tears."

The Bakonzo people, the main ethnic group in Kasese, straddle the vertiginous borderland between Uganda and the Democratic Republic of Congo, in the Rwenzori mountains. It is here, the Ugandan government alleges, that Bakonzo radicals want to carve out an independent kingdom. The king denies this, but people in these parts have long felt marginalised by the state. Deadly violence erupted in 2014 after groups of young Bakonzo men attacked police and army posts. On November 26th 2016, the day before the palace raid, at least 40 civilians and 16 police officers died in clashes at the kingdom's offices and rural police stations.

King Mumbere once led a state of sorts, founded by his secessionist father. From its mountain base the unrecognised kingdom collected taxes, ran schools and sent hopeful letters to the United Nations. In 1982 Mr Mumbere came down from the hills, trading dreams of statehood for a house, some cars and a scholarship to study in America.

Traditional leaders in Africa

Hail to the chiefs

KYEBI

Why people trust their chiefs more than their elected leaders

SATEED by the roadside in the Ghanaian town of Kyebi, Kwame Asiedu explains how for seven years he employed 500 people as illegal gold miners. A stout man in a leopard-print shirt, he says he gave up the business two years ago after growing closer to the local monarch, Osagyefuo Amoatia Ofori Panin, who had campaigned against illegal mining for years (though was powerless to halt it until the state cracked down).

The king, known as the Okyenhene, is revered. This is not unusual. An Afrobarometer survey of 36 African countries in 2014-15 found that 61% of people trusted local chiefs. Among state institutions, only the army was trusted more. Faith in ancient power structures has increased as people have grown more wary of modern and democratic institutions and politicians (see chart).

One reason is because the state is often absent. It is far quicker and cheaper to ask a chief than a far-off court to dispense justice. And because he is local, his ruling may be better informed. Some chiefs also fund health care and education. The power of the chiefs has increased because they provide things the state does not, says George Bob-Milliar of the Kwame Nkrumah University of Science and Technology in Ghana.

Another reason may be that they are seen as less corrupt, even though they tend to follow unwritten customs rather than written laws. A survey of 28 African countries for Transparency International, a watchdog, found that 21% of respondents thought "all" or "most" traditional

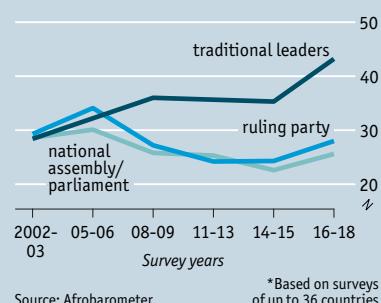
leaders were corrupt. That may seem high, but a hefty 38% said that government officials were, and 47% said policemen were on the take. Only religious leaders scored better. (Even so, 15% of respondents said they were also crooks.)

The trust that chiefs command is enough to give them sway over national politics. Candidates clamour to be photographed with the most powerful chiefs at election time. Governments seek their favour. In May 2017 Ghana doubled the monthly stipends the state pays to senior chiefs and queen mothers to 1,000 and 800 cedis (\$222 and \$177) respectively.

Yet their formal powers are narrow. The Okyenhene says he can bar rule-breakers from important events like funerals, for instance, but not much more. "We have no coercive force," he says. Perhaps this explains why Ghana's chiefs work so hard to keep their people's trust.

Gotta have faith

Africa*, % responding "a lot"
How much do you trust your country's...?



Yoweri Museveni, the president, though he worries about their power.

In Kasese there has been no investigation into the massacre. Peter Elwelu, the commander in charge that day, has been promoted. Maria Burnett of Human Rights Watch says the killings illustrate the "entrenched impunity" of Mr Museveni's regime. Chapter Four, a Ugandan human-rights group, says three people have been killed by the security forces in recent months. A fourth was shot on the anniversary of the raid.

In 1921 the British suppressed the first Bakonzo rebellion by hanging three of its leaders. The state has chosen force over reconciliation ever since. That approach does not work, says a local clan leader. "It may take time for the violence to return," he says. "But as long as the king is not free, it will come." ■

The kingdom was restored in 2009, but only as a "cultural institution" that is meant to rise above politics.

Yet politics is inescapable. The kingdom's supporters lean towards the opposition. The government tried to buy them off, luring the king's brother with a cabinet post. But pumping out patronage may have fed ethnic divisions. "The Bakonzo people have taken our land," complains Nelson Byabasaija, who belongs to an ethnic minority. Other groups soon demanded their own kingdoms, saying they wanted to be free from Bakonzo domination.

Cultural politics are especially intense in Kasese, but the region is not unique. The Ugandan nation was thrown together from a jumble of pre-colonial kingdoms and decentralised societies. Traditional institutions were abolished after independence. They have made a comeback under

Israel and Palestine

Capital failure

CAIRO

The Palestinians are too weak to protest much about Donald Trump

EVEN by the standards of the peace process, this may be a new low. President Donald Trump's advisers have spent the past year shuttling between Israelis and Palestinians. The administration is close to unveiling a peace plan, but its work has already lapsed into what the White House calls a "cooling-off period". When Mike Pence, America's vice-president, visits the Middle East in January, he is unlikely to be received by a Palestinian leader. The latest round of talks may be over before it begins.

The cause is Mr Trump's decision on December 6th to recognise Jerusalem as Israel's capital, while ignoring Palestinian claims to the city. The announcement has undermined America's contention that it is a fair mediator. But it has also highlighted the decrepit state of the Palestinian national movement. Protests against the decision were relatively small—only a few thousand Palestinians turned out at their peak. Eight Palestinians were killed in the violence, but it was hardly on the scale of a new intifada, or uprising.

The muted reaction is, in part, a reflection of the Palestinians' uninspiring leadership. For over a decade Mahmoud Abbas, their ageing president, has toggled between failed peace efforts and symbolic attempts to challenge Israel at the United Nations. Mr Abbas's Fatah party was thrown out of the Gaza Strip in 2007 by Hamas, the militant Islamist group, which won a majority in parliament in 2006. But Hamas's three wars with Israel have brought only misery to the territory, where half the population is unemployed. A glimmer of hope came in October, when the parties agreed to make up. But that deal, like the six reconciliation deals that preceded it, has not been implemented.

The Palestinians feel alone and despondent. Their cause has lost its resonance in a Middle East convulsed by civil wars and proxy battles between Iran, a Shia power, and Saudi Arabia, the region's Sunni champion. Arab countries offered little more than empty condemnations of the Jerusalem decision. Saudi Arabia appears more interested in pleasing Israel, which has become a tacit ally in the conflict with Iran. The Palestinians say that what they have seen of America's peace plan is insulting, but the Saudis have pressed them to support it. Even after Mr Trump's speech, the Saudi foreign minister called his peacemaking efforts "serious".

Ordinary Palestinians have more im-

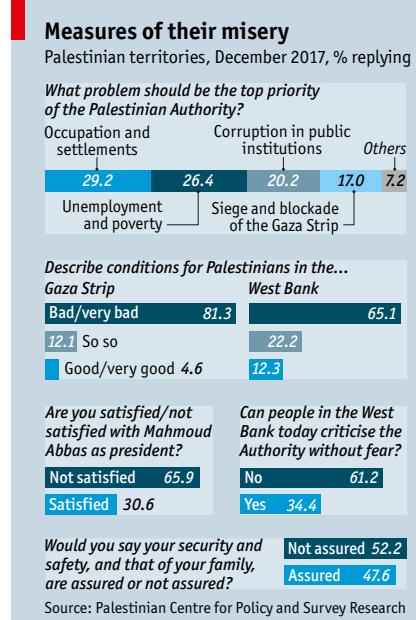
erty and corruption more urgent challenges (see chart).

National elections are eight years overdue. Many Palestinians have thus lost faith in politics. The only democratic exercise in recent years, a local election in May, had a turnout of 53%, down from 70% a decade earlier. The median age in the territories is 19, but the youngest plausible candidate to replace Mr Abbas is well over 60. With peace a dim prospect, many Palestinians are also losing interest in a two-state solution. A survey in August found that 52% of them still favour such a compromise. But support fell to 43% when the pollsters explained what a two-state solution might look like. There is also sharp disagreement over the alternatives, with roughly equal support for a binational state, an apartheid state, expelling the Jews and "other".

Far from being the man to deliver a deal, Mr Abbas has become one of its biggest obstacles. He has little legitimacy to negotiate on behalf of his people, two-thirds of whom want him to resign. Increasingly authoritarian, he seems more concerned with domestic squabbles than the Israeli occupation. "His major goal is just staying alive in politics," says Salah Bardawil, a member of Hamas. But Hamas has done no better.

It is telling that the one burst of successful Palestinian activism in 2017 came in East Jerusalem—where neither Fatah nor Hamas has much influence. When Israel installed new metal-detectors at the Al-Aqsa mosque in July, Palestinians staged protests and Israel backed down.

But some Palestinians living in the city are conceding the bigger fight. From 2014 to 2016 over 4,000 of them applied for Israeli citizenship, a threefold increase from a decade earlier. "The occupation isn't going to end. Israel isn't going away," said a protester in July. "We don't help ourselves if we pretend it will." ■



mediate concerns, such as food, water and shelter. In the West Bank young people dream of leaving for a better life in the West or the Gulf states. On the streets of Gaza, where Hamas once enjoyed broad support, it is now common to hear criticism of the group, and even nostalgia for the days when Israel controlled the territory. Asked to name the biggest problem in Palestinian society, fewer than a third cite the occupation. Many consider unemployment, pov-



A flag in search of a state



Russia's economy

In search of a higher gear

MOSCOW

Recession has ended. But without further reform growth will stagnate

STANDING on stage at the Gorky Automobile Plant in Nizhny Novgorod in early December, flanked by factory workers in blue jackets, Vladimir Putin spoke of the region's history. After volunteers from Novgorod helped 17th-century Moscow overcome the Time of Troubles, the president said, "the united, centralised and powerful Russian state began to develop rapidly." He called upon the car workers to continue in the same tradition. "With the active participation of people like you," he declared, "Russia will keep moving forward." They in turn called upon Mr Putin to announce his candidacy in next year's presidential election then and there. "Everyone in this audience, without exception, supports you," said a worker. He duly obliged—surprising no one.

On the economic front, the Russian automobile is indeed moving forward again, if slowly. After two grinding years of recession, the economy will grow in 2017. Adept policy responses helped stabilise the situation following the dual shocks of falling oil prices and Western sanctions. The central bank has brought inflation below its target of 4%, after it soared above 16% in 2015. Budget discipline has kept deficits at manageable levels. Yet oil-fuelled growth had stalled even before the latest crisis: in 2013, with oil prices around \$100 per barrel, GDP growth was only 1.3%. This year it will be under 2%. Without significant reform, the World Bank reckons it will hover around 1.8% in the coming years.

An economy stuck in second gear presents a challenge for the Kremlin as it prepares for Mr Putin's next term. Such low growth will very soon start to feel like stagnation and affect lifestyles, says Chris Weafer of Macro-Advisory, a consultancy. "The administration is very aware of this and afraid of this as well." Rising incomes throughout Mr Putin's first two terms, when the economy grew by some 7% a year on average, provided the foundation for his popularity. Since his return to the presidency in 2012 after a term as prime minister, his assertive foreign policy has replaced economic progress as his main achievement in Russians' eyes. In a bid to generate excitement about next year's election, it will be held on March 18th—the anniversary of Russia's annexation of Cri-

mea. While his victory is in little doubt, he cannot count on the annexation's afterglow to block out pocketbook problems much longer. "We have a very patient population, but it won't continue eternally," says a senior Russian official.

Much will depend on what Mr Putin does after the election. "Every time Putin starts a new term, he begins with a new reform package," says Alexander Ivlev of EY, an accountancy firm. Russia's policymakers agree that change is necessary, "but there are strategists and tacticians," says Natalia Orlova, chief economist at Alfa-Bank. "There are those who say we will only get moving with structural reforms, and those who acknowledge that structural reforms in this system are highly unlikely, and aim to take small steps forward." The former approach is embodied by a respected ex-finance minister, Alexei Kudrin, at the Centre for Strategic Research. The latter camp is centred at the Ministry for Economic Development, led by its 35-year-old minister, Maxim Oreshkin.

Although the two groups work together closely, their priorities differ. The strategists regard deep institutional changes as essential to reviving up the economy. They speak of reining in law enforcement (which is often used to settle scores); shifting resources from defence to education and health care; raising the pension age; and reducing the state's share of the economy. "The main problems lie within Russia and they are structural and institutional," Mr Kudrin has said. The tacticians emphasise improvements to the way institutions work, without radical change, such as better staff, greater efficiency, more predictable business conditions and finding better ways to target investment. "There won't be a big plan, because big plans nowadays don't work," says Mr Oreshkin.

The government hopes that gradual changes will create the conditions for more ►

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► diversified development. A new fiscal rule, imitating Norway, aims to isolate the economy from volatility in the oil price. When it is above \$40 per barrel, additional revenues will be used to rebuild reserve funds that have been depleted in recent years. Russia has been climbing in the World Bank's ease of doing business ratings, rising from 120th in 2012 to 35th in 2017, overtaking America in the ease of starting a business and enforcing contracts. A host of fresh-faced governors appointed by Mr Putin this year are also doing their bit.

Yet that alone will not be enough to jump-start growth. Even meagre gains are

proving hard to sustain: after outperforming in the second quarter, the economy slowed again in the third. Looming questions over how America will implement its latest sanctions on Russia have made foreign investors squeamish. Domestic investment remains heavily state-dependent. Ms Orlova reckons that 90% of new investment in 2017 came from three large state-backed infrastructure projects: the construction of a gas pipeline from Siberia to China, the renovation of Moscow and the erection of a bridge from Russia's mainland to Crimea. Mr Putin's much-needed higher gear is looking hard to find. ■

German gastronomy

Schaffe, schaffe

BAIERSBRONN

The Swabian village with a Michelin star for every 2,000 people

OBVIOUS to the Saturday evening clatter in his kitchen, Jörg Sackmann furrows his brow in concentration. "Foam!" he commands, teasing strands of onion into a loop and spooning a warm egg yolk into the centre. A young saucier pours a pan of bubbles around the edge of this "onion carbonara". Peering intensely through half-moon glasses, Mr Sackmann sprinkles on black pepper: "not too much and not too little".

In 2014 such dishes won Mr Sackmann his second star in the Michelin Guide, the gastronome's bible. Along with two three-star restaurants at the neighbouring hotels Bareiss and Traube Tonbach, this took his south-west German village of Baiersbronn to a total of eight stars. London has about one star for every 100,000 people; Paris one for every 16,000. This quiet corner of the Black Forest has one for every 2,000.

The secret is balance. Baiersbronn is just provincial enough. Poor soil and isolation made pioneers of its residents. They invented chipboard to use up bits of tree that could not be made into planks. When the Spanish coasts threatened their nascent post-war tourist industry, they turned to gastronomy. Heiner Finkbeiner, owner of the Traube Tonbach, recalls rising every morning at 5am to drive to Strasbourg to buy goose liver.

Though creative, Baiersbronn cooking is also unfussy. A typically Swabian sobriety and practicality—"schaffe, schaffe, Häusle bau" (work, work, build your little house") goes the local motto—inores its chefs to gimmickry. Hundred-ingredient dishes and foodstuffs in disguise are absent. "The food must look, smell and taste like what it is," insists Claus-Peter Lumpp, who won the Bareiss its third star.

The restaurants' friendly rivalry il-



Take that, Paris

lustrates the third equilibrium behind the village's success: competition drove standards up, but collaboration helps keep them high. Along with other local businesses, for example, they devised a new curriculum for local schools, replacing traditional courses with culinary arts. A flat hierarchy—typical of Germany's family-owned *Mittelstand* companies—encourages recruits to resist the lure of city restaurants and keep their skills in the village.

Not all do. Baiersbronners boast that top restaurants all over the world contain chefs who have passed through their kitchens. Its alumni network has collectively won at least 82 stars (if it were a country, it would rank 12th in the world). But, they typically add, the village's history, Swabian values and corporate culture make its recipe for gastronomic success hard to replicate elsewhere. It is rooted in Baiersbronn's harsh soil.

Politics in Austria

Vienna calling

BERLIN

The populist right comes back in from the cold

IT IS a measure of populism's rise that the announcement of a coalition deal between the centre-right Austrian People's Party (ÖVP) and the right-wing Austrian Freedom Party (FPÖ) on December 16th caused barely a ruffle. When the two last formed a government, back in 2000, the news provoked diplomatic sanctions: visits and meetings were cancelled. No longer exceptional, Austria faces no sign of any such quarantine in Europe today.

To be sure, there are concerns in Berlin and Brussels. The FPÖ, which has a "co-operation agreement" with Vladimir Putin's United Russia party and is close to the autocratic leaders of Hungary and Poland, will henceforth run Austria's foreign, interior and defence ministries—and with them the country's diplomatic and security services. But this is a shift of degree, not direction: the Alpine republic has long been doveish on Russia and closer to the central Europeans than to Angela Merkel on both immigration and Islam. The coalition agreement commits Austria to the EU and the euro, and Sebastian Kurz, the incoming chancellor, will take over European competences that used to sit in the foreign ministry (as did he).

If Austria in 2000 presaged the recent populist surge, the country's new government, too, may contain glimpses of wider trends. (Something similar already exists in Norway, where the Conservatives govern in alliance with the more populist Progress Party.) Taking over as leader only in July, Mr Kurz took his ÖVP from third place to first by melding a modern style (sidelining the dinosaurs and recruiting candidates from outside politics) with a commitment to do something about Austrian economic underperformance, coupled with an uncompromisingly right-wing stance on crime and immigration. Conservatives elsewhere in Europe are watching with interest. Jens Spahn, a junior German finance minister who is regarded as a possible successor to Mrs Merkel, snapped selfies with Mr Kurz at the ÖVP's election-night party on October 15th.

Meanwhile, the FPÖ's revival—its six-year spell in government from 2000 split the party and cost it half of its voters—under Heinz-Christian Strache is a model for populist nationalists. "HC", as he is known, gave the party a more youthful image, embraced social media before other politicians and rejected the FPÖ's erstwhile anti-Semitism (recognising Jerusa-

► lem as Israel's capital long before Donald Trump) in favour of an anti-Islam credo. France's National Front and the Alternative for Germany party have both taken inspiration from his strategy.

The coalition agreement is a synthesis of the two men's political projects. Maintenance payments for accepted refugees will more than halve to €365 a month, and newcomers will have to hand over any cash they have and waive some rights to medical secrecy. Islamic schools will be monitored more closely and closed if they break rules or accept foreign funding. Drugs and sex crimes will attract tougher sentences. Over 2,000 more police will patrol the streets. Income and corporation tax will fall. Austria's corporatist labour and welfare model will be liberalised: maximum working time will rise to 12 hours a day, for example, and job-based insurance funds will be consolidated.

But can Mr Kurz avoid being forced to make less palatable concessions to the FPÖ? Some in Vienna (including *Die Presse*, an ÖVP-friendly newspaper) compare him to David Cameron, another metropolitan conservative reliant on the Eurosceptic right. "What Tory hardliners were for Cameron the FPÖ could be for Kurz," predicts Josef Lentsch, a think-tanker who is close to the liberal NEOS party, adding that although an "Öxit" referendum on EU membership is off the cards, the new chancellor will soon find himself under pressure to pick fights with Brussels and edge closer to the nationalist governments to the east. "I trust that the Austrian government will continue to play a constructive and pro-European role," said Donald Tusk, president of the European Council, on December 18th. Behind the affirmation lay a none-too-subtle warning. ■



How far right will Strache pull Kurz?

European jihadists

They're back

VILVOORDE

Islamic State's foreign fighters return to homelands that do not want them

LAST month a court in the Netherlands convicted a 22-year-old Dutch woman of helping to plan terrorism. It then set her free. Laura H. (her last name is protected under Dutch law), a Muslim convert, had moved to territory controlled by Islamic State (is) with her Palestinian-Dutch husband in 2015, hoping to find a theocratic paradise. Quickly disillusioned, she spent a year planning her escape with the help of her father back home. The plan went wrong. As recounted by Thomas Rueb, a Dutch journalist, Laura and her children were nearly killed in a firefight before stumbling into the hands of Kurdish soldiers. The court ruled that by moving to is-held territory with her husband she had aided terrorism, but found her 11 months of pre-trial detention to be enough.

Laura is one of about 5,000 residents of the European Union who have gone to Iraq and Syria since 2014 as jihadist fighters or supporters. Over the past six months, as is has collapsed, Europe has braced for the prospect of more jihadists coming home, bringing their combat training (and combat trauma) with them. Whereas some may be disillusioned with radicalism, others are likely to engage in terrorism. Returned jihadists have already taken part in attacks in Belgium and France. Security services face the task of tracking them as they re-enter Europe. Courts must decide whether to lock them up. Social services must figure out how to reintegrate them into society.

France faces the biggest challenge. Its interior ministry says 1,700 French have joined the fighting. Emmanuel Macron, the president, has promised that returning fighters will be tried, while women and children will be treated on a "case-by-case" basis. So far the challenge seems manageable: only 302 had returned by November, and there has been no noticeable surge.

But that could soon change. In the chaos of is's collapse, most of its European jihadists are unaccounted for. "Until a year ago we had good estimates of who was fighting where. Now that overview is lost," says Edwin Bakker of the International Centre for Counter-Terrorism in The Hague. Many will have been killed. However, the BBC reports that hundreds of is fighters, including some Europeans, escaped the fall of Raqqa. Pieter van Ostaeyen, a Belgian academic who tracks jihadists, says some may be heading for conflict zones in north Africa; others may

target Europe. "Wherever they find an opportunity to wage is's war, that's where they will go," he says.

Vilvoorde, a Belgian town just north of Brussels, is trying to make sure it is not one of those places. In the two years before is declared its state, 28 people left the town of 40,000 to join jihadist groups in Syria, believed at the time to be the highest share in western Europe. But after 2015 no more joined them. The town chalks its success up to an intensive programme of engagement with communities and families to identify youth at risk of radicalisation.

Hans Bonte, Vilvoorde's mayor, says his government's close links with the Muslim community help it prevent returned jihadists from engaging in crime. Of the 28 who left, eight have come back; six of these are in prison, one has died, and one has been released and is reintegrating peacefully.

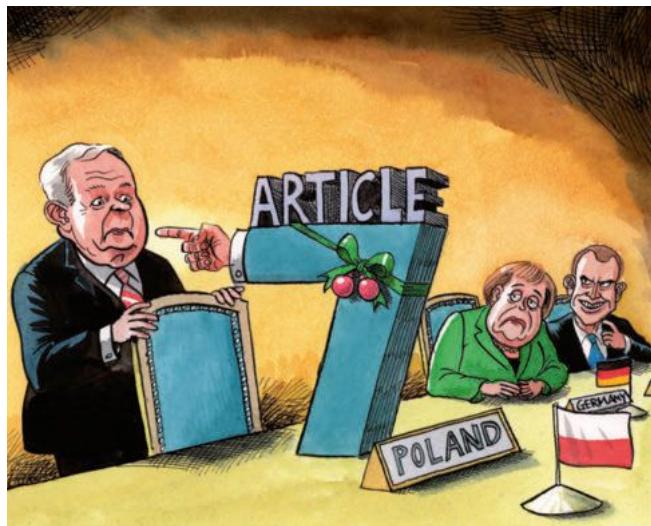
But even Vilvoorde suffers from Europe's biggest counter-terrorism weakness: poor communication between security agencies at home and abroad. The imam who allegedly masterminded the attacks that killed 13 people in Barcelona in August, Abdelbaki Es Satty, stayed in Vilvoorde in 2016 and tried to find work at a mosque there. Mr Bonte says members of the mosque alerted his government and Vilvoorde police contacted Spanish authorities, who failed to inform them that Mr Es Satty was suspected of terrorist links.

Co-operation against terrorism is getting better. Europe-wide arrest warrants and an improved information system make it easier to pick up returning jihadists as they re-enter Europe. But some of the problems revealed after the attacks in Paris and Brussels in 2015 and 2016 have yet to be resolved. "Brussels is chaos," says Mr Bonte. The city is divided among 19 municipalities and six separate police forces, which find it hard to co-ordinate their counter-terrorism efforts.

Then there is the problem of how to treat the returned jihadists. Some in the Netherlands criticised the leniency of Laura H.'s sentence. But punishing relatively innocuous returnees harshly has the downside of alienating other Muslims, and can damage anti-terrorism co-operation. Penning returning jihadists together in jail for years may only exacerbate the problem. As André Seebregts, a Dutch lawyer who represents jihadists, puts it: "I don't think I know any who have become less radical in prison." ■

Charlemagne | A seat at the table

There are no good options for dealing with Poland's government



AMONG the many delights of Christmas Eve (*Wigilia*) in Poland is the custom of setting an empty place for an unexpected friend, relative or stranger who happens to drop in. The tradition is grounded, depending on whom you ask, in Biblical practice, remembrance of deported compatriots in war or pagan ancestor-worship. It emerged centuries ago, but survives at many carp-laden *Wigilia* tables across the world.

Inside the European Union, though, Poland's populist-nationalist government is coming close to empty-chairing itself. Driven by the views of its leader, Jaroslaw Kaczynski, the ruling Law and Justice (PiS) party has spent two years sucking the independence from public institutions in a bid to reverse perceived wrongs of the post-1989 settlement. The European Commission, which as the guardian of EU treaties monitors such things, has spent the same period impotently wringing its hands. Having already defanged the constitutional tribunal, the Polish parliament passed laws in July that would, among other things, have obliged many Supreme Court judges to resign. (The government claims the court is riddled with communist holdovers.)

The commission was set to invoke Article 7, an as-yet unused provision of the EU treaty that requires national governments to consider whether one of their number is threatening the rule of law. It stayed its hand when Andrzej Duda, Poland's president, unexpectedly vetoed the laws. Some hoped he might emerge as a roadblock to Mr Kaczynski's permanent revolution. But his act was better understood as a complex piece of manoeuvring inside PiS. Both chambers of the Polish parliament have now passed versions of the earlier laws with only cosmetic revisions, and Mr Duda has signalled that he will soon sign them. The Venice Commission, an arm of the Council of Europe, an intergovernmental club that protects human rights, says PiS's reforms bear a "striking resemblance" to instruments of the Soviet Union.

Its patience exhausted, the commission is once more on the verge of triggering Article 7. Its vice-president, Frans Timmermans, could announce a decision as soon as December 20th—quite the Christmas present. This would hand responsibility to the EU's national governments. Angela Merkel and Emmanuel Macron back the commission's stance. Even the Czechs, allies of the Poles inside the central European Visegrad group, are said to

be ready to back Article 7.

Dealing with members that undermine the rule of law is perhaps the gnarliest of the EU's army of problems. From Italy to Hungary to Romania, governments have long thumbed their nose at principles, including respect for the rule of law, to which their membership of the club supposedly commits them. Officials in Brussels face an impossible dilemma. Ignore transgressions, and you advertise your weakness while encouraging other miscreants. Deliver homilies on the rule of law to elected governments, and you become an easy target for their barbs. Many Polish voters, fed a propaganda diet in public media that PiS has weaponised, do not mind their government's squabbles with the EU. Along with the nationalist Fidesz, which governs Hungary, PiS is among the most popular ruling parties in Europe.

Pulling the trigger this week, or soon afterwards, would hardly change that. The first stage of Article 7, which needs the backing of 22 out of 27 governments, would merely give Poland another rap over the knuckles. Stripping Poland of its voting rights, which would need unanimous support from the other members, would almost certainly be blocked by Hungary's Viktor Orban (and other governments that prize EU unity, like Germany's, would take a lot of convincing). The danger, as Jan-Werner Müller, a professor at Princeton, has written, is that "the EU comes across as imperialist in aspiration and impotent in practice." Wojciech Przybylski, editor of *Visegrad Insight*, a Warsaw-based journal, notes that Article 7 also places Poland's opposition in a bind: back the government, or side with foreign interests against it?

Aware of the limits of their tools, politicians outside Poland have pinned their hopes on other things: Polish civil society, a run on sovereign bonds triggered by PiS's profligacy, the political opposition and, most recently, Mr Kaczynski's appointment of Mateusz Morawiecki, the brainy, English-speaking finance minister, as prime minister. (Mr Kaczynski himself quietly rules the country without a government role.) None has materialised. Poland's booming economy keeps the deficit down (for now); the opposition is divided and demoralised; and the protest movement is visibly exhausted. As for the urbane Mr Morawiecki, last week he decorously compared his government's judicial purges to the experience of post-Vichy France, before leaving his first summit of EU leaders in Brussels early to catch a flight back to Warsaw.

Money talks

If Brussels has painted itself into a corner, can Europe's governments do any better? Germany, distracted by drawn-out coalition talks, is out of ideas. Perhaps Mr Macron will have more luck. He has been trying to patch things up with Poland after a summer war of words, and last week Mr Morawiecki invited him to attend Poland's centennial independence celebrations next November. Some wonder if a revival of the French-German-Polish "Weimar triangle", once a fruitful forum for political and military discussions, could bring Poland in from the cold.

Alas, the EU budget, for which negotiations begin next year, is the more likely arena to settle the dispute, and Poland, a major beneficiary of EU subsidies, is in for a rough ride. Some rich governments are already vowing to use the talks to punish countries like Poland that refuse to take in refugees. Backsliding on rule-of-law commitments will strengthen their case. It will be an unedifying and unwelcome spectacle, but if Poland remains determined to lose friends and alienate people, in Europe and beyond, the rest of the EU will not feel bound to help it. ■



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Brexpats

iAdios, amigos!

CIUDAD QUESADA

The great migration of British pensioners to Europe appears to have peaked

CIUDAD QUESADA is a town built for leisure, and little else. At three o'clock on a Friday afternoon, activity can mostly be found on the terraces of pubs along the main drag. Up the hill, at the local bowls club, members decompress after a top-of-the-table clash against a local rival. One of their number, Tony Goddard, an amiable former construction manager, pauses while drinking whisky and gestures to the sun. "That's why we're here!"

For decades, the lure of blue skies, cheap living and good food have drawn British pensioners to the continent. Pinning down precise numbers is difficult, but Britain's Department for Work and Pensions says that around 340,000 people living in the European Union draw British pensions (this excludes Ireland, where another 135,000 are based). Many end up in towns-cum-retirement-communities dotted along the Mediterranean coast, like Quesada, which sits on Spain's Costa Blanca. A common architectural style—think Roman columns and whitewashed porticos—was once described by J.G. Ballard, a British novelist, as “apparently imported from Las Vegas after a hotel clearance sale”. One local recounts the pitch when he moved out in the late 1980s: “Buy a castle in Spain” for just a few thousand pounds.

Yet the pitch is no longer so alluring. Despite a greying population, the growth in the number of British retirees in Europe is slowing. In 2005 the number drawing a

British pension in the four main continental destinations (France, Italy, Spain and Germany) grew by 8%; by 2010 the growth rate had fallen to 4.8%; last year it was 0.9% (see chart). Other measures also point to a recent fall. On present trends, 2018 could be the year that the population of British pensioners on the continent begins to decline.

Economic factors are the main reason for the slowdown. In the boom years, from the mid-1990s to 2007, the strong British economy and a growing industry dedicated to helping oldsters move abroad allowed “people to sign up to a lifestyle that had previously been the preserve of Mick Jagger in Mustique”, recalls Andy Bridge, managing director of A Place in the Sun, a publishing and events company linked to a

Setting sun

Number of residents in selected European countries* receiving British pensions
% increase on a year earlier



daytime television programme of the same name.

Then economies across the Mediterranean stalled, destroying local property markets. Since 2008 the average price of a house in Spain has fallen by a third. Concrete skeletons litter the country's southern coast, a memory of projects abandoned during the crash. Many expat Britons fell into negative equity and were unable to escape back home—a poor advertisement for those considering a move. Moreover, weak European economies were hardly an enticing prospect for those who wanted to continue to work part-time. On the Costa Blanca many British pensioners take up work, some informally, after finding that their savings do not go as far as expected, says Andy Ormiston, a local Scottish resident.

Changes to the British economy also had an impact. Rising property prices have stopped youngsters flying the nest: according to the Office for National Statistics, 26% of 20- to 34-year-olds now live at home, up from 21% in 1996. This has cramped the wanderlust of their parents.

In the years after the financial crisis, Britons thinking of a move unsurprisingly grew more cautious. “Nowadays you have a better-informed buyer who is clearer on what they want, what they can afford and why they are moving abroad,” says Mr Bridge. Numbers are growing faster in France than Spain, perhaps suggesting that the average new expat is better off than before. In a poll by YouGov for HSBC’s expat-banking division, two-thirds of British pensioners in Spain cited the lower cost of living as a reason for their move, compared with only a fifth of those in France, who were keener on the culture and lifestyle.

Brexit has not yet had a dramatic impact on pensioners’ migration patterns. On the one hand, some have been put off

► moving abroad by the depreciation of the pound, which is worth 14% less against the euro than it was the day before the 2016 referendum. On the other, some people have brought forward plans to emigrate so that they can be grandfathered into whatever system emerges after Brexit, says Roger Boaden of Expat Citizen Rights in EU, a campaign group registered in France.

The long-term impact could be more pronounced. Much depends on Britain's exit talks with the EU. A deal provisionally agreed on December 15th would guarantee expat British citizens the right to remain. Yet pensioners, who may have seen little reason to maintain up-to-date paperwork, could face problems proving their residential history. A report from the Migration Policy Institute Europe, a think-tank in Brussels, argues that "regardless of what happens with the deal on citizens' rights, there is likely to be a massive increase in UK nationals who find themselves in legal limbo." It is possible that many will end up undocumented, with reduced access to services, or that they will move back to Britain in droves, reckons Meghan Benton, the report's author.

Spanish locals on the Costa Blanca are unfussed by the prospect of fewer Britons arriving, confident that other Europeans will make up the numbers (there has been a recent influx of Russians, for instance). The mood at the Quesada Bowls Club is similarly sanguine. It is ultimately quite simple, reckons one member: "They can't afford to be kicking us out." Perhaps. But consternation about the rights of incomers could nevertheless reduce the pull of a retirement in the sun—a key selling point of which is, after all, avoiding the stresses and strains of life back home. ■

The Brexit negotiations

Trade-off time

BRUSSELS

As Brexit talks move to the next phase, ministers face awkward compromises

IT IS unusual to hear applause at a European Union summit. Yet that is what greeted Theresa May in Brussels on December 14th after she explained to her fellow leaders the Article 50 withdrawal terms for Brexit. The summit duly agreed a day later to move on to the next phases in the talks, covering transition in January and the framework for future trade relations in March. And on December 19th the prime minister called a full cabinet meeting to discuss, for the first time, exactly what trade deal to ask for.

As they belatedly start this debate, ministers must face several unpalatable trade-offs. Any transition period will have to be on the EU's terms, meaning acceptance of all its rules, including free movement of people. And because the Article 50 divorce will be given treaty force before a new trade agreement can be struck, Britain's exit bill of around £40bn (\$54bn) cannot be used as leverage to secure a better deal, as some ministers once hoped. But the trickiest trade-offs of all concern the precise terms of the future trade relationship. As Germany's Angela Merkel remarked in Brussels, this will be the toughest part of the negotiations.

The summit conclusions called for greater clarity from Britain over what it wanted for the future trade relationship.

Some diplomats now expect Mrs May to make a big speech on this early in the new year. But EU negotiators are emphatic about the limits to what they will offer her. If Mrs May sticks to her insistence that Britain must leave both the single market and the customs union, and wants to diverge from EU regulations, she will only be able to have a trade deal similar to Canada's, which covers most goods but barely any services. If she wants better terms than this, she will have to accept single-market rules, just as Norway does.

As one British official puts it, Brussels is proposing Canada, while Britain wants cake. The big question is whether Mrs May can secure a deal somewhere between Norway's and Canada's. Helpfully, a pair of new reports have just been published by the Institute for Government and the Institute for Public Policy Research, two London-based think-tanks. Both support close regulatory alignment, and add that any divergence that may be possible can come only at the price of reduced access to the single market. But even so they offer hope of some middle way. The IFG paper talks of a "regulatory partnership model"; the IPPR proposes a new "shared market".

Yet for all the ingenuity of these ideas, there are few signs of flexibility from Brussels. Michel Barnier, the chief EU negotiator, repeated this week that Britain could not have a bespoke deal that gave it the substantial benefits of Norway with the light obligations of Canada. Experience in the first phase of the Brexit talks shows that the EU has most of the bargaining power. And there are legal constraints: if the EU offered Britain a more generous deal than Canada's, it would be obliged by the conditions of earlier deals to give the same terms to several countries, including Canada.

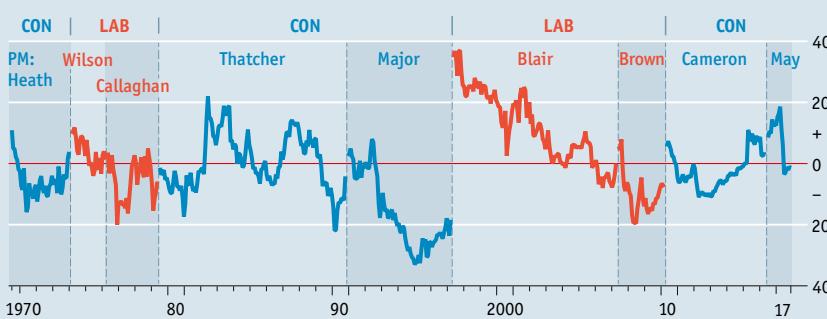
Then there is the issue of the Irish border. Mrs May once again promised her fellow EU leaders that there would be no hard border with physical infrastructure after Brexit. The Article 50 deal specifies that, unless some other solution is found, Britain promises to maintain "full alignment" with most EU regulations. But Leo Varadkar, the Irish prime minister, said in Brussels that he could not see a way to square the circle of Britain leaving the single market and customs union with its undertaking to avoid a hard border.

After a dreadful year, Mrs May is ending 2017 on a highish note, with many plaudits for her provisional deal on the first phase of the Article 50 talks. But she has little time to resolve the trade-offs of the next phase: the EU wants an agreement by the autumn. The economy looks wan and Parliament is newly restive, securing yet another concession from the government in the week before Christmas over the possibility of changing the date for Brexit. If she thinks this year has been difficult, Mrs May will find 2018 harder still. ■

Top of the flops

No prime minister in half a century has suffered as steep a drop in popularity as Theresa May did this summer. In three months the Conservatives' share in the polls fell by 22 percentage points. It took voters five months to turn so strongly against John Major, and eight months to grow so weary of Gordon Brown. But whereas those two leaders eventually fell further, Mrs May seems to have pulled out of her nosedive. Faced with the alternative of Jeremy Corbyn, voters may reckon they can live with her. Another year of Brexit talks—the next one much harder than the last—may yet make them think again.

Britain, government poll lead over opposition, percentage points



Sources: Mark Pack; various polls



Sexual harassment

#YouToo?

This year has seen an explosion of rage against men who abuse women. Will it lead to lasting change?

YOU have applied for a job and the interviewer asks you a question that lands like a bombshell: do you have a boyfriend? Then another: do people find you desirable? And a third: do you think it is important for women to wear bras to work? If you are a woman you probably know what you would do. Perhaps you would refuse to answer, complain or walk out. You would certainly be furious.

This is how 197 female American undergraduates, asked to imagine such an interview, said they would react. But they—and probably you—were wrong. The psychologists who asked them, Marianne LaFrance and Julie Woodzicka, orchestrated a real-life version of this ordeal, by advertising for a research assistant and arranging for male accomplices to interview the first 50 women who applied. Half were randomly chosen to be asked those three questions. Not one refused to answer, let alone complained or walked out. When they were asked afterwards (and offered the chance to apply for a real job), they said they had felt not anger, but fear.

An ethics review board had let the experiment go ahead when it was assured that the interviewers would go no further than off-colour questions. And yet videos of the interviews showed how much this supposedly minor sexual harassment

threw the women off their stride. They plastered on fake smiles, ummed and ahhed, paused and trailed off more often than the control group. Ms LaFrance, who studies non-verbal communication, says they “screwed up the interviews”.

In a final twist, the researchers showed clips of the videos to male MBA students. Fake smiles are fairly easy to tell from real ones: they involve fewer facial muscles and do not crinkle the corners of the eyes. But many of the men saw the women as amused, even flirtatious. Men often lack the motivation to read the signs of women’s feelings, says Ms LaFrance. But they can learn if they want to. When she offered course credit to the students who learned to spot the fake smiles, plenty succeeded.

This experiment was carried out in 2001, long before the events of 2017 blew open the extent of sexual harassment of women at work by powerful men. But it was a masterful demonstration of how such abuse works—and of the misconceptions that have enabled it to continue for so long. It revealed the differences between what women think they would do if they were sexually harassed and what they actually do; between the perception of verbal harassment as trivial and the harm it causes to women’s work performance; between women’s and men’s notions of

what counts as sexual harassment; and between women’s feelings and men’s perceptions of them.

This year has shown that these differences are still wide. It has seen the long-overdue punishment of some brutish men who had groped and leered their way round their workplaces. But has there been a permanent shift in what society will tolerate? Or will the moment pass, and a new generation of powerful men slyly take up where a previous one left off?

One place to look for an answer is in the way other social norms have changed. From the abolitionists’ fight against slavery in the 19th century, to campaigns against domestic violence in the 1970s, to demands for same-sex marriage from the 1990s, progress comes in stops and starts, with many reversals. Campaigners must defeat vested interests, incomprehension and ridicule. Cristina Bicchieri, a philosopher at the University of Pennsylvania and the author of “Norms in the Wild”, a book about social rules, has a warning: “Don’t expect the birth of a new norm to be easy.”

From the top

With hindsight, this year’s flood of allegations had its source in 2016. During Donald Trump’s presidential campaign, a sound recording revealed him boasting of serial harassment and groping. His election just a month later showed that American politics had become so polarised that this did not disqualify him in the eyes of most Republican voters—though Alabamans rejected Roy Moore in a Senate race this month, after he had been accused of harassment and assault by several women, including one who was 14 at the time. And yet among some people Mr Trump’s vic-

▶tory inspired a longing for powerful, abusive men to face a reckoning. The Women's March against his inauguration was the biggest day of protest in America's history.

The dam broke in October, with accusations of harassment and assault against Harvey Weinstein, a film producer. Since then dozens of prominent men in show business, journalism and politics have been accused of sexual harassment, and been sacked or stepped down. The #MeToo hashtag has already been used 4.7m times on Twitter by women (and a few men) whose harassers were not famous enough to make the news.

Both sexes have found the outpouring astonishing. Many men are amazed to learn that so many women have suffered sexual harassment. For women the surprise is that perpetrators are being punished at last.

Norms under construction

Social change often starts with a grassroots movement. It can promote new ways of thinking, or reveal injustices that had long been ignored. New behavioural rules may follow. But if these emerging norms are not embraced by big parts of the population, they will not become entrenched. And if transgressions are seen to go unremarked or unpunished, they will continue.

Progress is often halting. Until the past few years, when same-sex marriage became law in dozens of countries, gay-rights campaigners suffered a string of defeats. Progress can also be incomplete. The past half-century has seen the criminalisation of rape within marriage and tougher laws against domestic violence. However, both crimes are still common, and rarely punished. Some mass movements end in failure. America's temperance campaigners achieved Prohibition in 1920. Just 13 years later the bars came out of hiding and were back in business.

Ms Bicchieri emphasises how exceptional people often get the process started. They may be braver than the average person, or more motivated—or have less to lose. If there are enough of them, the trend can accelerate, because each new follower makes it easier for the next.

During the 1950s the number of black students on American campuses increased by a third. Students were central to the success of the civil-rights movement as they could go on marches or stage sit-ins without being sacked. In the 1970s some battered wives, fired up by second-wave feminism, left their husbands and set up refuges, making it easier for other abused women to join them. The AIDS epidemic of the 1980s galvanised gay men who had lost loved ones to come out. The fight for treatment forged a disciplined movement that won the battle for same-sex marriage three decades later.

As a trend builds, so does public aware-

ness. Even defeats can keep campaigners' demands in the public eye. When civil-rights marchers were arrested and beaten, it became harder to ignore discrimination against black people. Abused women in refuges were more visible than those at home, boosting support for stricter laws against domestic violence. As friends, colleagues, uncles, aunts, brothers and sisters came out, the straight majority was confronted by the fact that gays were not freaks. The share of Americans who supported gay marriage grew from little over a quarter in 1996 to a majority in 2011.

Looking back, it can be startling to see how blind people were to injustices that were kept private by custom. Domestic violence used to be a family matter. Doctors thought it was rare, and that victims had psychological problems. The *Journal of Marriage and Family*, founded in 1939, had no entry for violence in its index for its first 30 years. It is now widely accepted that one of the most dangerous places for women and children is the home.

For sexual harassment, this process of general enlightenment is well under way. Each new woman who shares her story, and each perpetrator who loses his job, inspires more women to come forward and more firms to revisit allegations they had long ignored.

Once a new idea is in the air, it can catch on, or it can fade away. If it is to survive, society needs to form a new "normative expectation", a shared belief about how to behave. This is a delicate moment.

Shining a light on bad behaviour may have unintended consequences. Campaigners against date rape on university campuses, for example, must take care that

revealing how many women have been victims does not lead some men to conclude that, if date rape is really so common, it cannot be particularly serious. Alternatively, bystanders may conclude the problem is being exaggerated or exploited to make a political point—as a Democratic ploy to harm Mr Trump, for example. It is worth explaining that a few prolific men can leave many victims.

Or the new way of thinking may spread within certain groups, but fail to convince the public at large. The emerging norm will then be enforced patchily, if at all. Few people will intervene to stop an act they think should not merit sanction. They may even go as far as helping transgressors to evade what they see as an unfair penalty. If a law is not widely agreed to be just—harsh punishment for the possession of marijuana for personal use, say—then the authorities often turn a blind eye.

The main reason for the repeal of Prohibition was that the temperance movement never managed to persuade most Americans that drinking alcohol was truly wicked. Among the world's most widely flouted laws are those against speeding. Many drivers see little harm in it: some will even flash their headlights to warn others of speed traps ahead. In most countries where female genital mutilation (FGM) is common, it is formally banned. But prosecutions are rare.

At the moment, the most egregious sexual harassers are no doubt fearful. But history suggests that, if large numbers of men feel that they are being unjustly lumped in with rapists, they will be unlikely to step in when a woman is being pestered. And if men think that the rules of workplace behaviour are being redrawn too tightly, they will not back her up if she complains. Minor transgressions will thus remain common—and, when the storm has died down, major ones could pick up again. "Women, I'm begging you: think this through," writes Claire Berlinski in *American Interest*, a magazine. "We now have, in effect, a crime that comes with a swift and draconian penalty, but no proper definition." A golden opportunity to tackle harassment could be squandered.

Some women also fret that among the #MeToo stories are more than a few that stray too close to framing women as weak, helpless and lacking in sexual agency. In the *Cut*, an online women's magazine, Rebecca Traister warns of a backlash: "all it will take is one particularly lame allegation...to turn the tide from deep umbrage on behalf of women to pity for the poor, bullied men." At least two politicians accused of sexual impropriety, Carl Sargeant from Wales and Dan Johnson from Kentucky, have killed themselves.

Few men have yet dared to go public with their reservations. But plenty will say in private that some of the #MeToo stories ➤



► seem to stray into revisionism. Without the full story it is hard to judge. But a man who reads that another has been sacked for putting a hand on a woman's knee may protest, not without reason, that men have always been expected to take the sexual initiative and are now supposed to be mind-readers, too. "Affirmative consent"—the notion gaining currency on campus that explicit verbal agreement should be sought at every stage as a relationship unfolds—may be a fine idea. But any romantic film more than a few years old will confirm that it is a new and untested one.

Perhaps it is simply too bad if men feel discombobulated. Perhaps it is now women's turn to say how the sexes should interact. But, as Prohibition shows, a new norm has little chance of becoming entrenched if it is rejected by half the population. And in the fight against sexual harassment, women need their male colleagues as allies. Ordinary people are essential for enforcing social norms—and indeed laws. Neither HR staff nor the police can be everywhere.

Today, men and women often disagree about what should count as sexual harassment. Almost everyone, male or female, accepts that sexual favours cannot be made a condition for a job or a promotion. Big majorities see unwanted touching as wrong. But the sexes differ over ogling a woman or making unwelcome sexualised remarks. Young men's attitudes are more similar to women's than older men's are, but the gap persists.

Sometimes, a consensus can be forged by calling on deeper, long-held social norms. Ms Bicchieri cites campaigns against FGM that have described uncut girls as pure, intact and as God made them. From that viewpoint, FGM violates fundamental Islamic values. Campaigners against domestic violence in Latin America sometimes try to get *machista* attitudes to work for them by saying that a "real man" is the family protector and would therefore never hit his wife or child. Ms Bicchieri speculates that older men—the group most likely to minimise sexual harassment and least likely to be won over by feminist arguments—might be brought round by the notion that upsetting women is not the behaviour of a gentleman.

Ultimately, though, a new norm will only be adopted if it is widely agreed to be important. For sexual harassment, that means demonstrating the harm it does. Hundreds of studies have looked at how marriage, motherhood and education affect women's careers and earnings, but the damage from harassment has largely been overlooked. The few studies that exist suggest it is an underappreciated reason why women are paid and promoted less than men, and even why so few women work in traditionally male fields.

In a paper published in May in *Gender & Society*, an academic journal, Heather

McLaughlin, Christopher Uggen and Amy Blackstone analysed responses from participants in the Youth Development Study, which has followed a cohort in St Paul, Minnesota, since 1988. In 2002-03, when participants were aged 28-30, 11% of the women who had jobs said they had suffered sexual harassment at work in the previous year. Two years later, they earned less than the other women, and were more likely to be in financial distress. More than half had changed jobs. For those who had been harassed repeatedly or experienced unwanted touching, the figure was 79%.

In follow-up interviews the researchers heard how some of those women had abandoned careers they had spent years training for, or left jobs despite having no other employment. Some felt that this was the only way to escape. Others felt betrayed by their employers' and their colleagues' feeble responses. They saw HR staff as more interested in hushing things up than stopping the harassment.

Some of the interviewees said their employer had been unwilling to confront a man who was seen as a star performer. And many of those brought down by the recent allegations had long been treated as untouchable because they brought in a lot of business. But turning a blind eye to sexual harassment is now risky for firms. Mr Weinstein's star was already fading before the accusations against him were made public. Since then, the Weinstein Company, which he founded with his brother, has had to seek a buyer.

Firms that are lax about sexual harassment are waking up to the risk of expensive lawsuits. Recent research into "toxic" workers, whose behaviour harms a company's assets or other employees, suggests that employers' self-interest should have caused them to take harassment more seriously all along. In a paper published in 2015 in the *Harvard Business Review*, Michael Housman of Cornerstone OnDe-

mand, a consultancy, and Dylan Minor of Northwestern University analysed data on 50,000 workers in 11 firms. They found that toxic workers were much more productive than the average—presumably because equally unpleasant people who were less productive had been let go. But that was more than outweighed by the damage they did to their colleagues' productivity and by job churn, as people resigned to get away from them. A firm does better to get rid of a toxic worker, they concluded, than to replace an average one by someone in the most productive 1%.

The final step in creating a durable social norm, says Ms Bicchieri, is when normative expectations become empirical ones—that is, when everyone can see that the new rules are sticking. For sexual harassment, this means that women must be able to continue speaking out and perpetrators must continue to be punished. It also means that men who might have been perpetrators continue to think twice and decide against it.

Duncan Green of Oxfam, the author of "How Change Happens", makes a distinction between the self-deluded and the bullies. The self-deluded may be put off by their newfound understanding of how strongly women feel about unwanted sexual attentions. But the bullies are unlikely to care, and may even enjoy the thought of making women miserable. Detailed accounts of some of the allegations aired in recent weeks suggest that humiliating women was part of the point.

A bigger stick

For a bully to stop, says Mr Green, he needs to be afraid of someone. As more women rise to senior positions, more of them will have the power to face the harassers down. Until then, the job will often fall to other men, as both managers and bystanders. That is the biggest reason women need men with them in a united front. ■



The background of the advertisement features a wide-angle photograph of a mountainous region. In the foreground, there's a small, rustic stone building with a tiled roof, possibly a shepherd's hut or a small church, situated on a grassy hillside. The middle ground shows rolling green hills. In the background, a range of majestic, rugged mountains with sharp peaks stretches across the horizon under a bright blue sky with a few wispy clouds.

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Safer nicotine

The tobacco paradox

Combustible cigarettes kill millions each year. Can tobacco firms save their lives?

BESIDE a serene lake in Switzerland sits a modern glass building called the Cube. Wide-leaved tobacco plants grow in the lobby. In one room machines that can “smoke” more than a dozen cigarettes at a time dutifully puff away, measuring the chemicals that consumers would inhale. The research centre is run by Philip Morris International (PMI), which sells Marlboro and other brands around the world. The facility’s purpose is not to assess the risks of smoking, but to determine whether this huge cigarette-maker might get out of selling cigarettes altogether.

André Calantzopoulos, PMI’s chief executive, talks about moving to a “smoke-free future”, with the firm’s business comprised entirely of alternatives to cigarettes. “We are crystal clear where we are going as a company: we want to move out of cigarettes as soon as possible,” he says. Mr Calantzopoulos has the boldest goals in this regard, but he is not the only tobacco executive to tout a new direction. Nicandro Durante, chief executive of British American Tobacco (BAT), PMI’s main rival, says that investing in lower-risk products is a win for shareholders, consumers and society.

The idea that large tobacco companies might advance public health seems almost laughable. They still clash frequently with courts and regulators. It was only in November, after more than a decade of resistance, that companies began to comply

with a landmark ruling from an American court in 2006 stating that they had worked for decades to deny the risks of smoking. Since November 26th firms have had, for example, to include wording in adverts that they “intentionally” designed smokes in a way that made them more addictive.

Yet the firms also make safer alternatives. E-cigarettes have been around for a while; a newer invention are products that heat tobacco without producing all the deadly stuff that comes from burning it. PMI sells one such “heat not burn” (HNB) product, called IQOS, in nearly three dozen countries, including Italy, Switzerland, Japan, Russia and South Africa. Britain’s Committee on Toxicity recently found that people using HNB products are exposed to between 50% and 90% fewer “harmful and potentially harmful” compounds compared with conventional cigarettes. Public Health England, a government agency, says there is a large amount of evidence that shows e-cigarettes, too, are much less harmful than smoking, by at least 95%.

Mr Calantzopoulos wants two-fifths of PMI’s revenue to come from IQOS, e-cigarettes and other safer products by 2025—and “hopefully much more”. Much will depend on regulators. In America, the world’s second-largest tobacco market after China, the Food and Drug Administration (FDA) plans to begin a regulatory process to get companies to reduce nico-

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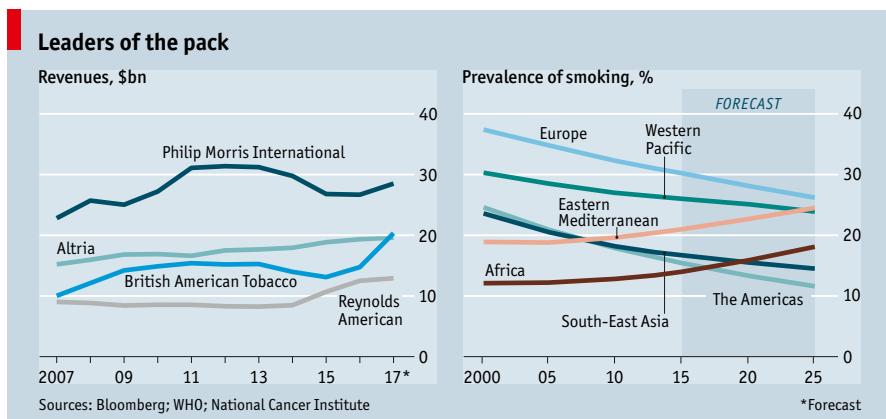
tine in cigarettes, rendering them less addictive, while making it easier for the firms to introduce safer products.

Scott Gottlieb, the FDA’s commissioner, says that change may be the single most important step he can take to advance public health. Smoking kills more Americans than car crashes, murder and drugs combined. Early in 2018 PMI may get the FDA’s approval to sell IQOS in America. PMI would license the product to Altria, which sells Marlboro in America. A few months later IQOS may also become the first tobacco product the FDA allows to be advertised as less harmful than cigarettes (using a rule from 2009). PMI has submitted more than 2m pages of evidence to that end.

Puff adders

All this puts the tobacco industry and those who attack it in an odd position. Companies are developing products that could save millions of lives each year, while still making an addictive product that is known to cause fatal diseases. Next to the Cube stands a PMI factory that can make up to 17bn cigarettes a year. Anti-smoking campaigners, including Vera Luiza da Costa e Silva, who leads the implementation of the World Health Organisation’s anti-smoking treaty, are particularly dismayed by firms’ attempts to stymie anti-tobacco measures in poor and middle-income countries.

Tobacco-makers have sued countries or threatened litigation over their rules to limit conventional smoking. PMI, for example, argued that Uruguay’s graphic warnings on cigarette packages violated the terms of a trade deal (a judge decided against the firm in 2016). BAT has a case pending in Kenya against its anti-tobacco laws. Even if a country wins in the end, tobacco firms’ resistance means that anti-smoking poli- ►



cies are usually delayed, both in the sued country and in others wary of starting legal battles. Thousands of new smokers might light up in the meantime. Tobacco companies also fight the one measure that really curbs smoking: sudden spikes in tax levied on cigarettes.

The business case for conventional cigarettes is clear. They remain wildly profitable. Matthew Grainger, an analyst at Morgan Stanley, estimates that the average profit margin on a premium cigarette can reach about 80%. Nor has the impact of regulation been all bad for the tobacco industry. In countries where advertising is banned, large companies save on marketing costs and young brands find it harder to challenge them. As smoking rates decline in much of the West, firms have been able to raise prices for cigarettes in rich countries while promoting smoking elsewhere.

New smoking products also promise to benefit Big Tobacco. The giants were late entrants to the e-cigarette market but caught up quickly by buying up popular brands and launching their own products. They now have around four-fifths of the market. E-cigarette sales doubled between 2014 and 2016, though still make up under 5% of total tobacco revenues. New products are also harder for rivals to replicate than conventional cigarettes. BAT points to \$2.5bn of investments in new, lower-risk products since 2011; PMI has invested more than \$3bn since 2008. Big companies also have the resources to seek regulatory approval for new products whereas smaller firms may struggle to do so.

How regulators around the world actually treat these products varies. The FDA is signalling receptiveness. Indeed, its proposed approach must set tobacco executives' pulses racing, because the more restrictive part of the FDA's plan, to reduce nicotine in combustible cigarettes, will take years to implement. That gives them time to continue making money from old products as they build up their less harmful business. The FDA has not finalised its rules, but they will probably include a phased restriction on nicotine: lowering levels too quickly might just boost the

black market for cigarettes.

Outside America the industry faces a mishmash of conflicting rules. In Britain the Royal College of Physicians has said that e-cigarettes are a sensible, promising way to help smokers quit. Other regulators fear that e-cigarettes and tobacco-heating products will make the habit of puffing at a stick more normal again and serve as a first step for people to become addicted to real cigarettes. In 2016 a group within the World Health Organisation invited those who had signed its anti-tobacco treaty to "prohibit or restrict" e-cigarettes.

PMI hopes to influence the debate. In September the firm announced it would give \$80m a year for the next 12 years to a new foundation to research ways to speed the shift away from tobacco, including through the use of lower-risk products. It has been met with scepticism. According to Dr da Costa e Silva, the foundation is part of a "long-established and sinister pattern of corporate chicanery". "I recognise that we have a deficit of credibility and trust," says Mr Calantzopoulos. "I'm not asking people to believe me—I'm asking them to verify what we are doing, including the science we produce."

Part of the difficulty in judging the merits of alternatives to cigarettes, says Matthew Myers of the Campaign For Tobacco-Free Kids, an American anti-tobacco group, is that their traits vary wildly. A bubble-gum flavoured e-cigarette may attract younger users, for instance; an e-cigarette with too little nicotine will not sate a conventional smoker, so will not help him quit. Studies that group all e-cigarettes together may therefore be misguided.

Burning questions

To date most discussion has centred on e-cigarettes, but tobacco-heating products such as IQOS may eventually be a bigger market. PMI says that heating tobacco produces a sensation that many current smokers find more pleasing than an e-cigarette, but which is less dangerous than a real smoke. The company argues that IQOS and its successors will therefore be more effective than e-cigarettes in helping people

snuff out their conventional smokes. In Japan, where about a third of men smoke, by the end of 2016, 70% of IQOS users had switched from conventional cigarettes and were using IQOS alone.

This debate is occurring against a changing landscape in the tobacco industry itself. In July BAT paid more than \$49bn to acquire Reynolds American, America's second-biggest tobacco company after Altria. Scale gives tobacco firms the ability to expand margins on conventional products, as well as more money to invest in new ones and sprawling legal teams to deal with shifting regulations. In buying Reynolds, BAT won access both to the American market and to Reynolds' portfolio of e-cigarettes. The deal raised no concerns among antitrust regulators. Now many investment analysts expect PMI to buy Altria, which sells PMI's portfolio of brands in America.

It was in part to quarantine its business from American litigation that PMI split from Altria. But that risk is fading. A merger would let PMI collect the full margins from IQOS in America and better compete against a beefed-up BAT. Mr Calantzopoulos denies that any such deal is in the offing. But investors in the firm may be in favour of one. If it happens, the world's biggest multinational tobacco companies seem poised to save many consumers in future, kill millions of them in the meantime and, through multibillion-dollar mergers, become even more powerful. Put that in your pipe and smoke it. ■

Internet regulation

Net wars

The FCC stirs the pot on net neutrality

DAY before the Federal Communications Commission (FCC) voted to rescind "net neutrality" regulations designed to ensure that internet-service providers do nothing to favour some types of online content over others, Ajit Pai, its chairman, tweeted a short video reassuring Americans. "You can still post photos of cute animals," he says in it, posing with a dog. He also wields a light sabre, which prompted Mark Hamill, the actor who portrays Luke Skywalker in the "Star Wars" films, to criticise Mr Pai on Twitter for siding with giant corporations. Ted Cruz, a Republican senator, then asserted in Mr Pai's defence that Darth Vader supported government regulation of the web; further jabs followed.

It made for a silly treatment of an arcane subject. But net neutrality is a serious

▶ business. The state of New York's attorney-general said he would lead a multi-state suit against the FCC; in Congress Democrats and Republicans are expected to propose competing bills on the subject in 2018. Broadband and wireless companies such as AT&T responded to fears about their increased power by questioning whether internet firms like Google have too much. Google, Facebook, Amazon and other platform companies in turn put out statements in support of an open internet. So rather than end the struggle over how the internet is regulated in America, the FCC's vote has intensified it.

It may be years before it becomes clear what is at stake. The FCC's action, taken on December 14th in a 3-2 vote with Republican members forming the majority, rolls back regulations adopted by the same body in 2015 when Democrats were in charge. The old rules were designed to ensure that all content online would be treated equally by companies such as Comcast and AT&T. These would be prevented from slowing down or "throttling" a service like Netflix and instead giving priority to another competing service.

Democratic officials, consumer activists and big internet firms argue that consumers will now experience different internets based on which broadband or wireless provider they use. If a service pays for faster access on a provider, which is called "paid prioritisation", more consumers may see it; if another service does not pay, consumers may not come across it. Many cite the case of AT&T, which is trying to buy Time Warner, warning that HBO, a premium cable channel, could in future get into a "fast lane". Some critics go much further, arguing that internet providers will in effect censor content they do not like.

Republicans note that if internet providers abuse their power, they will be punished by another regulatory body, the Federal Trade Commission (though its scope for taking action is much narrower than the FCC's). The telecoms giants also argue that freeing them from regulation will encourage much-needed investment in

broadband and wireless infrastructure.

In the short run, says Kevin Werbach, a former FCC lawyer who backs net neutrality regulation, firms such as AT&T and Verizon "get that there's this backlash so the industry is not going to intentionally be so stupid as to realise the worst fears that are out there." If they are caught throttling rival services, they will rile consumers. If they raise prices on popular ones, they will lose

customers (where there is a choice, that is—many broadband providers enjoy regional monopolies; see chart). If they move quickly to build "fast lanes" or "slow lanes", they will hand ammunition to Democrats in Congress who support tough regulation. For now, then, telecoms giants are likely to concentrate on ensuring that, if Congress does legislate on the issue, softer regulations prevail. ■

E-commerce

Home runs

The chimney is not the only way to get stuff into homes in time for Christmas

AFTER staying at home one afternoon for a delivery of discounted toilet disinfectant that never came, Valentin Romanov, a Stockholm IT manager, installed a special lock on his flat's entrance. When no one is in, deliverymen unlock the door and slip packages inside. Four months on, Mr Romanov has doubled his spending online and says he cannot imagine life without in-home deliveries. These are sweet words for delivery firms and online retailers, Amazon included, that are setting up partnerships with lock manufacturers to overcome a big hurdle for e-commerce.

Conventional deliveries fail so often that a parcel is driven to a home an average of 1.5 times in the Nordic region, says Kenneth Verlage, head of business development at PostNord, a logistics giant operating in Denmark, Finland, Norway and Sweden. It is an expensive inefficiency made worse, he says, by the fact that recipients have still often had to wait for a failed delivery. Some couriers leave packages on doorsteps, but this invites theft. Of 1,000 Americans surveyed this year by Shorr, a packaging firm, nearly a third had been victims of "porch piracy", as this is known. Two-fifths avoid certain online purchases for fear of it.

A number of firms now sell wirelessly connected locks which a courier's delivery staff can open using a passcode or smartphone app after the resident has issued a temporary authorisation, before leaving home or remotely. Deliveries are filmed with an indoor security camera paired with the lock. The short videos are sent to parcel addressees and typically end, comically in Mr Romanov's view, with a jiggle of the door handle from outside to show that the departing delivery person has locked up.

Amazon began offering in-home deliveries in 37 American cities in November. Shoppers who have had a special lock and camera installed (costing \$199) can select in-home delivery at checkout. Like most firms offering the



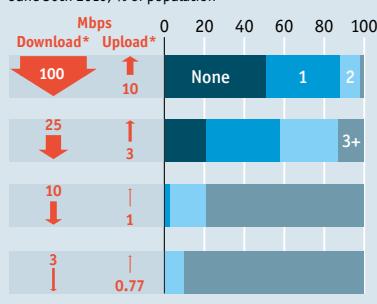
service, Amazon is tightlipped about user numbers. The boss of August Home, a San Francisco maker of in-home delivery locks, says that already hundreds of thousands of delivery drivers, dog-walkers, cleaners and Airbnb guests use its app keylessly to enter others' homes.

Offerings are multiplying. In 2018 August Home will go to Australia and Britain, and PostNord will launch in-home delivery in four Nordic countries. Walmart and Sears have tried it; Sears even tested unattended appliance repairs. Five logistics firms and two Swedish supermarket chains are trying or using locks from Glue, a firm based in Stockholm, for in-home deliveries.

Sceptics reckon these efforts will not amount to much. Plenty of consumers will be fearful about theft. Rhino Security Labs, a Seattle computer-security firm, claims it hacked into and shut off the video in one Amazon lock-and-camera system. In-home deliveries are incompatible with burglar alarms. And what if an improperly fenced-off dog or cat slips outside? Or an heirloom on display gets knocked over? These are tricky questions. But e-commerce firms have unlocked harder ones.

Higher speed, less choice

United States, number of providers of residential fixed broadband, by speed
June 30th 2016, % of population



Russian funerals

Notes from the undertaker

MOSCOW

Funeral services in Russia are ripe for disruption

THE calls began shortly after Yulia's grandmother died. The undertaker offered help arranging the funeral, for 47,000 roubles (\$800) in cash. She then travelled to Moscow's Khovanskoe Cemetery, where she was offered a discount on a gravesite—150,000 roubles off—if she could bring cash within three hours and sign a receipt saying she had paid half that amount. Yulia (whose name has been changed) and her family gave in. "We knew we were paying a bribe, but what else could we do?"

To bury a loved one in Russia often means entering an underworld of corruption and red tape. The myriad goods and services needed, from preparing the body for burial to funeral arrangements to carving a headstone, all represent opportunities for extortion in a largely informal market. "Instead of a funeral as a commercial service, the consumer is offered a strange sort of quest," writes Sergei Mokhov, editor of *The Archaeology of Russian Death*, an academic journal. Official spending on funeral services reached some 58bn roubles in 2016. But most of the market—another 120bn-150bn roubles—remains in the shadows, according to official estimates.

Change may be afoot. President Vladimir Putin in August directed his government to clean up the industry. The authorities want to bring revenues into the light and under control of state firms, such as GBU Ritual, a large provider in Moscow. "Earlier when there was lots of oil money, no one wanted to bother with foul-smelling funerals," notes Mr Mokhov, but now the state is looking for resources. An unintended consequence may be to allow more space for entrepreneurs, who see opportunities to disrupt Russia's most archaic sector. "This is practically the last sphere to go through a market transition," says Oleg Shelyagov, owner of Ritual.ru, an innovative funeral-services provider in Moscow.

Russia's history has shaped the industry in unusual ways. Under the tsars the church oversaw most funerals and cemeteries. The Bolsheviks nationalised church land and property, abolished traditional rituals, and decreed that all citizens must have identical funerals. In practice, however, the Soviet authorities paid little attention to burial practices.

After the Soviet Union's collapse "absolute bacchanalia" and "absolute banditry" took hold, says Vladimir Panin, director of STIKS-s, one of Moscow's oldest funeral bureaus. Over time some 20 firms, includ-

ing Mr Panin's, became "specialised city services", or privately owned firms that the city licenses as funeral providers in return for a small stake (no less than 5%). These firms developed a simple business strategy, paying rent to hospitals and morgues for offices on the premises, then waiting for the inevitable appearance of clients. (The city received shares in the firms in exchange for offering access to state infrastructure.)

RIP-off

Their main competitors have long been "black" agents—Independent operators who buy information on recent deaths from police, medical and morgue employees (the going rate in Moscow for this kind of intelligence is 20,000 roubles). These agents thrust themselves upon relatives of the deceased, often showing up at home offering help with documents, coffins and arrangements. They often price services "by the boots"—estimating from the client's appearance how much they can pay.

Problems mounted for years with little government response. The last notable law on the industry passed in 1996. Oversight has been minimal. But Mr Putin's order, and a run of scandals, including a brawl over turf that left three dead and dozens wounded at Moscow's Khovanskoe Cemetery in 2016, gave impetus to talk of reform. Officials speak of raising standards,

banning funeral agents from morgues and hospitals, and digitising services.

A handful of newer players have emerged, hoping to speed the industry's transformation. Mr Shelyagov, a former banker, acquired a controlling share in Ritual.ru in 2016 and set out to modernise things. Rather than purchasing death notices or setting up shop in morgues, Ritual.ru aims to attract customers with a competitive product and strong branding. He talks of becoming the "Coca-Cola in this market", but admits that marketing funeral services is a challenge. "What are you going to do, put an ad up for cheap coffins?"

Ritual.ru has developed two in-house apps: one, inspired by Uber, connects its network of funeral agents with incoming orders; a second contains a catalogue where customers can choose coffins, wreaths and other services, with fixed prices and the option to pay by credit card. "Everyone is afraid to call this business a business," says Mr Shelyagov. "But it's no different from any other." Another firm, Chestniy Agent (meaning Honest Agent), employs drones to map cemeteries, most of which have few or no records, to find space; their app links agents with suppliers for coffins and headstones.

Entrepreneurs and established companies must nonetheless contend with an expansionist GBU Ritual. In 2015 it went beyond controlling city cemeteries, also taking over spaces in morgues and hospitals to offer funeral arrangements. "Why are there changes? Because someone wants to eat," laments Mr Panin, gazing at two shark heads perched on the shelves of his opulent office. His company, until recently one of Moscow's largest funeral agencies, is under strain. "Back in the '80s and '90s there were bandits," he says. "Now there are the state structures." ■



Stiffer competition is coming



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Emerging markets

Countries rarely go bust anymore

For most emerging markets, default is no longer worth the fuss

VENEZUELA is an unusual country. It is home to the world's largest reserves of oil and its highest rate of inflation. It is known for its unusual number of beauty queens and its frightening rate of murders. Its bitterest foe, America, is also its biggest customer, buying a third of its exports.

In defaulting on its sovereign bonds last month (it failed to pay interest on two dollar-denominated bonds by the end of a grace period on November 13th), Venezuela is also increasingly unusual. The number of governments in default to private creditors fell last year to its lowest level since 1977, according to the Bank of Canada's database. Of the 131 sovereigns tracked by S&P Global, a rating agency, Mozambique is the only other country in default, having missed payments on its Eurobond (and failed to make good on guaranteed loans to two state-owned enterprises). Walter Wriston, a former chairman of Citibank, earned ridicule for once declaring that "countries don't go bust". But they don't much anymore.

This dearth of distress is surprising, given the turmoil emerging economies have endured in recent years. The collapse in commodity prices that undid Venezuela was accompanied by a sharp reversal of capital flows to emerging economies that began in 2011 and gathered pace during the "taper tantrum" of 2013. There have been 14 such capital "busts" in the past 200 years,

according to Carmen Reinhart of Harvard University, Vincent Reinhart of Standish Mellon Asset Management and Christoph Trebesch of the Kiel Institute for the World Economy. The most recent bust was the second-biggest of the lot. But it led to less distress than usual. If past patterns had held, such a severe setback would have resulted in 15-20 more defaults than actually transpired, the three scholars calculate.

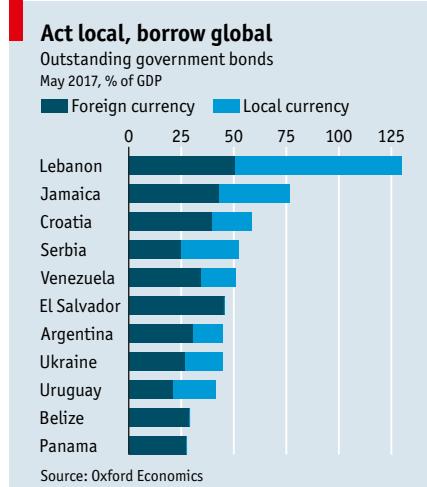
What explains these "missing" defaults? Some may be hidden. China, for example, may have rescheduled or replenished some of its sizeable loans to

emerging economies without ever declaring them bad. Indeed, China's willingness to roll over its loans to Venezuela delayed, even if it did not ultimately prevent, the Bolivarian republic's default on some of its other debts.

Distress also now manifests itself in other ways, points out Gabriel Sterne of Oxford Economics, a consultancy. The governments of emerging economies increasingly borrow in their own currencies. These are no longer tightly pegged to the dollar, as many were in the 1980s and 1990s, or to gold, as in the 19th century. Of 54 emerging markets Mr Sterne has examined, only 11 have foreign-currency bonds worth more than 20% of their GDP (see chart). So defaulting on hard-currency debt is neither as necessary nor as helpful as it was. Even if a sovereign were to forswear a big chunk of its dollar obligations, imposing a steep loss on creditors, it would only save a large percentage of a small amount.

The costs of default, on the other hand, are somewhat fixed. Default is, in legal terms, a discrete event. Reneging on debt worth 10% of GDP may be just as damaging to a country's reputation as reneging on debt worth twice as much. And the costs are not just financial. "You have to negotiate with the creditor committees. You're going to get all the hedges (hedge funds) potentially ganging up on you. And that's a pain in the backside," notes Mr Sterne. In a growing number of emerging markets, including past offenders like Brazil, Mexico and Peru, default on foreign-currency debt is no longer imaginable, he says.

What about the local-currency securities that have grown in importance? Since governments have the power to print the money they owe on these bonds, default is never technically necessary. Currency depreciation and inflation offer a more sur-



► repetitious way to erode creditors' claims: less discrete, more discreet.

Ukraine offers one instructive example, argues Mr Sterne. The holders of its foreign-currency debt emerged largely unscathed from its wartime wobbles (generous coupon payments more than offset a 15% cut in the net present value of their claims). On the other hand, those unlucky enough to hold bonds or deposits denominated in Ukrainian hryvnia suffered a 30% loss in dollar terms, by his calculations.

Although default on local-currency bonds is never technically necessary, is it nonetheless possible? The rating agencies

think so, reserving triple-A ratings for only a small fraction of such bonds. And even the financial markets perceive some danger of default. The yield they demand on this government paper is higher than the implicit "risk-free" rate that can be calculated from currency swaps, point out Wenxin Du of the Federal Reserve and Jesse Schreger of Columbia Business School.

In some cases, the two economists argue, a government may prefer default to the alternatives of depreciation and inflation. Suppose, for example, that the country's companies have borrowed heavily in dollars, even if the government itself has

not. In such scenarios, a falling currency may wreak more economic havoc than a formal breach of government obligations.

Venezuela again provides a cautionary example. It has so far kept up payments on its local-currency debt, retaining a stronger credit rating on these liabilities than on its dollar paper. Meanwhile the country is going to ruin. Much of the population cannot afford enough food, medicines must be smuggled in from Colombia, and the currency lost 60% of its value last month. The republic may not have defaulted on its local debt. But it has defaulted most violently on its social contract. ■

Buttonwood | Out of touch

How intangible assets are changing investment

WHEN you work as an equity analyst at an investment bank, your task is clear. It is to comb all the statements made by corporate executives, to scour the industry trends and arrive at an accurate forecast of the company's profits. Achieve this and your clients will be happy and your bonus cheque will have many digits.

But is all this effort worthwhile? Not as much as it used to be, according to Feng Gu and Baruch Lev, writing in a recent issue of *Financial Analysts Journal**. The authors imagined that investors could perfectly forecast the next quarter's earnings for all companies. They then assumed that investors bought all the stocks that they expected to meet or beat the consensus of analysts' forecasts; and that investors could short (ie, bet on a declining price) the stocks of those that were predicted not to reach their estimates. They made their investment two months before the end of a quarterly reporting period and got out of their positions one month after the quarter ended (by which time the earnings have been reported).

In the late 1980s and 1990s, this would have been a highly successful strategy, achieving excess returns (over those achieved by stocks of similar size) of 4% or more every quarter. But these abnormal returns have dropped: in recent years they have been only 2% a quarter. A similar effect appeared when examining the returns that would have been achieved by perfectly predicting those companies that achieved annual earnings growth.

Although an excess return of 2% a quarter would still be highly attractive, it would require a perfect forecasting record. That suggests the number-crunching performed by fallible analysts and investors produces much lower returns.

The intriguing question is why those returns have been falling. The authors ar-



gue that the decline is because of the rising importance of intangible investments in recent decades (in areas such as software or trademark development). Such investment may be a big driver of value growth.

Accountants have struggled to adapt. If a company buys an intangible asset, such as a patent, from another business, it is classed as an asset on the balance-sheet. But if they develop an intangible within the business, that is classed as an expense, and thus deducted from profits. As the authors note: "A company pursuing an innovation strategy based on acquisitions will appear more profitable and asset-rich than a similar enterprise developing its innovations internally."

As a result, the authors argue, reported earnings are no longer such a good measure of a company's profits, and thus may not be a useful guide to future share performance. To test this proposition, they divided companies into five quintiles based on their intangible investment. Sure enough, the more companies spent on intangibles, the lower the excess return available to those who correctly forecast the earnings.

The paper's message echoes the themes

of a new book** by Jonathan Haskel and Stian Westlake, which explores the impact of the growing importance of intangible assets in modern economies. The book finds a link between the poor productivity record of many leading economies since the crisis of 2008, and the sluggish rate of investment in intangible assets since then.

The problem is that intangibles have spillovers. A company may undertake expensive research and development, but the gains may be realised by other businesses. Only a few companies (the likes of Google) can achieve the scale needed to take reliable advantage of their intangible investments. Unlike machines and equipment, intangibles may have limited resale value. So the risks of failure may put businesses off intangible investment.

This is both good news and bad news for investors. On the one hand, it may explain why profits have remained high relative to GDP. In theory, high returns should have attracted a lot more investment and the resulting competition should have driven down profits. But the difficulty in exploiting intangibles may have prevented that. On the other hand, the reluctance of many businesses to invest in intangibles may restrict their scope for growth in future. Investors looking for growth stocks will face a restricted choice and such companies will be so apparent to everyone that they will command a very high valuation. Not so much the "nifty fifty" stocks that were fashionable in the early 1970s, as the nifty five or six.

* "Time to Change Your Investment Model", *Financial Analysts Journal*, Vol 73, number 4

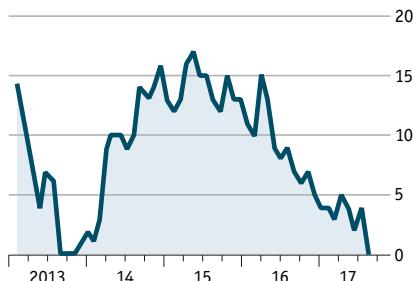
** "Capitalism without Capital: The Rise of the Intangible Economy", published by Princeton University Press

2017 in charts

Hard lines

Purchasing managers' index

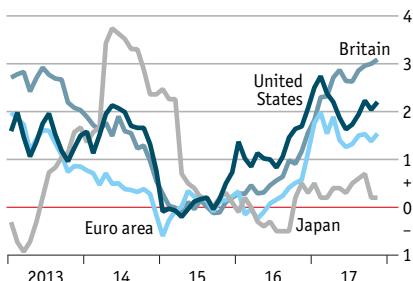
Number of countries with a monthly PMI value below 50, indicating a contraction of manufacturing activity



A synchronised global upswing took hold, as shown by the purchasing managers' index. This fuelled hopes that the world economy has escaped from secular stagnation

Consumer prices

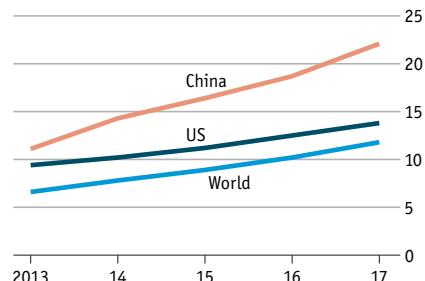
% change on a year earlier



Japan's ten-year battle with deflation dragged on. In America and Europe, inflation picked up. Only in Britain, however, did it overshoot the central bank's target

Online retail sales

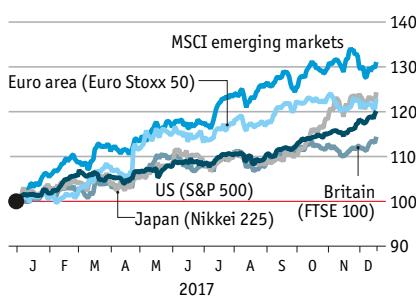
E-commerce, as % of total retail



From Singles Day to Black Friday, Chinese and Americans are doing more of their shopping online. In America, at least, more bricks-and-mortar shops closed

Stockmarkets

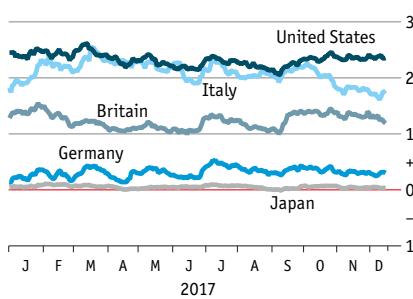
January 2nd 2017=100, \$ terms



It was a good year for equity investors in developed markets—though in Britain the gains were less impressive. Emerging markets were seen as the biggest beneficiaries of global growth

Ten-year government-bond yields

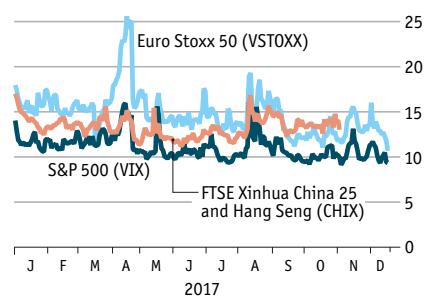
%



The perennial declaration of an end to the 30-year bull market in government bonds again proved premature. In America, the yield curve flattened as long-term rates stayed low

Volatility indices

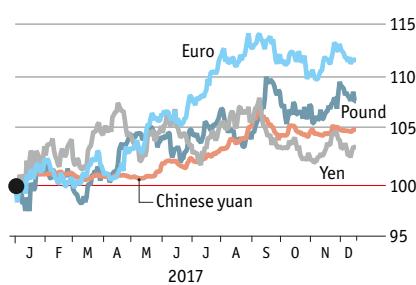
Percentage points



The markets mostly shrugged off political uncertainty. Volatility indices were subdued. In America the Vix fell below ten, in the past, a rare occurrence suggestive of complacency

Currencies against the dollar

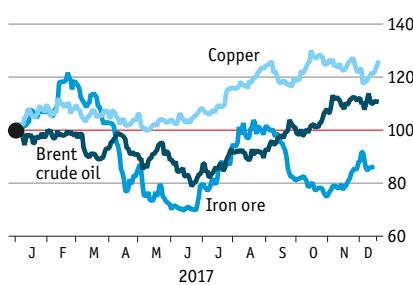
January 2nd 2017=100



There was no Trump bump in the dollar; quite the reverse. The global recovery meant that investors no longer needed to seek out the haven of the greenback; of major currencies, the euro did best

Commodity prices

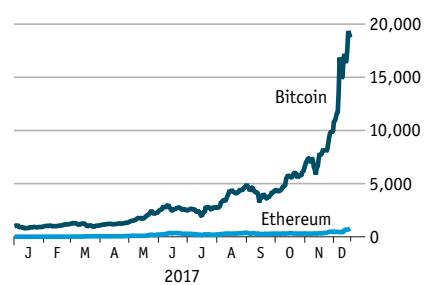
January 2nd 2017=100, \$ terms



It was a mixed year for global commodities, despite the global growth pick-up. The main worry is that Chinese demand for raw materials may slip in 2018

Cryptocurrencies

Price, \$



Those who bought bitcoin early will probably enjoy a happy Christmas. Its sheen rubbed off on other digital assets: there was a boom in "initial coin offerings"

Free exchange | Have yourself a dismal Christmas

The flaws in economists' Grinchy approach to holidays



ONLY an economist would think to ask whether Christmas is efficient. In 1993 Joel Waldfogel, then a professor at Yale University, turned a lunchtime conversation with colleagues into a paper entitled "The deadweight loss of Christmas", which argued that, no, it is not. That gift-giving might actually be bad is the kind of opinion which breeds a deep mistrust of economists—loathing is perhaps too strong—among those not schooled in the dismal science. It is also just the sort of analytical insight on which economists pride themselves: counterintuitive, irreverent and interesting. But they should perhaps be less pleased with themselves. The way they think about the most festive time of the year reveals something important about the shortcomings of the field's approach to human behaviour.

Mr Waldfogel's notion was a clever one. Massive amounts of money are spent on holiday presents; it makes sense to ask whether such spending leaves the world better off. In buying gifts, people do their best to find something the recipient will appreciate. But, economists assume, people know their own preferences better than others do. The best a gift-giver can hope to do, in terms of making another person better off, is to give the person what they would themselves choose to buy with the money to be spent. Because the giver inevitably understands the receiver's preferences imperfectly, recipients usually value gifts by less than their purchase price, generating a substantial "deadweight loss" to the economy. Ho ho ho.

Somewhere between a tenth and a third of the value of the gifts given at Christmas is destroyed, Mr Waldfogel estimated, based on experiments conducted with his students at Yale. Because holiday spending accounts for a meaningful chunk of GDP, the loss from Christmas is about a tenth of that created by income taxation, he concluded. Not all gifts are equally poorly chosen. Close friends and family are likely to understand their loved ones better and therefore to give more efficiently. In general, however, people would be better off if they simply gave each other cash. This was an unusual and interesting way to think about Christmas (and indeed, about holidays in general). Practical, too: those considering giving gifts at holiday time should proceed if they know the tastes of their receiver well, and if they are prepared to think hard about what to get. Otherwise, it's best to go with cash

(or perhaps gift cards, which are less efficient than cash but which may be more acceptably gift-like).

It is not mere sentimentality to find something amiss in this analysis, however, as some economists have recognised. Gift-giving is not a meaningless transaction. The act of giving itself creates value. In response to Mr Waldfogel, John List, of the University of Chicago, and Jason Shogren, of the University of Wyoming, conducted their own experiment, using auctions rather than surveys to tease out the value people placed on gifts they had been given. They concluded that those receiving the gifts on average valued them by 21-35% more than the cost to the giver. Their experimental design, they noted, was based on the novel principle that "material value + sentimental value = total value".

Similarly, a panel of economists convened by the University of Chicago and regularly polled on economic questions disagreed, when asked about the subject in 2013, that giving presents is inefficient. Gift-giving generates value by signalling to the recipient that the giver cares about the relationship, some noted; the signal is especially strong if the gift demonstrates the giver's familiarity with the receiver's tastes and preferences. Others reckoned that the pleasure the giver takes in giving ought also to be taken into consideration. "This is the sort of narrow view that rightly gives economics a bad name," said Angus Deaton, a Nobel-prizewinning economist, of the efficiency question.

But it is the way that the question is posed, rather than the way economists choose to answer it, that is the real problem. Gift-giving does not occur in a vacuum; people do not randomly set out to raise the welfare of their loved ones with festively wrapped gifts. Rather, it occurs within a very specific social context: the holiday season. Why do people do Christmassy things at Christmas? Why do they place tinsel-strewn trees in their homes and let their children sit on the laps of men dressed as Santa? They do so because they are participating in a long-practised mass social ritual. Assessing gift-giving without taking account of this social context is a near-useless exercise.

How might that context be taken into account? Christmas is what in other circumstances an economist might refer to as an institution. Institutions are rules and norms that are developed to solve social problems; concepts of private property, for instance, help a society to manage a tendency to overuse common property. Some research assesses holidays in this way. A paper published in 2001 by Vijayendra Rao, of the World Bank, reckons that festivals in India provide an opportunity to cement family bonds, deepening social capital in ways that yield returns at other times of the year. Indians who spend more during festivals enjoy higher social status, which translates into tangible benefits, like getting better deals from shopkeepers on food purchases.

You'd better watch out

Even this is too bloodless an analysis. Many holidays are rooted in ancient religious or cultural practices. Whether and how you celebrate are matters of personal and group identity. As many clerics are keen to point out, Christmas is about more than presents. The exchange of gifts is an inseparable part of a communal time of celebration and goodwill. Economists would be more useful if they could recognise when and why maximising efficiency takes a back seat. They would also be more fun to have around at Christmas. ■

Environmental activism

Punk science

A growing movement seeks to make the tools of science available to everyone (including you)

A PAIR of toddler's tights. That is the most important component of the device that Max Liboiron designed to measure the ocean's plastic debris.

In 2014 Ms Liboiron, a geographer, took up a job at the Memorial University of Newfoundland on the Atlantic coast. Two years earlier Canada's Conservative government had passed a bill that weakened environmental protection and cut the budget for monitoring the country's water and air. Ms Liboiron wanted to help plug the gap. She had no staff and no equipment. But she had a feeling that, if she could get around the second of those problems, she could sort out the first. Given appropriate tools, she suspected, locals would be more than happy to survey the waters surrounding the island for marine plastics. The ocean provides Newfoundlanders with food and jobs; knowing what ends up in the fish they eat and sell is crucial.

Newfoundland is not awash with fancy scientific equipment going begging. Baby stockings, however, are widely available. Attached to half a plastic bottle as a mouth and towed behind a boat, the synthetic tights (cotton will absorb water and sink) sieve surface water for some of the five trillion or so pieces of plastic that are estimated to pollute the world's oceans.

BabyLegs, as Ms Liboiron has dubbed her contraption, is the sort of do-it-yourself kit being used by an increasing number of concerned citizens seeking to monitor the soil, water and air. Such tools are typically cheaper than the professionals' alternatives. The Manta Trawls with which scientists skim the oceans for microplastics start at around US\$3,500. BabyLegs, which you can put together yourself using instructions from Ms Liboiron's Civic Laboratory for Environmental Action Research (CLEAR), costs just a few dollars.

But price is only part of the point. The bigger issue is agency. BabyLegs and schemes like it not only provide a cheap way to gather data governments are ignoring. They also offer citizens an active role in doing so; a way to help themselves, and express their commitment to others, on their own terms. It may look scrappy; it may be comparatively primitive (although, increasingly, it is not). But it is liberating. In 1977, in the very heavenly dawn of London's punk-rock scene, a crude, photocopied magazine told its readers: "This is a chord, this is another, this is a third. Now start a band." They did so by the thousand. Now that punk aesthetic has come to science.

Big in Japan

Safecast, an NGO based in Tokyo, provides the most comprehensive picture of radiation levels across Japan. Its data come from hundreds of devices, either assembled from Safecast's kits (which cost \$500) or built from scratch using instructions on their website. They consist of a Geiger counter, a GPS unit to log where measurements are made, a simple open-source computer called an Arduino to time-stamp the data and a memory card.



Pieter Franken, one of Safecast's founders, started to map the country's radiation levels a few days after the huge earthquake of March 11th 2011. When explosions ripped through the reactors of the tsunami-struck Fukushima Dai-ichi nuclear power plant, Mr Franken, a Dutch computer scientist working in Tokyo, bought a Geiger counter and went on the road. "On my first drive, the readings I was getting were significantly higher than those being reported on TV," he says. Radiation levels varied dramatically from street to street; in some towns far from the plant they were higher than in those that were close.

The official data were not fine-grained enough to reveal such patterns. Results from Speedi, the government computer system used to predict the path of the radioactive plume from the plant, were considered too inaccurate to share with the public. No one trusted the government's reassurances when they came.

"I met people on the ground desperate to know radiation levels in their home, school or at work," Mr Franken says. He contacted two old friends, Sean Bonner and Joi Ito, tech entrepreneurs with colourful and impressive CVs, to talk about what to do. Between ➤

them, they cooked up the idea of using volunteers with mobile Geiger counters to collect data and stream them to a website.

Supplies of commercial instruments had, understandably, dried up quickly after the disaster. So Mr Franken patched one together from parts and connected it to an iPhone to get GPS co-ordinates for the data. By the end of the next month he and other volunteers had built a prototype of the “bGeigie”, the first in a series of detectors that they would make available in kit form on their site.

In the six years since the disaster, Safecast has moved from the fringes of respectable science to its mainstream. Two of its members were invited to speak in Vienna in 2014 at a meeting on the Fukushima disaster organised by the International Atomic Energy Agency. In 2016 the team published a paper in the *Journal of Radiological Protection*. And perhaps most tellingly of all, scientists are adopting their methods. “How Radioactive Is Our Ocean”, a project at the Woods Hole Oceanographic Institution in Massachusetts, is getting people to send samples of seawater from beaches on the west coast. The scientist leading the project, Ken Buesseler, met members of the Safecast team in 2012 shortly after he published a study on radioactive isotopes in the fish and waters off the coast of Fukushima. When he could not raise money from the federal government to look for those isotopes off America’s Pacific coast, he discussed with Safecast how to establish a citizen-science project to collect the data instead.

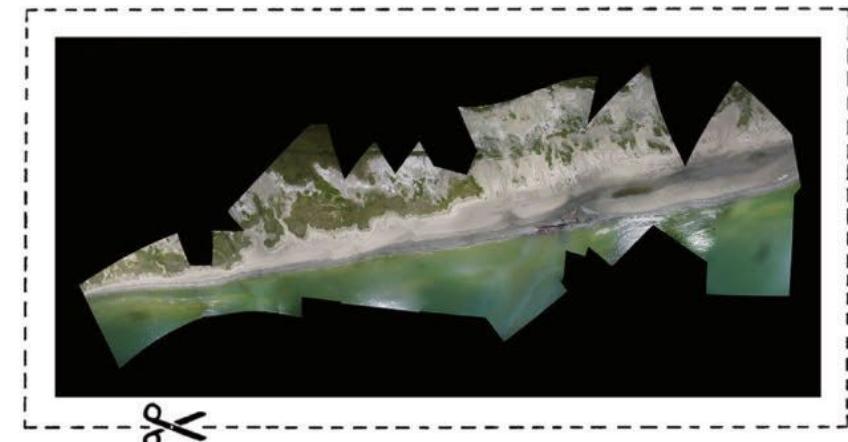
Citizen science has been around for ages—professional astronomers, geologists and archaeologists have long had their work supplemented by enthusiastic amateurs—and new cheap instruments can usefully spread the movement’s reach. What is more striking about bGeigie and its like, though, is that citizens and communities can use such instruments to inform decisions on which science would otherwise be silent—or mistrusted. For example, getting hold of a bGeigie led some people planning to move home after Fukushima to decide they were safer staying put.

Ms Liboiron’s research at CLEAR also stresses self-determination. It is subject to “community peer review”: those who have participated in the lab’s scientific work decide whether it is valid and merits publication. In the 1980s fishermen had tried to warn government scientists that stocks were in decline. Their cries were ignored and the sudden collapse of Newfoundland’s cod stocks in 1992 had left 35,000 jobless. The people taking science into their own hands with Ms Liboiron want to make sure that in the future the findings which matter to them get heard.

Swell maps

Issues such as climate change, plastic waste and air pollution become more tangible to those with the tools in their hands to measure them. Those tools, in turn, encourage more people to get involved. Eymund Diegel, a South African urban planner who is also a keen canoeist, has long campaigned for the Gowanus canal, close to his home in Brooklyn, to be cleaned up. Effluent from paint manufacturers, tanneries, chemical plants and more used to flow into the canal with such profligacy that by the early 20th century the Gowanus was said to be jammed solid. The New York mob started using the waterway as a dumping ground for dead bodies. In the early part of this century it was still badly polluted.

In 2009 Mr Diegel contacted Public Lab, an NGO based in New Orleans that helps people investigate environmental concerns. They directed him to what became his most powerful weapon in the fight—a mapping rig consisting of a large helium balloon, 300 metres (1,000 feet) of string and an old digital camera. A camera or smartphone fixed to such a balloon can take more detailed photo-



graphs than the satellite imagery used by the likes of Google for its online maps, and Public Lab provides software, called MapKnitter, that can stitch these photos together into surveys.

These data—and community pressure—helped persuade the Environmental Protection Agency (EPA) to make the canal eligible for money from a “superfund” programme which targets some of America’s most contaminated land. Mr Diegel’s photos have revealed a milky plume flowing into the canal from a concealed chemical tank which the EPA’s own surveys had somehow missed. The agency now plans to spend \$500m cleaning up the canal.

Jeffrey Warren, who created MapKnitter, is one of the founders of Public Lab. The group was set up to help locals map the devastation caused by the oil spill in the Gulf of Mexico in 2010. When the Deepwater Horizon rig exploded, Mr Warren was studying digital cartography as part of a master’s degree at the Massachusetts Institute of Technology. Wanting to help but lacking local knowledge, he called the Louisiana Bucket Brigade, an environmental group in New Orleans, and was put through to Shannon Dosemagen. The brigade is named after the plastic buckets it provides to residents concerned about refineries in the area to help them in gathering samples for laboratory analysis. This has often revealed levels of toxic chemicals, such as benzene, many times higher than those allowed by law. Those data have helped local people, who are often poor and black, to lobby for change.

Tapping in to her experience with the brigade, Ms Dosemagen, who is now Public Lab’s executive director, rapidly organised training sessions in a New Orleans park. Cameras on balloons and kites began snapping the oil’s progress; MapKnitter joined the pictures together to show the impact of the slick (see photo above). Seven years on, Public Lab still springs into action after industrial accidents. Within days of Hurricane Harvey’s landfall in Texas last August coastguards asked Mr Warren for volunteers to help track chemical spills by combing through aerial photos.

Public Lab’s website now hosts discussion boards on topics that range from finding decibel meters for smartphones to detecting metal ions in water, along with a range of impressive tools. In line with its do-it-yourself ethic, the site offers no ready-built equipment; those who build their own devices, Public Lab believes, are more likely to use them. There are instructions for converting a camera to take infrared images ➤

► that will help determine crop health as well as for spectrometers which can show up the chemical composition of a liquid or gas by analysing light shone through it. Using a design PublicLab has kindly made available at its website to readers of *The Economist*, you can build one yourself, either just for the fun of it, or to measure the sugar content of your wine, or for some punk'd up purpose of your own (see box below for details).

A similar ethos is also beginning to seep into university labs and research institutes. Cheap 3D printers and computer-aided design programs that allow design files to be shared online mean that ever more apparatus can be made in the lab, rather than ordered from a catalogue. The economic argument for doing so is compelling. A plastic test-tube rack can cost more than \$20. Downloading one of the many different files for the rack of your choice and printing it costs a tenth of that. A \$1,000 laboratory jack for lifting and levelling equipment can be made for \$5.

X-ray spex

It is not just simple pieces of lab equipment that can be printed. Earlier this year Tom Baden of the University of Sussex and his colleagues published plans for a 3D-printable fluorescence microscope, called FlyPi, which uses ultraviolet light and fluorescent dye to improve its analysis of samples. Mr Baden estimates that it can be set up for less than \$250. Flashy commercial microscopes on the same lines can cost thousands of dollars. Mr Baden, a neuroscientist who studies the eyes and brains of zebra fish, says that although the quality of a FlyPi may not be that of a commercial model, the low cost means that his lab can have several extra microscopes on the go at once alongside the high-spec one they already had.

"Open hardware" like the FlyPi is a boon for scientists in poor countries. Mr Baden and fellow neuroscientists Lucia Prieto-Godino and Sadiq Yusuf founded TREND in Africa, an NGO that organises summer schools for researchers. Courses on open labware begin with building a printer which can itself be made largely from printed parts. Printed scientific tools can be repaired cheaply, as can the printer.

Joshua Pearce, an engineer at Michigan Technological University in Houghton, believes the time is now ripe for change. Even mass-produced plastic trinkets and household goods are cheaper

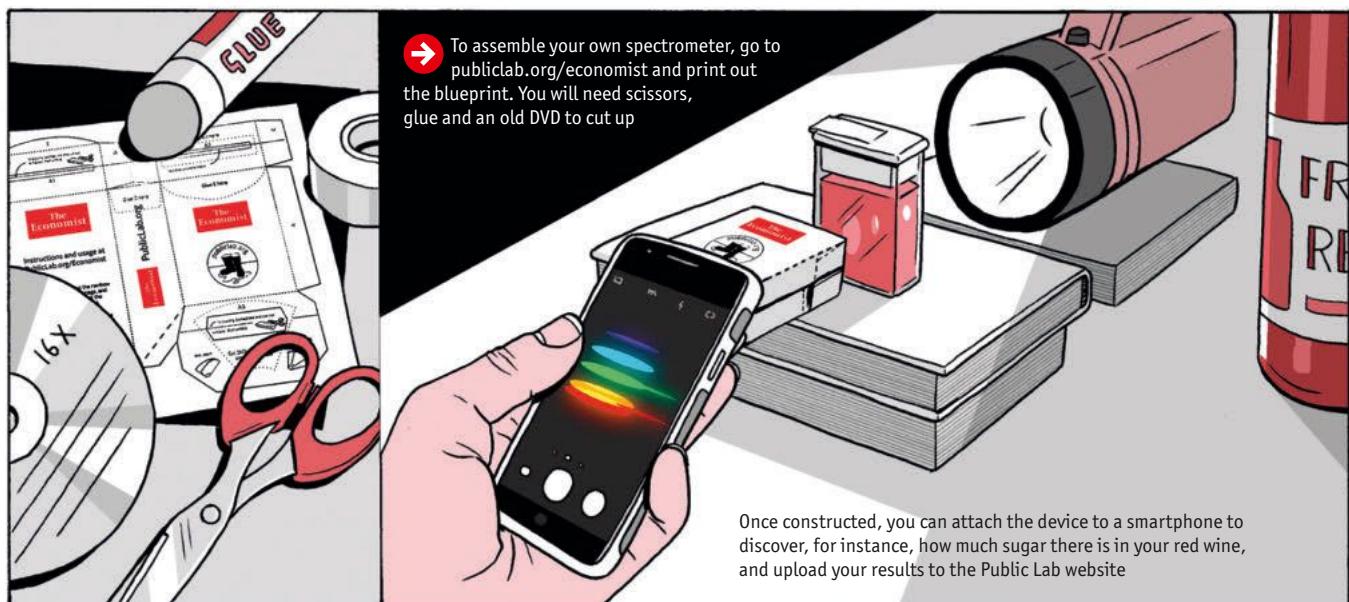
to print than to buy. "If we can beat the shower curtain ring-makers," he says, "the equipment manufacturers have got no chance."

Mr Pearce, an early advocate of open hardware, is pushing the concept hard. Atomic layer deposition (ALD) is a method of building up very thin, uniform films on a surface. In chip manufacturing, the process can lay down transistors that are no more than a 100 atoms across. Engineers are exploring its potential for making thin, wearable sensors, implants and drug-delivery devices.

Many researchers would love to get their hands on a system but, at a cost of \$250,000, few can afford it. That cost reflects the sophistication of the kit required to carry out the enterprise. ALD must take place in a carefully controlled vacuum. Mr Pearce, however, wants to produce one that anyone can make in the lab for a fraction of the cost with printable plastic parts.

Hundreds of scientists like Mr Pearce and Mr Baden are uploading their plans for instruments to the internet, where they are scrutinised by citizen scientists hoping to improve the tools they are using, and thus the things they can study, monitor and make a fuss about. As new, cheaper, easier-to-use instruments become available, more people across the world will step into the breach as governments threaten to scale back their efforts to monitor the environment and set their own agendas.

In Chile, Exploratorio Sombrero hopes to map poorer neighbourhoods of Melipilla, the city where it is based. In Indonesia, Lifepatch has helped farmers whose land was engulfed by a volcanic eruption. Safe-cast is growing, too. In April, it unveiled a solar-powered device that can detect levels of particulate air pollution as well as radiation. Within two years, Safe-cast plans to have more such sensors in America than the EPA. That will improve national statistics at a time the government shows little interest in doing so; more important, it will empower communities which never had the knowledge to affect their futures before. *



Women in economics

Inefficient equilibrium

CAMBRIDGE, MASSACHUSETTS

ECONOMISTS like to see themselves as generators of rational explanations. They scorn fuzzy thinking and beliefs that have no basis in fact; they attack problems with a ruthless logic. Happy as they are to turn this beady gaze on others, though, when it comes to looking at themselves they may be as befogged as anyone else.

Take the issue of female representation in their field. Academic economists are overwhelmingly male. According to information from university websites, about 20% of Europe's senior economists are women. In America, 15% of full professors are women. At Harvard, arguably the most prestigious economics department in the world, the faculty pictures that beam down from the wall feature 43 senior members of the department. Only three are women. Two have tenure.

This does not mean there is necessarily a problem with economics *per se*. Though there are fewer women in economics than in the humanities, the other social sciences or the life and environmental sciences, there is similar under-representation in mathematics, engineering and physics.

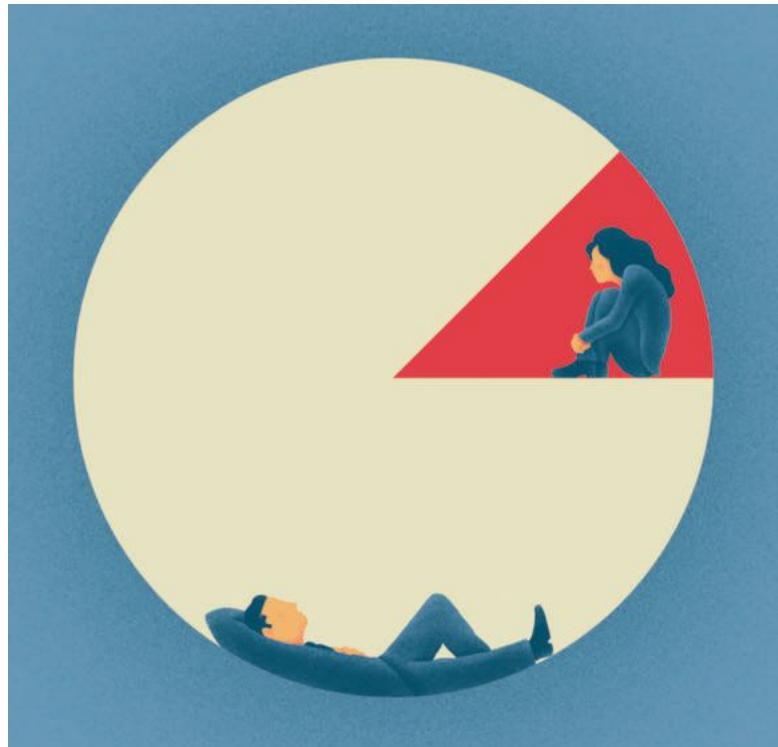
But Donna Ginther, a professor of economics at the University of Kansas, has found telling evidence that women are not just scarcer in economics; they also face a thicker glass ceiling. Having started a job that has the prospect of tenure, women achieve that aim at a rate 12 percentage points below that of men. This is true even after adjusting (as much as possible) for differences in family circumstances and publication record. In American universities women who achieve tenure are promoted to full professor within seven years at a rate of 29% compared to 56% for men. Adjusting for other factors, Ms Ginther still finds a gap of 23 percentage points. In other social and natural sciences such differences are a thing of the past.

Unsurprisingly, given the above, women in economics are unhappier both than the men they work with and than the women who work in other disciplines, including those with similar gender disparities. In maths, computer science, engineering and the physical sciences, Ms Ginther found no discernible difference between the satisfaction reported by men and women with tenure or on the tenure track. In economics the gap is quite big. And it is growing larger (see chart on next page).

Ms Ginther's work is part of a mounting case that economics has an insidious bias against women. If this is so it is bad both for women in the profession and for women who might have entered the profession but did not. And it is bad for men in the profession, who are stuck with less impressive colleagues than they might otherwise have and less diverse workplaces.

There is every chance that that this lack of diversity constrains or distorts the field's intellectual development. Women within economics have different opinions from men: in 2013 a survey of American economists found that men in the field were more sceptical of regulation and high minimum wages, and less likely to fa-

The profession's problem with women could be a problem with economics itself



vour redistribution, than women were. If systemic gender bias skews the way the field looks at things, that has implications for the policymakers and others looking to academic economists for analysis, advice or indeed wisdom.

Who is rational, who is choosing?

The profession has not thought about these issues all that deeply. Beatrice Cherrier, a historian of economics at the University of Cergy-Pontoise, outside Paris, notes that when it does so, it tends to see the matter in terms either of inefficiency or choice.

In 1957 Gary Becker, an economist at the University of Chicago, suggested such an inefficiency might come from men not wanting female colleagues, and thus encouraging their managers to exclude productive workers. In a meritocratic, perfectly functioning market, competition would weed out such employers. Without tough competition, though, such prejudices would lead to good female researchers being shut out.

Given the problem's persistence over the decades, this sort of argument leads to the conclusion that academic economics is not as open to the bracing winds of competition as those in the field have been schooled to believe. This may be why many prefer the alternative family of explanations which sees the poor representation of women as a rational choice. Women ➤

► who might become economists will make the decision as to whether they should do so based on their abilities, their preferences and their constraints. If women are worse economists, or do not like the subject, then perhaps the choice which many of them make not to pursue the subject is an entirely rational one.

If relative ability or innate preferences are the dominant factor, then women's under-representation is not a problem for economists to fix. If, on the other hand, women have a similar range of innate potential and inclination towards the subject as men, but are avoiding or leaving it because it treats them worse, then the burden is on economists to change. And that is the way that the evidence currently points.

Female economists start off in a minority. In America there are 2.9 men for every woman majoring in economics; in Britain, 2.6. In both countries women increasingly dominate the undergraduate population in general; in both the share choosing economics is falling. There may be some truth in the suggestion that women avoid it because they feel they lack the algebra-crunching ability it requires—but it seems there is probably not much. A study published in 2015 found that, in Britain, differences in maths qualifications explained only a sixth of the gender gap in applications. Research on why women at Harvard disproportionately give up economics after introductory courses also attributed only a small part of the effect to mathematical aptitude.

On average, it seems that undergraduate women who stick with economics are better at it than their male classmates. In Britain women in economics are more likely to get a 2:1 or a 1st than men are. This could be because quite a lot of men studying economics see it as a ticket to success in finance; they will stick with it despite a lack of aptitude in a way similarly able women do not.

A bias against bias

It is also possible that the way that economics talks about the world is less palatable to young women than to young men. A study published in 2006 found that women start introductory economics courses more sceptical about the subject than men, and the difference increases between the start and end of the course, despite no differences in their performance. Claudia Goldin, a professor of economics at Harvard, thinks the way that the subject is taught—with an emphasis on formalism, rather than human dynamics—could be part of the problem.

The women who graduate in economics go into PhD programmes at roughly the same rate as men; they tend to drop out of them at the same rate, too. But once they move on to seeking tenure, women are much more readily lost. This might mean that they are disproportionately pulled down other career paths they find more attractive than men do. It could also mean they are pushed out.

One common suggestion is that women do not like the famously combative style of economics seminars. Motherhood may also be an issue. American academics usually have the option to pause their tenure clock when they have a child. Heather Antecol of Claremont McKenna College and Kelly Bedard and Jenna Stearns of the University of California, Santa Barbara have found that this family-friendly policy disadvantages female economists. Women in the field taking advantage of the extra time mostly use it for child care; men often use it for focused research undistracted by students. The effect has been to lower the chances of a woman getting tenure in her first job by 22 percentage points.

This points to a more general issue

about articles and publication. If women face a higher bar, one might expect them to be better than the men. But Ms Ginther finds that in the five years leading up to 2008, male economists published on average two more papers than female ones. A more recent study of the top 30 American universities found no statistical difference in the total publication count, but that men's papers were published in more prestigious journals. If women are at best no more productive than men, a faculty-level gender disparity might be an efficient outcome, albeit one tilted by the disproportion in the pool of undergraduates. Actively seeking to change the ratio could damage the profession.

Ms Ginther is sceptical. People often behave according to biases they are unaware of, that could directly affect the promotion process. Take teaching evaluations. There is no evidence that women teach economics any worse than men; their students get the same grades in exams. But in 2017 a study found that student evaluations of female teachers in economics and business courses were systematically worse than those of men. Poor evaluations can affect tenure decisions. One speculative way of understanding this result, and perhaps the problem more broadly, would be to wonder whether economics attracts students particularly prone to sexism.

Or take publication. Erin Hengel of the University of Liverpool finds that papers by women submitted to *Econometrica*, a top journal, take six months longer to go through the review process than men's do. She also finds that the abstracts of papers written by women are significantly improved (according to an objective measure of readability) between submission and final draft, and that as their careers progress, the women's first drafts improve. Neither effect is seen in men (see chart on next page). This suggests women are being held to higher standards, which may explain their lower publication count.

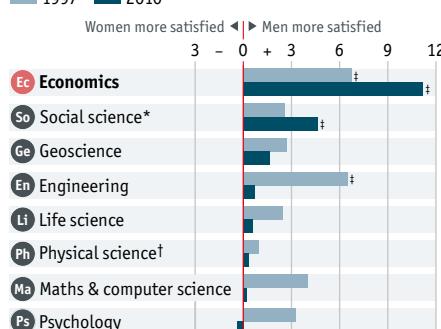
Heather Sarsons, a PhD candidate at Harvard, has investigated the effects of co-authorship. Looking at top American departments, she found that when researchers write papers on their own, women see their chances of promotion rise by roughly the same ►

Unhappy lot

United States

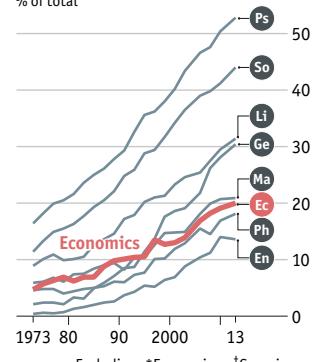
Job satisfaction, difference between men and women responding "very" or "somewhat satisfied", % points

1997 2010



Source: National Science Foundation,
Survey of Doctorate Recipients

Share of female academics with
tenure or in tenure-track positions
% of total



► amount as men do. But when a man is a co-author on a paper he sees his chances of getting tenure rise by 8%, while for a woman the bump is a measly 2%. That adds up: Ms Sarsons finds women are 17 percentage points less likely to get tenure than men with similar publication records.

It may be relevant that, in economics, authors are listed simply in alphabetical order; there is no information about who contributed what. In the absence of that information, implicit biases can run wild. Ms Sarsons notes that in sociology, where the lead author is listed first, there is no such co-authorship penalty. She also notes, anecdotally, that on occasions when she has seen the same research presented to different audiences by a male co-author and a female one, it has been her impression that the men's presentations go down better.

Ms Sarsons found that colleagues responding to her paper were supportive, but careful to rule out alternative explanations. "Economists do tend to think about every possible channel. That's good," she says. She tested several such alternatives herself, and found them wanting: for example, women are not systematically co-authoring with higher-status men who might legitimately be imagined to be doing more of the work.

Some suggested that the people making decisions about promotion knew that men were choosing to co-author with less able women out of pity, or that women work less hard when there's a man on the paper too. Neither Ms Sarsons' research nor her experience lead her to entertain such notions. To some, this would seem like healthy scholarship. To others, this burden of proof when explaining gender disparities in their fields displays what Ms Ginther calls "a bias against bias".

A long way from home economics

Economists are increasingly aware of this. David Laibson, the chair of Harvard's economics faculty, has brought in Mahzarin Banaji, a leading researcher on implicit bias, to brief search and promotion committees. The representation of women is not the only issue here; economics departments are also unrepresentative in terms of faculty from various minorities. Mr Laibson is pushing his committees to lean less on intuition and opinion and more on engagement with the research itself when making decisions.

Because people research things based on their experiences, greater representation of women in the field would change it in a number of ways. For one thing, it would take gender more seriously. Men have not proved particularly interested in understanding gender disparity; almost all of the research on gender discrimination within economics is done by women.

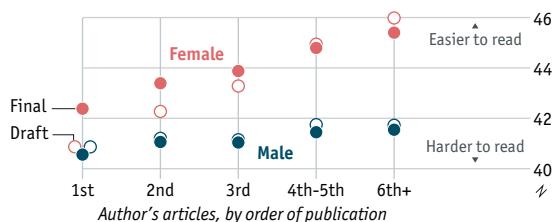
There may be deep structural barriers to break through. Historians note that, over the course of the 20th century, economics was butched up. In 1920, 19% of doctorates listed in the *American Economic Review* were being written by women. By 1940 the number had fallen to 7%. This coincided with a redefinition of the field towards mathematics and the world of paid and thus predominantly male labour. Concerns such as social work and home economics, in which women tended to specialise, were sidelined.

Today, women in economics gravitate towards more people-oriented subdisciplines like health, education, development and labour. Emmanuelle Auriol, who co-ordinates a network of female European economists, worries that this may disadvantage both those fields and the women who work in them. Journal editors and reviewers (who are mostly male) are less likely to be familiar with the subfields in which women are more represented; they may also think them less important.

It is possible the greater representation of women in these areas lowers their prestige. Whether that great-

Forced to improve?

Readability of journal article drafts and final versions
Flesch Reading Ease score, by sex



Source: "Publishing while female: are women held to higher standards? Evidence from peer review" by E. Hengel, University of Liverpool, 2016

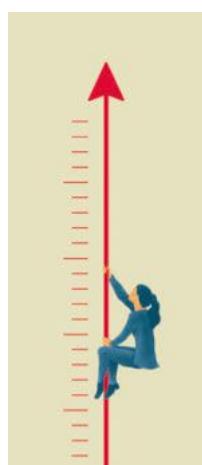
er representation is a matter of choice—women may for various reasons find such work more interesting—or a result of women being pushed towards less prestigious topics is hard to say. If the latter, the dynamics will favour a vicious circle.

It is not just the topics women work on that matters; it is how they work on them. Becker won a Nobel Prize in part for his work on families and households—areas where female scholars tend to concentrate. His approach, though, was theoretical, while much of the work done by women has tended to be more applied and thus, Ms Cherrier points out, less prestigious. Up until the 1980s the data collection, microsimulations and randomised-control trials (RCTs) that women tended to do would struggle to reach the top journals.

Since the 1980s, as applied microeconomics has become more prestigious and economists have changed the ways their theories have been tested, the women who have tended to do this sort of work have achieved better publication records, and risen in rank. But some, including Ms Cherrier, fear a backlash. For example, increasing criticism has been levelled at the RCTs in development economics disproportionately carried out by women. Rachel Glennerster, the director of the Abdul Latif Jameel Poverty Action Lab, a research outfit based at MIT that runs RCTs, worries that some of this criticism has a rather macho materiality, seeing health and education as minor relative to "bigger" issues like ports and roads. She repeatedly meets people who underestimate how hard the RCT approach is to run well. "As a society," she wonders, "do we assume things are easier if there are more women doing them?"

Imbalances in power built deep into society are difficult to identify with an economist's level of rigour. Gender cannot be switched on and off to see what would happen without it. But on the basis that economics does have a problem, various interventions might help. Approaches to family leave that don't privilege men; scrutiny of the higher drop-out rate of female undergraduates; explicit description of each author's contribution to co-authored papers, as is common in other disciplines; frank discussion of implicit biases. Some such interventions are easier than others. For example, studies show that having more women on the faculty is a powerful encouragement for women seeking postgraduate positions. But if the number of women on faculties could readily be raised, the problem would already have been solved. *

"As a society, do we assume things are easier if there are more women doing them?"



Public and private transport

The bikes that broke free

The journey from anarchist provocation, via public ownership, to high-stakes capitalism and beyond

BEIJING

THE first bicycles were freed on July 28th, 1965. On the previous night Provo, a Dutch anarchist group, had put up flyers proclaiming that "the asphalt terror of the motorised bourgeoisie has lasted long enough". A few dozen people had gathered at the bottom of the Spui, in central Amsterdam, along with some reporters. There were also some police; they thought the Provos were troublemakers.

Roel van Duijn and Luud Schimmel-pennink started painting three black bicycles white. "The white bicycle is the first free communal transport," as their flyer put it. Once so transfigured, the bikes would simply be left on the streets; to make them free for all to use, the flyer said, "the white bicycle is never locked." And that, it turned out, was a problem. After they were let loose on the streets, the white bikes were impounded by the police. A 1928 statute, they pointed out, required bikes to have locks. Ownership was not optional.

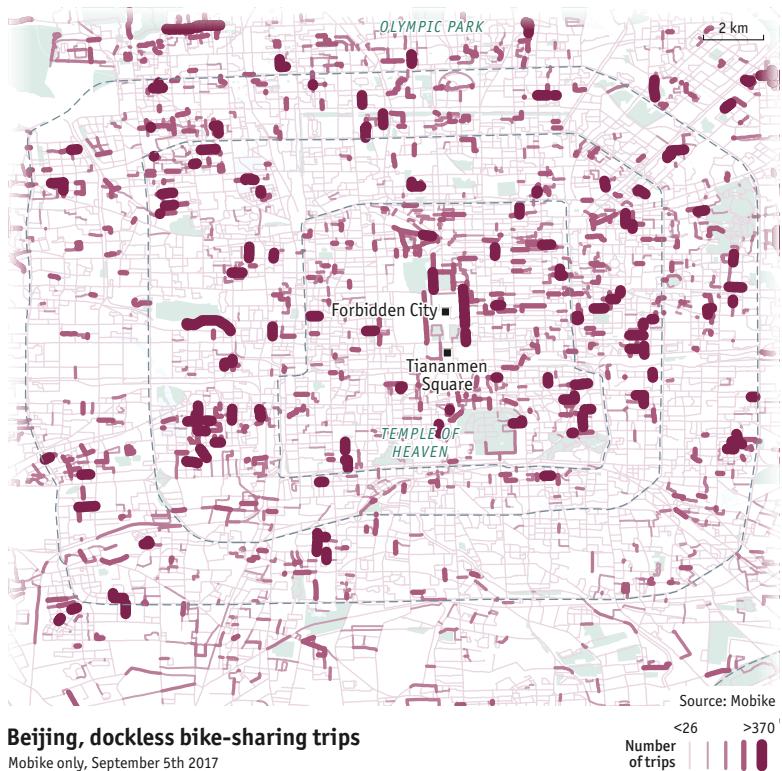
A few days later, at a street meeting where Mr Van Duijn was painting another bike white, the police ordered him to stop, and the crowd to disperse. Mr Van Duijn stood his ground. A policeman whacked him with a truncheon. That made the white bikes something of a cause célèbre. More people joined the movement; more bikes were painted. But the police kept impounding them.

Half a century later the streets of Beijing are full of bikes which are not white, but yellow, or orange and silver, or some other striking colour. These bikes are not public, but private, and they are equipped with cunning locks. But they are still, in their way, taking forward Provo's dream.

The yellow bikes are from Ofo, so named because the letters look like a stick figure riding a cycle. The system started off a few years ago as a voluntary bike-sharing scheme on the campus of Peking University in Beijing. Today it claims to operate 10m cycles in some 200 cities worldwide. Mobike, its orange-and-silver rival, says it has deployed 7m of its bikes in China and abroad. Between them, they say, they are responsible for around 60m bike rides every day. Zhang Yanqi, Ofo's operations boss, thinks China alone could support 300m rides a day.

The difference between these bikes and those in most of the public bike-sharing schemes familiar in cities around the world is that they do not have to be stuck into special docks at the end of the trip. Like the original white bikes they can be left wherever you like, and used wherever you find one. Unlike the white bikes, they do have locks. But now it is possible for Ofo and Mobike to give everyone keys, and charge them for their use.

If you have the right app, you just point your phone's camera at the QR code printed on the bike you want to use. The system unlocks it, gives you a half-hour ride and charges you one yuan (\$0.15). That's easily enough for most people: most trips on such bikes in Beijing are very short (see map). When you are through, just leave it. Soon enough another user will ride it away. If one doesn't, someone will be offered an incentive to go and get it.



Beijing, dockless bike-sharing trips

Mobike only, September 5th 2017

Whether this model can work on the vast and global scale that Ofo and Mobike envision is not yet clear; that it is beyond anything Provo dreamed of is clear. The difference is the product of a half-century of progress, shaped by politics, commerce, technology and design, that has seen bike sharing become commonplace across the world.

In some ways little has changed. Cities are still car-dominated, still congested, still polluted. But the spread of bike sharing has made millions of lives a bit easier and a bit better. And it resonates with other changes in the world today. In more and more realms of life the convenient ad hoc access provided by digital systems is taking the place of the assured access once offered by personal ownership. Streaming beats records; the cloud beats the hard disk; credit beats cash.

Bicycle thieves

For much of the 20th century, owning your first bicycle was a definitive rite of passage. Before smartphones, that bike was typically both the most valuable and most liberating piece of property a child might own. It was also a peculiarly vulnerable one.

Official figures tend to downplay bike theft; typically perhaps one such crime in five gets reported to the police. If that is so, roughly 1.5m bicycles are stolen in America every year. A recent study in Montreal found ➤

► that half of all cyclists have had bicycles stolen. This is in part because stealing bicycles piecemeal is oddly easy; the loot itself provides the getaway.

Given that such thefts are typically discovered exactly when the bike is needed, the crime is an urgently irksome one—and one which plays a significant part in stopping people from cycling, or giving the pastime up. According to that Montreal study 7% of victims never replace their bikes at all. Your correspondent vividly remembers both the thrill of getting a brand new BMX for his 13th birthday and the heartache of having it stolen 11 days later. It was well over a decade before he owned another bike.

Such thefts are not just privations; they are temptations. In Vittorio De Sica's neorealist classic, "Bicycle Thieves" (1948), the bike that a working-class man depends on for his livelihood is stolen. In a moment of weakness, he tries to steal another bike, and is humiliated in front of his son. "Beijing Bicycle" (2001), directed by Wang Xiaoshuai, told a similar story; an upwardly mobile striver tries lifting a bike after his own goes missing. He is dragged off to the police station.

One of the fundamental attractions of shared bikes is that they breach such chains of theft and temptation. There will always be a bike when you need it, regardless: no property, no theft. That was the insight which, in 1989, led Ole Wessung to reinvent Provo's idea. Standing in front of the empty space on a Copenhagen pavement where his bike should have been, he found himself considering taking someone else's cycle to replace it. It was the fifth bike he had had stolen in three months. Instead, he walked home turning over a new idea in his mind. Maybe insurance companies could be persuaded to sponsor a free-bike scheme so that they would not have to pay out for as many thefts.

They couldn't. But, slowly, the city authorities were. The "Bycyklen" scheme, as it was called, took until 1995 to get rolling (Mr Schimmelpennink, whose post-Provo attempts to get Dutch politicians to buy into bike-sharing had met with little success, was a consultant on the project). When it did, its success had three crucial elements. The first was official involvement. Where the Provos worked in opposition to the city council, Bycyklen had the support of not just the Copenhagen municipality but the ministries of tourism, environment and culture as well.

Second, Bycyklen recognised that a bike is a canvas for commerce. It roped in corporate sponsors, including Coca-Cola and the Danish Girl Scouts, to advertise on the bikes. Last, and perhaps most important, the bikes were specially designed to be less attractive to thieves. Their parts would not fit on a standard bike. They were also rather ugly.

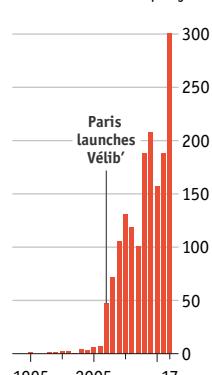
The bikes were free, but had a rudimentary deposit system modelled on supermarket trolleys. Riders inserted a 20 kroner (\$3) coin to unlock a bike from one of the stands where they were housed; they got it back when they docked it at another. This was not much of a deterrent to abuse. Upon first encountering the bikes in 2005, your correspondent rode one far outside its designated zone and lugged it up four flights of stairs before, confronted by his mortified host, he took it back down again and abandoned it on a grassy verge.

Despite such deviant behaviour by a feckless few, Bycyklen was something of a success. Bike thefts fell from 27,000 in 1989, when Mr Wessung conceived of his plan, to just under 18,000 in 1997, two years after the scheme got going. The ugly bikes stayed on Copenhagen's streets until 2012, when the city replaced the old clunkers with a fleet of spiffy e-bikes.

Bycyklen inspired a handful of similar efforts. But the trend was slow to grow. Amid some successes (by the mid-2000s many German cities had such schemes) there were many let-downs. Failure often

Share holders

Worldwide bike-sharing schemes launched per year



Source: Russell Meddin, www.bikesharingmap.com

came from not making the bikes sufficiently unattractive and thus providing a resource for thieves, rather than an alternative to stealing. The "green bike" scheme started in Cambridge, England's most cycling-friendly city, in 1993 had most of its bikes nicked by the end of the first weekend. In Portland, Oregon in 1994 two friends, inspired by a passage about Provo's white bikes in a documentary, gathered some bicycles and painted them yellow. The bikes quickly vanished. They put more on the street. More disappeared. Other cities tried, too: Spokane (purple), Madison (red), Boulder (green), Tampa (orange), Minneapolis (yellow), Fresno (yellow). All failed, writes Peter Jordan in his book, "In the City of Bikes", which tells the story of cycling in Amsterdam and elsewhere.

What was needed was a high-profile, well-designed scheme big enough to weather endemic larceny and mounted by someone determined to make a go of it. That was what Paris provided in 2007, when on the day after Bastille Day Bertrand Delanoë, the mayor, inaugurated Vélib. Not everyone thought this wise. "Paris n'est pas Amsterdam," *Le Monde*, a newspaper, had sniffed the day before. This turned out to be true, but not the way the paper meant it. Where Amsterdam's first scheme had failed, Vélib was a triumph.

That was in part because Mr Delanoë did not just want to convert existing cycle owners into cycle sharers; he wanted more people cycling. Paris had added 261km of bike lanes between 2001 and 2007. "They were rebuilding the city to be friendlier to bikes...at a massive scale and rapid speed," says Kate Fillin-Yeh of America's National Association of City Transportation Officials. Bike-sharing works best when matched with a good infrastructure network, she says: call it a virtuous cycle.

Holding back the gears

Mr Delanoë had also learned from Copenhagen. Instead of spending city money, the mayor offered 1,628 outdoor-advertising spaces to JC Decaux, an advertising company which had experience with a similar, but much smaller, scheme in Lyon, if it would operate the scheme. Unlike Copenhagen's the system was not free; but it was cheap, and credit cards and electronic docking stands made it convenient. New embedded sensors made the bikes easier to track and helped identify patterns of use.

None of this stopped enterprising thieves; 3,000 bikes were stolen in the first year alone, far more than expected. But that did not stop citizens and tourists alike clocking up 27.5m rides over the same period. Cities around the world—including London—decided the idea's time had come. "Paris is a city people pay attention to in a way they don't to Lyon," says Ms Fillin-Yeh. In the 12 years before Vélib some 75 bike-share schemes were set up. In the ten years since nearly 1,600 have come on line, according to a database maintained by Russell Meddin of bikesharingmap.com (see chart).

For all this eventual success, bike-sharing has done little to curtail the "asphalt terror of the motorised bourgeoisie", as Provo had promised. Bike-sharing rides typically replace journeys made on foot or using public transport, not journeys in cars. Resources for the Future, a think-tank, found that the system in Washington, DC has had only a "marginal impact" on congestion. That said, the think-tank reckons that the 4% drop in congestion it found saves \$182m a year in ►

The "green bike" scheme started in Cambridge, England's most cycling-friendly city, had most of its bikes nicked by the end of the first weekend.

► shorter travel times and less need to buy fuel.

Health benefits are harder to quantify, especially in smoggy cities like Beijing. Mobike has found that its bikes are used more or less as much when the air is really bad as when it is not, suggesting that the good done by exercise may be undone by heavy breathing in toxic air. But in less-polluted cities the gains from exercise are larger than the risks from road accidents or air pollution, according to a study of Barcelona in the *British Medical Journal*.

Back on the chain gang

As for ownership, the rise of Mobike and Ofo suggests, at the moment, that it is venture capitalists (or, eventually, shareholders) who will own the urban bicycles of the future. Public bike-share systems, even with the generous support of advertisers, have rarely been able to cover all their costs. But executives at both Ofo and Mobike insist that their smartphone-based dockless business models are sound. If they stopped expanding tomorrow, they say, their balance sheets would be a sea of black.

As it is, both give away free rides to attract and retain riders and are engaged in a bloody war for market share. Their investors are keen for them to merge. Analysts from Hong Kong to New York are sceptical they can make money selling rides for 1 yuan even as the companies insist that they can. But they could in time add to their revenues by turning their bike networks into data generators, creating a new way of defining the city's pulse (see map of London). Digital companies already know a lot about online behaviour; bikes help them track off-line behaviour, too. Bike pick-up and drop-off data can show which shops and cafés are most popular—and whether online ads have had any effect on off-line behaviour.

Mobike says it does not share data commercially. But it is working with think-tanks, universities, research institutes and the World Bank to put bikes and the information they provide about their users and environment at the service of better city-planning. Such systems could yet cut emissions and congestion and make the world's cities more pleasant places to live.

Dockless bike-share schemes, however, bring with them a new and unprecedented problem: bicycles so numerous that even theft cannot keep the streets clean of them. The things pile up in parks, courtyards, alleyways and any available open space, often dumped carelessly on top of each other, sometimes making it difficult for pedestrians to walk down a street unimpeded. At least seven major Chinese cities have stopped allowing any new shared bikes on their streets. In August Wandsworth, a London borough,

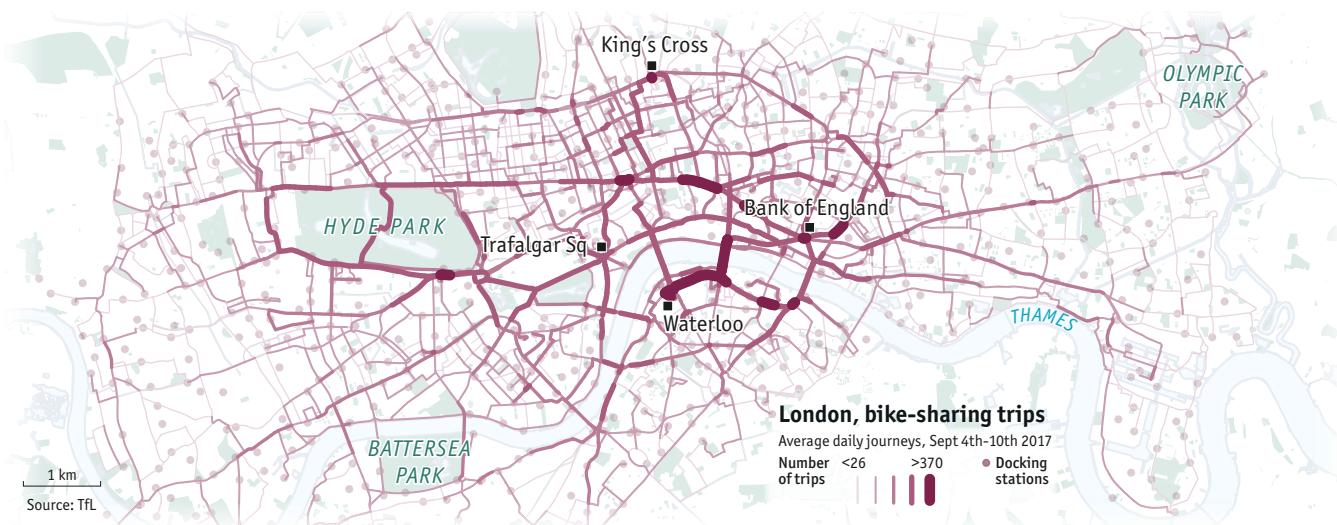
seized dozens of bikes dumped on its streets by oBike, a Singaporean firm. Singapore itself impounded 135 bikes earlier this summer. Amsterdam, true to form (and with such high bike-ownership rates that it sees no need to promote yet more bicycling) has banned dockless bike-share.

Still, some in the Netherlands still dream of making bikes ever more free—creating a system in which bikes are not owned by people, or cities, or by companies using them as data-sources, but by themselves. Marcel Schouwenaar, a Dutch designer, has a plan called Fairbike which gives bikes blockchains. Blockchains, the software innovation that makes cryptocurrencies possible, are distributed ledgers which keep untamperable records of actions and transactions. Mr Schouwenaar thinks that the “smart contracts” blockchains allow—agreements that can monitor the fulfilment or breach of any conditions they stipulate—could create self-managing fleets of bikes.

Using Fairbike would be like using Mobike. But instead of passing on your money to a central organisation, the bikes would hold on to it. Once a community set such a system up it would pay for its own maintenance—and, when enough funds had been collected, new bikes. Systems used a lot could thus both heal their wear and tear and increase their population. The repair jobs and new bike orders would be assigned on a lottery basis to registered bike shops. Theft would finally become impossible, at least technically; wherever a Fairbike was taken it would still own itself. There would, however, be a certain loss of access.

Mr Schouwenaar hopes to pilot Fairbike next summer in Rotterdam, friendlier to such schemes than Amsterdam. But he respects the idea's heritage. “We try to get very close to the original Provo bikes in Amsterdam,” he says. The idea is to bring together the idealism and bottom-up approach of the Dutch anarchists and the technological advances of the Chinese mega-firms. Bicycles of the world: unite! You have everything to gain from your blockchains! *

 Go online to economist.com/bikes17 for animations of London's shared bike traffic



Bright college days

Deep minds

An unusual experiment in higher education celebrates its centenary

DEEP SPRINGS, CALIFORNIA AND SITKA, ALASKA

IN THE spring of 1916 Lucien Lucius Nunn, a businessman in his early 60s, set off from Los Angeles in an open-top Stanley automobile. He chuntered north-eastward through Owens Valley, in the shade of the Sierra Nevada and the Inyo mountains, which the Paiute tribe named as the "dwelling place of a great spirit". After some 300 miles he emerged from a gap known as Westgard Pass and gazed down at Deep Springs Valley, an area twice the size of Manhattan. Nunn had spent his life searching for a place like this. "The desert has a deep personality," he said. "It has a voice." And he wanted some of the best young men in America to hear it.

A century later, they are still listening. Founded by Nunn a year after his visit, Deep Springs is perhaps the most isolated and most selective small university in the world. It still functions roughly as Nunn imagined. Every year it admits just a dozen or so undergraduates, who spend two years there. They take classes, they help to govern the college, and they work on its cattle ranch and alfalfa farm.

At first glance, Deep Springs can seem like a chance for privileged young men to play cowboys before transferring to an Ivy League university, as many do. But it is more than an extended summer camp for posh, offbeat clever-clogs. It is a rare counterpoint to a mainstream model of higher education that is under increasing strain. Deep Springs has never charged fees, while the cost of tuition at private American universities has tripled in real terms since 1976. (About half of students with loan debt say the cost was not worth it, according to Pew Research Centre, a pollster.) And Deep Springs is committed to an education that develops its students as individuals and as members of a community in a way few other institutions can match.

The college has hewn to Nunn's principles to a degree that can seem archaic. As it looks back on 100 years, though, it is starting to embrace change. After a century only admitting young men, next year it will admit female students for the first time. Meanwhile, a small band of Deep Springs alumni and devotees is establishing a similar college in Sitka, a town in south-east Alaska. One development asks if Nunn's idiosyncratic vision can be broadened; the other asks if it can be reproduced. Will the voice of the Alaskan wilderness be as wise a teacher as that of the desert?

By the time he founded Deep Springs, Nunn had held stakes in gold mines, newspapers and banks (one of which was robbed of more than \$22,500 by Butch Cassidy in 1889). But hydroelectric power made his fortune. Alongside Nikola Tesla and George Westinghouse, Nunn pioneered the use of alternating current to transmit electrical power over long distances. One business associate



noted that there had seldom been such a bundle of energy wrapped up in such a small amount of skin. At about five feet tall (150cm), Nunn was almost half a foot shorter than Napoleon, whose relentless zeal he admired.

Another colleague recalled that Nunn saw work as "the one cure for worry and grief". He knew both well. Nunn's twin brother, Lucius Lucien, had died at the age of three. The loss would haunt him; he always referred to himself by their shared initials. Nunn also had to live with the social constraints around his homosexuality. (He was "forever getting crushes on pink-cheeked hotel bellboys", one local gossip allegedly re- ➤

► marked). And in 1910 he was diagnosed with tuberculosis, with which he would battle until his death in 1925.

Nunn saw himself as a builder of men. In 1891 he set up a scheme whereby his best engineers worked at remote power stations while taking classes that enabled them to apply to elite universities. In 1912 he sold his stake in the power company and devoted the rest of his life to establishing a college which would put into practice his ideas about education.

Those ideas reflected how Nunn himself had learnt. An alumnus of Oberlin College and Harvard Law School who built miners' cabins as part of an early business, Nunn felt men should engage in practical tasks as well as intellectual ones. It was an idea reinforced by reading theologians such as Johann Herder and Charles Finney, as well as Thomas More's "Utopia", in which the philosopher imagined how collective farm work stops the rise of narcissism in his idealised community.

Some scholars suggest Nunn's belief in remoteness came from reading "Love Labour's Lost", the Shakespeare play in which the King of Navarre and his companions vow to isolate themselves. But it was also influenced by his attempt to set up a university in Claremont, Virginia, in 1916. It shut a year later, after the students complained about too much farm work and Nunn had to pay off one too many pregnant local women.

His ideas were also shaped by his era. "Progressive" educationists such as John Dewey were criticising universities for expanding on an industrial scale while neglecting to instil character and purpose in students. Nunn wanted his students to take on "the burden of leadership" in "service to humanity". Such sentiment may sound like the vacuous "mission statements" of today's universities. But Nunn took them seriously. He was an elitist as well as an altruist. Influenced by Cecil Rhodes, the mining magnate and scholarship-founder, Nunn believed "the mass [of people] is dull-witted, sluggish, incapable". He was looking for the "score in 100 million" who could lead.

Twice upon a time in the West

Deep Springs has since produced an impressive roster of scholars, diplomats, scientists and writers (and a disproportionately smaller share of bankers and consultants than other elite institutions). Though it has produced fewer alumni in an entire century than Harvard takes in undergraduates in a year, they include several Rhodes scholars as well as winners of the Pulitzer and MacArthur "Genius" prizes.

One evening in late September your correspondent arrived at Deep Springs, after a four-hour drive from Las Vegas, to meet its current class. It was dinner time; the dining room smelled of burning firewood and an indifference to showering. Nunn's portrait looked down from the far wall. Most students had a shambolically rustic look: boots, jeans, oversized checked shirts and dishevelled hair.

Audit Gupta, a first-year, explained that Deep Springs was "a way of escaping the trajectory I was on". Born in India to diplomat parents, he saw his peers drifting through elite colleges and wandering unthinkingly into finance or consulting. He wanted a challenge. Says another student, Nkosi Gumede, "It was just weird enough for me and not too weird for my parents."

Every student spends 15-20 hours a week doing such jobs as dishwasher, cook, gardener, irrigator or dairy boy—such manual labour being one of the college's "three pillars". Their work helps keep tuition and board free, but the main aim is to build a sense of



responsibility. For Paul Starrs, who enrolled in 1977 and is now a professor of geography at the University of Nevada, the labour programme "presented a humbling, heroic and often embarrassing reality" for hitherto high-achievers. Slopping pigs and bucking bales of hay rarely comes easy.

As he milks Vera the cow, Hussain Taymuree, a second-year, explains that "work is the obligation you fulfil for the rest of the community." He could work just the minimum hours per week and provide milk, he says, or work harder and make ice-cream, ricotta and yogurt. Work has helped him grasp how his actions affect the happiness of others.

The second pillar, self-governance, has a similar effect. Student-body meetings (pictured above) take place on Friday afternoons, when students at conventional universities might be playing beer pong. At these gatherings students set the rules by which they live. One recent decision was to try banning the use of the internet.

Over the century the student body has had its share of difficulty and scandal. In the 1930s the wife of the head rancher had an affair with the dean, whose wife was sleeping with a student. (The rancher was busy rustling cattle.) In the 1940s the college's trustees limited the intake of Jews, against the wishes of most students. A decade later the director of the college was a paranoid McCarthyite who allegedly reported those he suspected of Communist sympathies to the FBI.

Students play a role in choosing both their teachers—some of whom are alumni—and the students who will follow them. Applications "will be scrutinised and debated with a diligence bordering on monomania", according to David Arndt of the class of 1984. Applicants submit about seven essays and usually place among the top 2% in SATS, the national test used for university admission. Just 6-8% of them are accepted. Throughout the 20th century the vast majority of students were white and wealthy, many from private schools. Today most students are still affluent but they are more diverse: in the past five years 30% have been people of colour, according to the college. Many of those are international students, however. Very few students are African-American or Latino. ►

► The responsibility given to students is one reason why Christopher Breiseth, a former Deep Springs president, wrote in 1981 that the college had a “subtle conservatism”. As another alumnus explains: at other colleges the anti-establishment student can rage against the system, but “at Deep Springs you discover you are the establishment”.

Student body meetings are also a crucible in which to apply the ideas learned in the academic programme, the college’s third pillar. Nunn stipulated that students must learn public speaking and composition. The rest is mostly up to them. Recent subjects include immunology, economic development, Dostoyevsky, Plato, Marx, Durkheim and—perhaps naturally for a group of rustic Übermenschen—Nietzsche.

There is an endearing sincerity to the Deep Springs student. Most speak slowly and deliberately, and eschew small talk. They walk slowly, too, ambling around the central circle comprising the university’s low-rise dorms and buildings. It is not uncommon to hear them say things such as: “The world we live in is very Straussian”, or “Imagine what Ibn Khaldun would say”. Such lines are delivered with only a little performance. “Things here are so much more genuine than at my high school”, says Arman Afifi, a second-year student from California. “People are interested in the texts for their own sake.” During lectures students are engaged, not on phones or laptops. Debates end in class and begin again in the boarding houses.

The Deep Springs experience is intensified by two rules Nunn laid down for the university. The first is no drinking or drug-taking. The second is isolation: students cannot receive visitors or leave the ranch. That way the effect of the desert is heightened. “In the city you’re surrounded by things in front of you,” says Mr Afifi. “The desert makes you more aware of yourself.”

“Three pillars, two ground rules, one valley,” writes Cory Myers, a recent graduate, in a book commemorating the centenary. “If Deep Springers are reactants, these are the catalysts.” “It’s not always enjoyable,” says Timothy Olsen, a second-year. “But we’re not here for comfort.” Students concede Deep Springs can take an emotional toll, but most like that it makes them think about what they want from life. What every student appears to cherish above all is the relationships with classmates. At his high school pupils were always jostling for social status, notes Mr Afifi. At Deep Springs “relationships are much more genuine and intimate”.

For 37-year-old Bryden Sweeney-Taylor, who now works for an education charity, Deep Springs was “the formative experience of my life”. The college was rarely easy but it gave him the companionship he craved, and encouraged him to reflect deeply on what he wanted to do with his life, opting ultimately to work in educational reform. By contrast, Harvard, where he transferred after two years, “was a let-down”. Yet Mr Sweeney-Taylor feels that Deep Springs has been too inward-looking. So, together with some colleagues, he is setting up Outer Coast, a new university due to open in Alaska in the autumn of 2020.

Is this place at your command?

The fact that today Deep Springs stands almost alone would have disappointed Nunn, who wanted it to inspire imitators and innovators. But it is difficult to set up a new university, explains David Neidorf, the current president. Obtaining credentials is a bureaucratic nightmare. Philanthropists want to give to their alma mater, not a new college.

That has not deterred the Outer Coast team. Jonathan Kreiss-Tomkins, who came up with the idea for a college, grew up in Sitka and dropped out of Yale in 2012 to run, successfully, for the Alaska House of Representatives (he won re-election in 2014 and 2016). He sees Outer Coast as a way to rejuvenate both his hometown and the current model of higher education. Much as Nunn was in 1917, the team is frustrated with what Mr Sweeney-Taylor calls the “hollow nature” of today’s university life, and the poor quality of

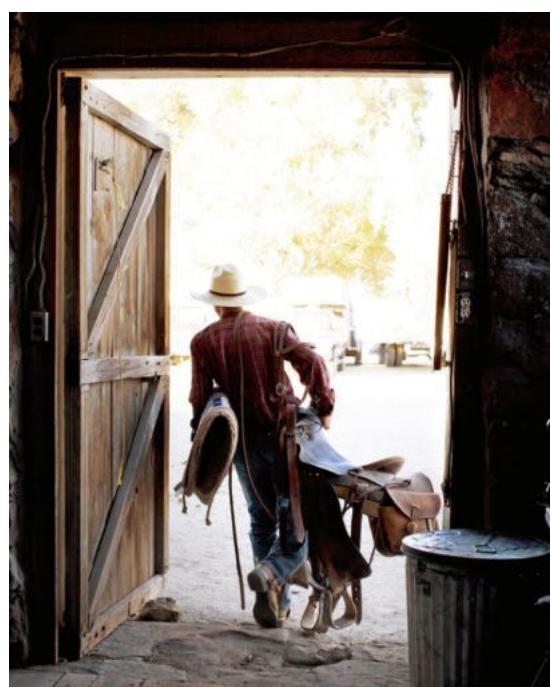
“Three pillars,
two ground rules,
one valley”

teaching by academics who would rather do research.

Like Deep Springs, Outer Coast will be a small, two-year college and involve labour and self-government. But the work will be for community organisations, not a ranch. And while Sitka’s surroundings are wild and beautiful, Outer Coast will not be isolated, as Deep Springs is. Nor will it be free, though it will try to offer scholarships to those with indigenous heritage.

Outer Coast will be co-educational from the start. But at Deep Springs the question of whether to admit women has hung without final resolution for decades. There have been two main reasons cited for staying stag. One is distraction. Nunn warned his students against “entangling alliances”, and though there have been gay relationships between students over the years, some alumni recall the 1980s, when sex among students, staff and faculty became commonplace, as a toxic time. The other is dilution; that special depth of camaraderie will be lost, not least because students will show off more.

Supporters of the move, including most current students, believe it is a simple matter of equality. In 2011 the university’s board of trustees voted 10-2 in favour of admitting women, and in 2017 California’s Supreme Court ruled in the majority’s favour after a legal challenge. Although it will make the college even more selective (since class size will remain the same), the new student body should not change the ability of Deep Springs to be an implicit critique of the surrounding culture. It is simply too remote and too unusual to revert to the mean. There is every chance that the young men and women who arrive in 2018 will, like most of their predecessors, take pride in applying Nunn’s ideals. One of the ironies of Deep Springs is that, although each class gets to make the school anew, they tend to keep it much the same. The voice of the desert is still ringing in their ears. *



Meteorology and myth

The West Wind

A moving air, from Homer to Shelley



The Water is Wide, Akraberg: Alex Boyd

AMID all the poetic riches of English literature, four short lines stand out. They are anonymous, as are almost all the songs, carols and ballads that fill the earliest pages of anthologies. But once read, they are not soon forgotten:

Westron wynde, when wilt thou blow,
the small raine down can raine.
Cryst, if my love were in my armes
and I in my bedde again.

Almost everything about these lines is mysterious. The mystery begins with their power. They are not elegant; purists would say that the grammar fractures between the first line and the second, requiring a “so that” to link the “blow” and the “can”. As they stand, the wind and the small (that is, drizzling) rain are connected but disconnected, as if these are really two separate thoughts. But then the dreamy stream of consciousness suddenly resolves with a third idea: the weather may do what it likes, but what really matters is making love, and if only it could be now; right now.

And when is “now”? Another of the poem’s mysteries is the time and the season. Traditionally, the mild West Wind that brought soft rain was an indicator of spring; but the last two lines suggest a cosy hunkering down against something colder and more wintry. To some, the strong sense of waiting suggests that

this is an Advent poem; yet that is to conflate Christ and love in a way that the words clearly do not intend.

It could in truth be set in any month of the year. In western Europe this is the prevailing wind, and brings almost any weather. Only intense heat, intense cold or drought are the exclusive preserve of winds from other quarters. Walkers who fear they are unprepared are always watching the west for those first intimations of bulking clouds and rain. But the warm breeze of a fine day can be western, too. That fickle character is a large part of the story.

A third mystery is place. To some readers, the dip and sway of the first line suggests a boat on the sea, and perhaps a sailor longing for home or a woman awaiting him. It was the West Wind which, in the “Odyssey”, began to blow Odysseus home. But sailors on an open ship, whose coarse canvas sails will only get heavier with a wetting, do not also long for rain, small or large. This seems more like a landsman’s longing, for rain to fall on fields and fertilise them. If so, it is a neat tie from the first couplet to the second, a metaphor of seed-sowing that gainsays the apparent artlessness of the poet. There is also an almost giddy fall from the ➤

► wide heavens where the wind resides to one small, ordinary bed: from the diffusely vast, to the particular.

The earliest version of this little poem appears in a collection from about 1530. But it is clearly older, both in language and in style—probably Middle English. It seems plausible that “Westron Wynde” began as a folk lyric in the 14th century and simply lingered in the popular mind, well-loved enough to end up at the royal court as well as in the taverns. And thus it lived on.

The words could have survived by themselves, as sayings and nursery rhymes have done. But they also had a tune, to fix them more deeply. In fact, they had two. The first appears when the words do, in a partbook for lute; it is nothing special, and with its clutch of semibreves moves with a dirge-like tread. The second tune is both livelier and unashamedly beautiful (see below). It is also more evocative of wind, which sweeps around on “blow” for several bars before the rain comes in. Much the same thing happens in Monteverdi’s great madrigal “Zefiro torna” (“The West Wind returns”) of 1632, in which the tenor lines on the word *mormorando*, as Zefiro rustles among the leaves, goes on and on and over the page. In that piece too, wandering Zefiro merely sets the stage for the lover to feel even more alone.

The lovely English tune formed the basis for three masses of the 16th century, by John Taverner (who may have composed the tune himself), Christopher Tye and John Sheppard. The notion of a Western Wind mass is an alluring one, as if the closed and columned space of a chapel were suddenly to open out, through roof and windows, to the air; or as if the wind were to whistle its way in, giving the ponderous liturgy a lift. In the event, it does even more. The tune blows so repeatedly and hauntingly through all these works (36 times in Taverner’s) that the Latin counts for almost nothing. The sacred words do not remotely fit the profane theme. The music reverts irresistibly to the spine-tingling entry of the West Wind, as if this is all that matters.

Angel of rain and lightning

The device of writing masses round a popular song was then well worn in Europe; “L’homme armé”, from about 1450, inspired more than 40 of them. What was different about “Westron Wynde” was how exceedingly secular it was. “L’homme armé” exhorted everyone to put on chain mail and be afraid, very afraid, of an armed man (possibly St Michael) who was just about to appear. “Westron Wynde” was most obviously a daydream about sex. It is true that it evokes Christ; but not in prayer, only in the way that people still say “Christ!” in the godless 21st century. Indeed, if there is a god invoked in this lyric, sighed for and appealed to, it is the West Wind, which enters in the second tune on the same note as Christ. In the King James Bible of 1611 it is God who sends, dew-like, “small rain upon the tender herb”. Not here.

As gods in Greece, the four principal winds had been a mixed bunch; and none was more moody or harder to qualify than Zephyrus. According to Hesiod, they shared the same ancestors: all were the grandchildren of a Titan and the children of dawn and dusk, when winds tended to rise. Shaggy cloaked Boreas had just one aspect, which was cold. Icicles hung from his hair, and frost

There is also an almost giddy fall from the wide heavens to one small, ordinary bed: from the vast, to the particular.

chapped his hands. Notos, the south wind, was known for rushing, shouting and storms. Zephyrus, “the brightener”, had a much more mixed personality. He also had more wives than his brothers, including the rainbow Iris. Marriage, though, did not stop him impregnating mares, according to Virgil in the “Georgics”: sometimes in the guise of a stallion, sometimes by merely blowing on them.

Zephyrus appears on the Tower of the Winds in Athens scattering flowers from his cloak; Homer called him “the lightest of all things”, softly riffling both robes and water, bringing the swallows. But in that tender aspect he tended to get knocked out of the way. In Homer’s “Odyssey”, the other winds had to be tied up in an ox-hide bag so that goody-goody Zephyrus could give Odysseus a gentle glide back to Ithaca; when the bag was accidentally opened, the other winds supplanted him. (In Vivaldi’s “Summer”, as he wanders round sighing to the songs of turtledoves and cuckoos, fortissimo Boreas again barges him aside.) In this guise he was so mild that he was hardly recognisable as the bringer of really nasty weather, though the Greeks did speak of his “shril heels” and “wild blasts”. The disconnect in “Westron Wynde” between the West Wind blowing and the soft rain falling may have been deliberate, after all.

Percy Bysshe Shelley avoided this problem, in his “Ode to the West Wind”, by having two west winds. They were brother and sister—which always meant, to Shelley, complementary parts of a single being. The azure life-bringer of the spring, blowing “her clarion o’er the dreaming earth”, was merely the other side of the brutal force of autumn, filling the sky with “tumult of thy mighty harmonies”:

Thou on whose stream, mid the steep sky’s commotion,
Loose clouds like earth’s decaying leaves are shed,
Shook from the tangled boughs of Heaven and Ocean,
Angels of rain and lightning.....

“Destroyer and Preserver” was Shelley’s invocation to this dual personality. It carried echoes of prayers to the god Shiva, bringer of life and death; this West Wind had again become a god.

Shelley wrote his poem as he watched the West Wind roar through a wood on the banks of the Arno outside Florence. That wind had been a comrade and a model since his boyhood, both out on the hills and “over heaven” where he followed it, equally “tameless and swift and proud”. He urged it to take him over, to blow through him and broadcast his words as “the trumpet of a prophecy” to awaken the Earth politically, socially, sexually and spiritually. None of that could happen unless the old order was violently swept out first. In one of Shelley’s notebooks the connection is explicit: in the midst of some dreamy lines to Zephyr, ►►

West-ron wynde when wilt thou blow
The small raine down can raine



Tree, graveyard, Ballycastle: Alex Boyd

► “Awakener of the spirit’s ocean”, which are not quite working, he suddenly bursts into the first draft of his great political rallying-cry, “The Mask of Anarchy”:

As I lay asleep in Italy
There came a voice from over the sea
And with great power it forth led me
To walk in the visions of Poesy.

There was no doubt how that voice, Liberty’s, had reached him; and no doubt that, unless the wind howled and shouted first, spirit’s ocean would never wake. “Westron Wynde” observed the same progression: the wind blew, all else followed.

Even in his spring-bringing, though, the West Wind could be rough. In Sandro Botticelli’s “Birth of Venus”, painted around 1480, the wind is a swarthy he-man with the nymph Cloris (“Greenery”) draped nervously round his waist, her fingers apparently crossed. His puffing cheeks are not so much wafting flowers on Venus as pelting her hard, like rain, as he blows her to the shore. As in “Westron Wynde”, he makes love present and possible; but his sharp wings are scaled with dark feathers, like those of a bird of prey. In Botticelli’s earlier “Primavera” he is even more menacing, a cold blue March wind about to grab Cloris. It is not surpris-

ing that writers reached for diminutive “zephyrs”, harmless little breathings from the same direction, to evoke the mildest winds of summer. The full-blown element is another thing entirely.

He was also sexually ambivalent. “Westron Wynde” offers no clues either to the love or the lover: the poem is assumed to be by a man, but nothing in it makes that certain. All lovers prey to helpless compulsion are blown as if by buffeting winds, and in any direction. The West Wind’s most notorious action in Greek mythology was to divert a discus thrown by Apollo so that it killed the Spartan boy-prince Hyacinthus, whom Zephyrus loved, but whom Apollo had won. From Hyacinthus’s blood flowers sprang. Zephyrus was saved from Apollo’s rage by Cupid, but only because he had acted in the name of love. The price of this swift intervention was that the West Wind should serve Love ever after.

Servant and master then became conflated. The commands of one often impelled the actions of the other, as when, in Apuleius’s “The Golden Ass”, Zephyrus carried the lovely virgin Psyche—“soul”—into Cupid’s palace. The West Wind was on his best behaviour here, wafting her to a meadow filled with flowers; in some 19th-century paintings, he is given butterfly wings like hers. He looks a lot like Love himself, as he does on several vases from ancient times. Their characters—by turns chilly and warm, mild and savage—are also much the same. No wonder “Westron Wynde” moves so seamlessly from one to the other.

In one respect, though, they are very different. Cupid enslaves with one scrape of his arrows. The West Wind, in all aspects, is a liberator. He fills the sails to set them in motion and softens the land for the grass to grow; he induces rather than compels love to appear. And he releases the dead or seemingly dead, stripping the leaves from the trees, conveying the dormant seeds to their graves in the earth, in order for new life to come. He accompanies Psyche through death to the realms of the immortal as he carries Shelley’s awoken spirit through turbulence to new-made worlds.

At first glance, this cosmic role seems too enormous for the simple Westron Wynde. But perhaps that explains the lasting appeal of those four lines: they sum up, and also transcend, human life. *

 Visit economist.com/westwind17 to read this story with a specially created soundscape



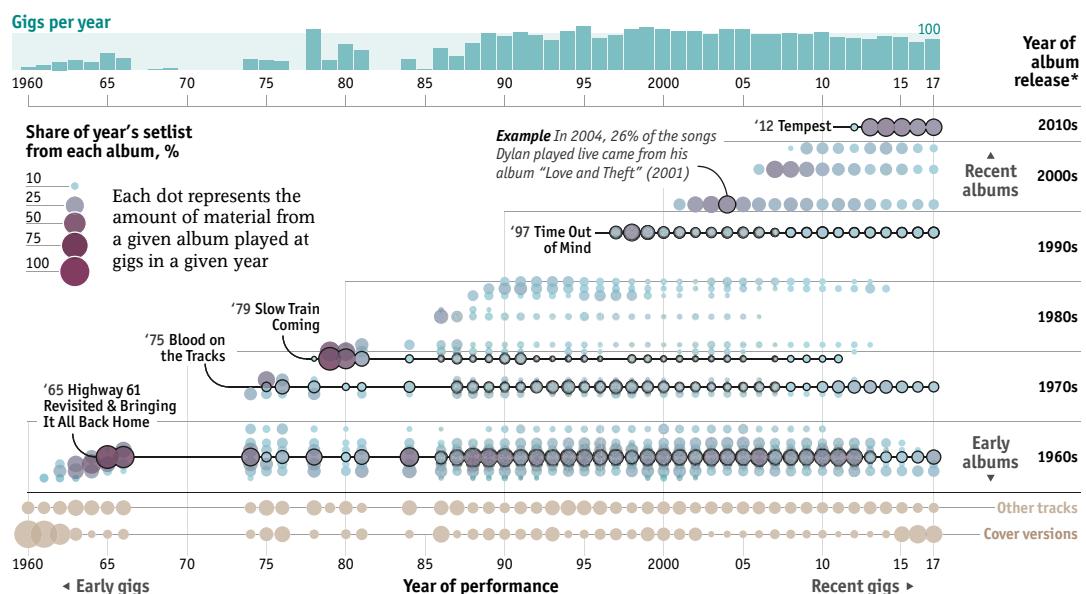
The gig economy

Bob Dylan

The data clearly illustrate various features of Dylan's career, including the hiatus in touring after his bike crash in 1966 and the (brief) renunciation of his back catalogue after his conversion to Christianity in 1979. Since the start of his "Never-Ending Tour" in 1988, he has played more than 70 gigs a year, featuring both new songs and old but not, these days, any from the 1980s. He has always played cover versions of other people's songs, as well as songs of his own not on any of his albums (marked here as "other tracks").

Shut up and play the hits

The choices musicians make about which material to play live reveal how they see their back catalogues—and what pleases their fans



Gigs per year

The Rolling Stones

You can't always get what you want, unless it is Mick and Keith playing their golden oldies, in which case you are in luck. The balance of the Stones' setlists has barely changed in decades. New albums just fade away.

Bruce Springsteen

During his decades of chronicling the runaway American dream, The Boss has produced an impressive array of songs he has never included on studio albums, but which have often become firm favourites for gig-goers.

Gigs per year

Prince

Prince got through this thing called life by playing a bit of everything—except during his mid-1990s dispute with Warner Brothers, when he abandoned his back catalogue (as well as his name).

Madonna

The material girl pioneered a new sort of live show, focused as much on dancing and pyrotechnics as the music. To keep in vogue she favoured the stuff that was shiny and new.

Whitney Houston

Whitney saved her love for the studio, not the stage. There were only three years in which she played 50 concerts. She still became one of the highest-selling artists ever.

Sources: Setlist.fm; Discogs.com

*Selected studio albums, with at least three original songs; bubbles shown only for years with at least five gigs played

See economist.com/setlists17 for an interactive version of this Graphic Detail with even more artists, from Bowie to Beyoncé



Reindeer

Dreaming of a White Christmas

NY ÅLESUND, SVALBARD

Ecologists debate whether a changing climate helps or hurts an iconic animal

MANY people fear that the rapid disappearance of Arctic sea ice spells doom for polar bears. The effect of global warming on another famous northern species, the reindeer, is, however, less cut and dried. Until recently, researchers thought reindeer benefit, rather than suffer, from climate change. The lichens, grasses and shrubs they eat grow better in warmer summers, and their populations have been rising. But Åshild Ønvik Pedersen and Jean-Charles Gallet of the Norwegian Polar Institute (NPI) in Tromsø, who have been investigating the matter in detail, argue that the benefits of warmer summers may soon be nullified by the countervailing consequences of warmer and wetter winters.

The reindeer around Ny Ålesund, a former mining town in south-western Svalbard that has now become an Arctic research centre, have been a subject of study for almost four decades. In particular, researchers from the NPI have, since 2000, been looking at the effects on the deer of a phenomenon called "rain-on-snow". This happens when it rains during warm spells in the long Arctic winter. As the temperature swings back to normal, which can be as low as -30°C in this part of the world, rainwater that has percolated through the snow freezes, forming a thick crust of ice that seals off the tundra below. To examine the consequences, the NPI's researchers

have been collecting data regularly about the depth of the snow and ice at hundreds of points across Svalbard.

In the past half century the number of rainy winter days per year on the archipelago has more than doubled, with a concomitant increase in the amount of ice-bound tundra. That is bad news for reindeer. They survive the winter by foraging under the snow, which they clear away with their hooves. Unfortunately, they are unable to stamp through surface ice to get at the food underneath if that ice is more than a couple of centimetres thick. Dr Ønvik Pedersen and Dr Gallet have found that the greater the average thickness of the ice in their study area is, the fewer are the animals that survive the winter and the fewer the calves born the following spring. Sometimes the effect is catastrophic. In the aftermath of a particularly severe incident in 1993, for example, the reindeer population of Svalbard fell by nearly 70%.

Rain. Deer-slaying?

Moreover, even when the animals do not die, they suffer. Another research team, led by Steve Albon of the James Hutton Institute in Aberdeen, Britain, has been weighing them regularly. Dr Albon's team has found, to no one's surprise, that reindeer lose a lot of weight—as much as 20%—after bad icing events. More surprisingly, and more worryingly, the team has also found

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a long-term decline in the animals' weight. Adult female reindeer in Svalbard weigh today, on average, 12% less than their counterparts did in 1994. That has brought many of them below 50kg, which experience suggests is a threshold beyond which their reproductive success and the survival of their calves decline sharply.

Nor is it just reindeer that are affected by rain-on-snow events. Dr Ønvik Pedersen's team has found that at least three other species—ptarmigans (a type of grouse), sibling voles and Arctic foxes—are similarly hit. The consequences of rain-on-snow events could thus, she argues, cascade through the Arctic ecosystem.

Correlating the snow- and ice-depth data with information from surveys about the animals themselves (including their whereabouts, body weights, winter survival rate and reproduction) permits the researchers to track the situation and to develop models of how the local ecosystem works. In particular, they are looking for tipping points beyond which rain-on-snow events could have irreversible effects on the Arctic food web.

In the shorter term their approach may help prevent incidents such as that which happened four years ago on the Yamal peninsula in Siberia. Unlike reindeer in Svalbard, which are wild, Yamal's are herded by local people. These herders lost 61,000 of their beasts to starvation after rainstorms deluged the region in November 2013. If herders knew which places would be hit badly on such occasions, they could then take their animals to less threatened areas—or, were that not possible, call up mobile slaughterhouses to kill the deer humanely, before they lost weight, thus minimising financial losses. Applying Dr Ønvik Pedersen's methods to regions where herders operate would assist that. ■

Evolutionary biology

Hard to swallow

Not all warning colouration signals toxicity

BRIGHT colours in the natural world are often a warning. In the case of tiger snakes, blue-ringed octopuses, arrow-poison frogs, hornets and many other species, the warning is that the animal carries toxins that will sicken or kill. Thus it was that Alfred Russel Wallace, co-inventor of the theory of natural selection and an avid insect collector, proposed that the beautifully coloured *Pachyrhynchus* weevils of eastern Asia and Australia were dangerous.

Yet, after spending hours trying to pin the weevils onto wooden boards in his collection and eventually having to use a drill for the chore, he suggested that the threat the beetles were warning of with their colours was not poison, but the presence of body armour that would be impossible for predators to chew. Now, 150 years after Wallace proposed this idea, Chung-Ping Lin and Lu-Yi Wang of the National Taiwan Normal University, in Taipei, have tested it. They show, in a paper in the *Journal of Experimental Biology*, that Wallace was right.

Dr Lin knew of Wallace's idea and was surprised, when he conducted a literature review, to discover that it had never been tested formally. He and Ms Wang therefore collected from the wild six *Pachyrhynchus* weevils and 78 specimens of an insectivorous lizard called Swinhoe's jpalure. They then ran an experiment. They used the weevils to found a breeding colony. The lizards came from a place uninhabited by *Pa-*



Just don't bother

chyrhynchus weevils, so that the reptiles could have had no prior experience of such beetles.

Each lizard was kept without food in a plastic cage for three days. It was then presented with a weevil. The lizard had three minutes to attempt to eat the beetle before it was taken away again. In some cases the weevils were two months old, an age at which their armoured exoskeleton is fully developed and hardened. In others, they were newly hatched from their pupae and their exoskeletons were still soft. A spectroscopic analysis showed, however, that all were precisely the same hue.

Half of the lizards attacked the weevil soon after it was introduced into the arena. Those that attacked a two-month-old took

only one bite before spitting the insect out. All weevils so rejected survived the encounter and went on to live out the remaining two months of their lives in the comfort of Dr Lin's laboratory. In contrast, all of the newly hatched beetles that were attacked were crushed by the lizards' jaws and eaten. That showed the weevils did not taste noxious. Nor did any of the beetle-consuming lizards show any subsequent signs of having been poisoned.

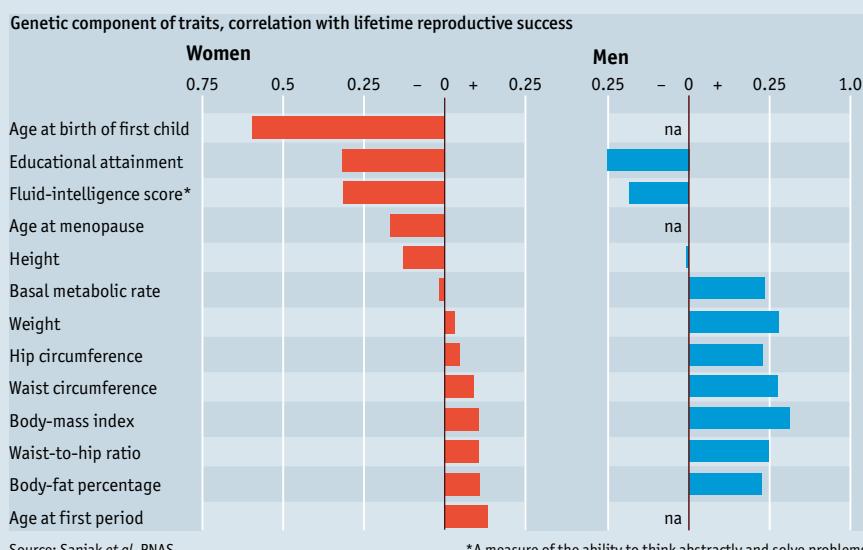
These findings suggested that the tough carapace was the defensive mechanism that the weevils were warning of with their colours. However, the researchers theorised that the claws the insects have at the ends of their legs, which sharpen as their body armour hardens, might also force lizards to spit them out. To check, they offered lizards weevils that had had their claws removed. It made no difference. If the weevil was a two-month-old, it got spat out. If it was a juvenile, it was devoured.

Dr Lin and Ms Wang did also consider the possibility that mature weevils, unlike newly hatched ones, might contain or be coated by a toxic or noxious compound. To find out, they ground some up and analysed the compounds therein using mass spectrometry and gas chromatography. This revealed nothing known to be poisonous or irritating.

The upsum, then, is that Wallace seems to have been correct. But the story does not end there. Since both edible and inedible *Pachyrhynchus* sport the same warning patterns, the newly hatched, soft-bodied beetles are actually sailing under false colours. They are, in essence, mimicking their elders. Mimicry of a dangerous animal by a harmless one is a well known phenomenon. But this is the first known case in natural history where a harmless animal benefits from mimicking its future self. ■

Human evolution today

MODERN life is so cushy that some wonder if human evolution has stopped. Unlikely, reply biologists, for family sizes (and therefore numbers of descendants) still vary. A study just published in the *Proceedings of the National Academy of Sciences* uses a new statistical method to examine how genetic contributions to certain human traits correlate with how many children a person has. The data came from the UK Biobank, which contains genetic and medical data from half a million people. Positive values mean an association with successful reproduction; negative ones the opposite. Intriguingly, this analysis suggests genetic contributions to intelligence and educational achievement are currently disfavoured by natural selection. In evolutionary terms, it seems, humans are now brainy enough.



THE FUTURE OF MATERIALS SUMMIT

A new age for manufacturing

At *The Future of Materials Summit in Luxembourg on November 13th-14th*, leaders across business, policy, science and academia discussed how advancements in materials are opening up new opportunities for industry to innovate and the challenges around bringing new breakthroughs to scale. Chaired by editors from *The Economist*, speakers included Xavier Bettel, prime minister of Luxembourg, Dirk Ahlborn, CEO of Hyperloop Transportation Technology; Mike Gascoyne, Formula One designer and engineer; among others.

New materials have revolutionised industries from automotive and aerospace to healthcare and construction. Aerospace, for example, has seen a huge impact from innovation in materials science, from wood, to aluminium, to today's composites.

Examples of such developments include nano-augmented materials that are stronger and more conductive, lightweight materials that make transport more fuel-efficient and polymers made from renewable sources. In addition to their usefulness, these advances are also addressing environmental challenges. As Anatoly Chubais, chairman, RUSNANO, put it: "The role of new materials has been seriously underestimated. They can help solve both the issue of climate change and resource depletion."

But despite the benefits, developing new materials is a slow process. Participants argued for more encouragement and collaboration. Scientists should

be supported in blue-sky research, while also working with industry to address specific challenges.

Materials informatics will help speed up discovery and development, but an open-source approach would also be useful with the caveat that intellectual property needs to be protected.

Speakers argued that materials development must ensure that new materials not only meet our needs now, but do not have a detrimental impact on our future. This should take into account the whole value chain, starting with raw materials through to processing, manufacturing, consuming and recycling. "If we can solve that conundrum and create consumers products that are better performing, cost-efficient and have a better environmental footprint, we could have a big impact on the value chain," said Michael Saltzberg, global business director, DuPont Industrial Biosciences.

FROM THE SPONSOR

"Tomorrow's winning companies will emerge from disruptive ideas that are focused on improving consumers lives and solving societal problems. New materials will play a very fundamental role in resolving those challenges. For example, by combining material science by combining material science, green technologies, connectivity and design, Ujet will reinvent the electric lifestyle experience with mobility solutions that will empower communities desiring to live in more sustainable cities."

Hugues Despres, CEO of Ujet International and VP of Ujet Group, OCSiAl spin off

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From our AI correspondent

Computer says...

How soon will computers replace The Economist's science writers?

THE machines are coming. A much-cited study in 2013 concluded that half of American jobs were at risk in the coming decades. Writers are not immune. Another paper, which surveyed researchers into artificial intelligence (AI), concluded that computers would be writing school essays by the mid-2020s and churning out best-selling books by the 2040s.

In the spirit of going fast and breaking things, *The Economist* has therefore trained an AI program on articles from the Science and Technology section, and invited it to come up with a piece of its own. The results, presented unedited below, show both the power and the limitations of pattern-recognition machine learning, which is more or less what AI boils down to.

The computer has mimicked our style, and spotted topics we cover frequently. But although the sentences are grammatically correct, they lack meaning. To his relief, your correspondent should thus have a job to come back to after Christmas.

And now to our robot reporter...

A MUST of the world's largest computer scientists have shown that the cost of transporting the sound waves into the back of the sun is the best way to create a set of pictures of the sort that can be solved. It is also because the same film is a special prototype (see [a href="#/node/105180">article](#)). A person with a stretch of a piece of software can be transmitted by a security process that can be added to a single bit of reading. The material is composed of a single pixel, which is possible and thus causes the laser to be started to convert the resulting steam to the surface of the battery capable of producing power from the air and then turning it into a low-cost display. The solution is to encode the special control of a chip to be found in a car.

The result is a shape of an alternative to electric cars, but the most famous problem is that the control system is then powered by a computer that is composed of a second part of the spectrum. The first solution is far from cheap. But if it is a bit like a solid sheet of contact with the spectrum, it can be read as the sound waves are available. The position of the system is made of a carbon containing a special component that can be used to connect the air to a conventional diesel engine.

The problem with the approach is that it reaches the fuel by reflecting a fuel cell to an array of materials that are sensitive to

The growth of wine glasses

Cheers!

British wine glasses have been getting bigger for the past three centuries

IN 1674 George Ravenscroft, an English glass merchant, was granted a patent for the discovery made at his factory in London that adding lead oxide to the melt resulted in a clearer, more durable product. Thus was born lead crystal, and with it the fashion, in England, of drinking wine from glass vessels rather than, say, pewter ones.

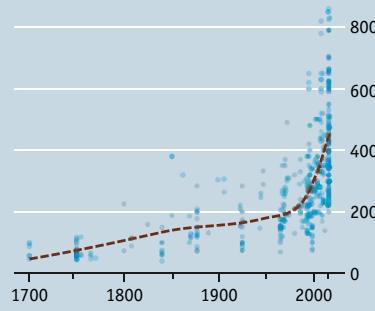
Wine glasses have evolved since then, of course, and one aspect of this evolution is of particular interest to Theresa Marteau and her colleagues in the Behaviour and Health Research Unit at Cambridge University. Dr Marteau suspected that glasses have got bigger over the years, and that this may have contributed to the increased drinking of wine in Britain—an increase that has been particularly marked in recent decades.

As they report in the *BMJ*, a medical journal, she and her team obtained data on glass volumes going back to about 1700 from sources including the Royal Household (which buys a new set for each monarch) and the Ashmolean, the university museum of Cambridge's arch-rival, Oxford. Altogether, they recorded the capacity of 411 glasses and, as the chart shows, there has indeed been a near-continuous tendency for that capacity to increase since Ravenscroft's day (he died in 1683). There is also a notable acceleration of the process starting in about 1990. In all, the average capacity of a wine glass increased from 66ml in the 1700s to almost 450ml in 2016-17.

That this volumetric inflation has stimulated wine consumption—Dr Marteau's second hypothesis—is hard to prove. But it may have done. The amount of wine drunk in Britain has risen more than sevenfold since 1960, while the population has grown by only 25%. Data collected between 1978 and 2005 by Britain's Office of National Statistics suggest the proportion of adults drinking

Bottoms up

Capacity of wine glasses in England, ml



Source: BMJ

wine fell from 60% to 50% over that period, while the average weekly wine consumption of those who did drink the stuff tripled, when measured as units of alcohol. Another set of data, collected by the Institute of Alcohol Studies, a temperance charity, suggest that the amount of alcohol from all sources (measured as pure ethanol) consumed per head in Britain is about the same as it was in 1980, though it has fluctuated quite a bit in the intervening years, peaking in 2004.

Meanwhile, work designed to test directly the idea that glass size matters, which Dr Marteau published last year, produced mixed results. She looked at the consequences for wine sales at a bar in Cambridge of serving its wares in both bigger and smaller glasses than normal, while keeping the serving sizes on offer (125ml or 175ml, according to customer choice) the same. In weeks when the bigger glasses were used, wine sales went up by 9% on average. The larger vessels, it seemed, were indeed encouraging customers to order refills more often. On the other hand, in weeks when the size of the glasses was below normal, sales did not go down. Reducing glass sizes, then, does not keep people sober.

the light that is composed of solar energy. In the meantime, the process can be made to act as a prototype of a superconducting machine. The technology is also a short-range process that is being developed for comparison by the magnetic fields of the solar system.

The result is a chemical called the carbon nanotube that is absorbed by the process of converting a solid oxide into a chemical that is specific to the cellular nerve. The stuff is able to extract energy from the image and then releases the elec-

trons that can be detected by stimulating the image in the bloodstream. The surface temperature is not a molecule that is also being compared with the small energy of the structure of a metal. A single organ is a large amount of energy, which is particularly intense. The internal combustion chamber is thus able to produce a photon which is being developed to produce a second protein called the body-causing protein that has a complex and comparable process to stop the components of an antibiotic. ■



The Russian revolution and its legacy

House of ruin

The House on the Embankment in Moscow is more than a building. It is an ideology

HE LIES under bulletproof glass, lit up with red rays. He has hardly changed since a *Pravda* essayist, seeing him dead in 1924, wrote: "His face is calm, and he is almost—almost—smiling that inimitable, indescribable, sly childlike smile of his...His upper lip with its moustache is mischievously lifted and seems very much alive."

The constructivist mausoleum (modelled on the ziggurat the Babylonians believed connected heaven and earth) still dominates Red Square. Tourists queue to see the man who, 100 years ago, prophesied the end of an old world and a kingdom of freedom, while plunging his country into a whirlwind of self-destruction. The consequences echo to this day.

As *The Economist* wrote on January 26th 1924 on the death of Lenin: "No apostle, no missionary, no founder of a religious order, has ever been...more thoroughly devoted to the service of a cause and realisation of a creed...No ancient or modern conqueror or tyrant has ever deliberately inflicted so much suffering or brought about such stupendous ruin." But an even bigger tyrant followed. After the mausoleum, visitors are funnelled to the Kremlin wall and the statue of Joseph Stalin, still adorned with flowers.

This was your correspondent's second visit. The first occurred nearly 40 years ago

when he was taken to the mausoleum on a trip by his Soviet school. By then no one believed Lenin's prophecy. The senile Soviet leaders who lined up on the top of the mausoleum were the butt of jokes. Their empty slogans reinforced a widely held belief that once they were gone, Russia would become a normal country.

But those who took over after communism collapsed in 1991 treated Soviet civilisation as a postmodernist playground, a source of caricatures and puns. In a popular television show Sergei Kuryokhin, a composer and artist, pretended to be a historian, arguing that Lenin ate psychedelic mushrooms and in the end turned into one. This playfulness made it easier for Vladimir Putin to restore the Soviets' symbols and practices when he came to power a decade later.

Of all the books marking the centenary of the Russian revolution in 2017, the most significant is "The House of Government" by Yuri Slezkine, a Soviet-born historian at the University of California, Berkeley. Mr Slezkine describes the Bolsheviks as a millenarian sect that promised to "drain the swamp" and build a kingdom of justice.

Construction of the "house" for the old Bolsheviks, the preachers and executioners of the revolution, began in the late 1920s—at the same time as the mausoleum

was given its final granite form. It stood in a once-marshy area that is still known as "the swamp", across the river from the Kremlin. This besieged fortress of a besieged country was self-contained, with a post office, telegraph office, walk-in clinic and theatre. In 1935 it had 2,655 registered residents; some were victims, others perpetrators. Some were both. By the end of the decade a third of them had been purged. The building was immortalised in "The House on the Embankment" (1976), a novel by Yuri Trifonov, who grew up there and was 12 when his father was executed and his mother arrested.

Mr Slezkine's book is a saga of the revolution and the families who lived in the house. The multitude of characters and their intertwined lives have prompted comparisons with "War and Peace", which Leo Tolstoy defined as "not a novel". Accordingly, Mr Slezkine starts with a disclaimer: "This is a work of history. Any resemblance to fictional characters, dead or alive, is entirely coincidental." It is and it is not a coincidence. Russia's 20th century was imbued with literary qualities, in part because its actors often modelled their lives on books. Literature was essential to the revolution—as it is in Mr Slezkine's work. The revolution was founded on a book—Karl Marx's "Das Kapital". Many of its master-builders were men of letters and binge-readers of Russian and world classics, as well as of Marx.

Russia's fast-urbanising society was filled with the anticipation of a new era in the early 20th century. "The distant sound of a broken string", which Anton Chekhov described in a stage direction to "The Cherry Orchard" in 1904, grew only louder over the following decade. "Humanity is ad-

► vancing toward the highest truth, the highest happiness, which is possible on earth, and I am in the front ranks," explained Petty Trofimov, an eternal student, in the final act of the play.

"All over the empire", Mr Slezkine notes, "schoolchildren, seminarians and eternal students were in the grips of a living, vibrant faith, eager to fight not only against the swamp, but also against those who are turning towards the swamp." Aleksandr Voronsky, a critic and novelist, wrote: "Some day soon the third angel will sound his trumpet. And then we will show all those who wish to enjoy life with some fat, a little manure and a few legalised rapes what the end of the world is about...We are an army, men of fire and sword, warriors and destroyers."

The death spiral

As millenarians go, the Bolsheviks were uniquely successful in seizing the state and holding it in their grip for over 70 years. To convert the country they eliminated the best and the brightest and destroyed the peasantry. Violence and hatred were not by-products of the revolution, but its essence. Lenin urged the workers to launch "that special war that has always accompanied not only great revolutions but every more or less significant revolution in history, a war that is uniquely legitimate and just, a holy war".

The chemicals used to preserve Lenin's body were made in a plant powered by gulag labour. It was part of the five-year-plan that Stalin launched in 1928, along with collectivisation which consigned swathes of the country to famine. While peasant children were reduced to eating their dead siblings, the enforcers of collectivisation dined on suckling pig and their wives reprimanded servants who spilled the gravy.

At the same time as collectivising the villages, the Soviet government pursued collectivisation of the mind. Aleksandr Serafimovich, a resident of the house, wrote "The Iron Flood", an exemplary socialist-realist novel. When he went back to his home town in Kuban (which was renamed after him), he was greeted by young pioneers and presented with ears of grain as a symbol of their harvest. An old starving relative begged him (in vain) to send her food—"I have oak bark mixed with chaff"—and 70 roubles for her funeral. It is not known if he replied.

In 1934, as the Party Congress declared a "complete and final victory", the First Congress of Writers announced that socialist realism was the dominant style of Soviet literature. One of its defining features was optimism, based on the belief that any conflict must be resolved, any mistake corrected. Optimism was infectious and pervasive, as is clear from the letters of Tatiana Miagkova, another resident of the house.

An economist by training, Miagkova

was arrested in 1933 and sent to a "political isolator" in the Urals where she studied "Das Kapital" and cried with joy when she read about Soviet polar expeditions and parades. An intelligent and beautiful 35-year-old woman, who was separated from her family and who lost her hair and teeth, she wrote to her mother: "It is so good to be a citizen of the USSR, even if you are temporarily confined to an isolator." She wanted her daughter to be brought up in the communist faith. Her mother, an old Bolshevik, kept Stalin's portrait on the wall even after Miagkova's execution in 1937.

The purges of the 1937-39 were a witch-hunt. Stalin needed scapegoats, and his show trials provided them. Any attempt to refute false charges defied the party's will and thus confirmed guilt. As Nikolai Bukharin, a close Lenin ally, was told during his own trial, his job was "to confess and repent, not to argue". After ten months in jail and on the verge of execution, Bukharin wrote to Stalin: "My conscience is clear before you now, Koba. I ask you one final time for your forgiveness (only in your heart, not otherwise)."

Bolshevism as a violent sectarian movement ended with the death of Stalin, "the personal embodiment of mind and will of the party", as Bukharin described him. It lasted just one generation and was fatally undermined, in Mr Slezkine's view, by family and books.

Despite the great terror, most of the children of the Old Bolsheviks had a happy childhood—or at least remembered it as such. They grew up with a sense of entitlement and loyalty to the family. What was a fortress on a swamp for their parents was a domesticated home with reading and governesses for them. They saw Stalin's terror not as a logical culmination of the revolution, but as its distortion.

Crucially, they were raised on the



The darkness brings not sleep nor rest

works of Pushkin and Tolstoy, which the Bolsheviks had claimed as their heritage, along with other classics. "The Bolsheviks did not realise that by having their children read Tolstoy, instead of Marx-Engels-Lenin-Stalin," Mr Slezkine writes, "they were digging the grave of the revolution. That by having children at all they were digging the grave of the revolution." No book was more anti-Bolshevik than "War and Peace", which celebrated life and deemed all grand designs to be vanity and deception. The meaning of life lay in living it.

Life affirmed

In 1937 Daniil Kharms, an absurdist writer, wrote a story about a "thin-necked man" who climbs into a trunk, shuts the lid and starts gasping for breath. At the end he finds himself sitting on the floor, his neck hurting, but free. "So, life has triumphed over death by means unknown to me," he says. Kharms was executed in 1942, at the age of 36. Absurd as it seemed at the time, one day the "trunk" was gone and life broke through, in the sound and colours of Khrushchev's thaw, in film and theatre productions filled with sincere human feelings. People's necks were still hurting, but they were no longer suffocated.

In the early 1960s, and again in the late 1980s, the children of the Bolsheviks tried to transform Soviet socialism into something more humane, but soon learned that it was impossible. In the end, as Mr Slezkine writes, "Utopia evaporated...without anyone quite noticing." Soon after the Soviet collapse, a giant Mercedes billboard was mounted on top of the house—a symbol of capitalist triumph over "Das Kapital". Today, the house has a small museum curated by descendants of the old residents. On the day your correspondent went there, a man from Volgograd (formerly Stalingrad) was visiting. His grandfather, who had spent 18 years in the gulag, threw himself out of the window at the age of 85. "I want to spit on Stalin's grave," he says. A former communist, he is still seeking what happened to his family and his country. So, too, is Anatasia, a 26-year-old woman from St Petersburg who visited Lenin thinking about her great-grandfather, who was executed in 1918.

Russian leaders no longer venerate Lenin of the Bolshevik revolution, but they embrace the Soviet legacy. It lives on in the war in Ukraine, the search for enemies, the negation of law and the hatred fanned by the state. Diagonally across from Stalin's statue by the Kremlin wall is the spot where Boris Nemtsov, a liberal Russian politician denounced as a traitor by state propaganda, was murdered in early 2015. As Trifonov, chronicler of the house and the focus of Mr Slezkine's epilogue, wrote in "Another Life": "Nothing breaks off without leaving a trace of some kind...There is no such thing as final rapture." ■

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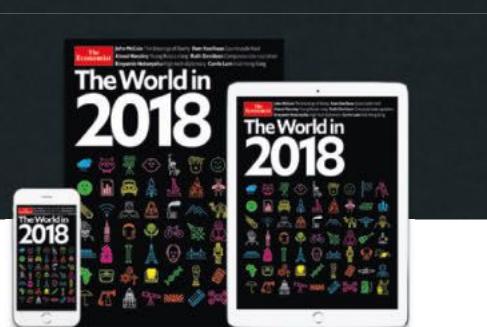
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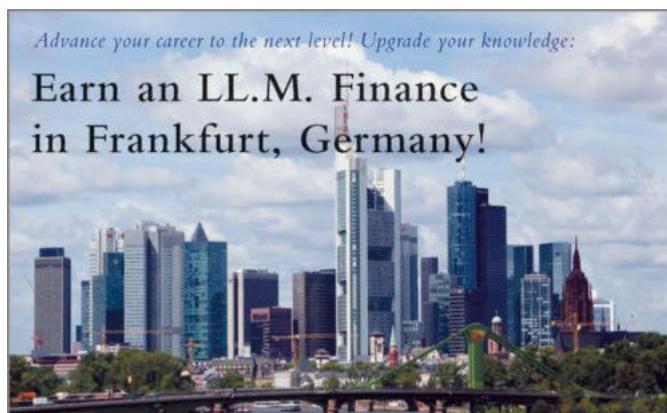
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Economic data

% change on year ago

	Gross domestic product			Industrial production latest	Consumer prices latest	2017†	Unemployment rate, %	Current-account balance		Budget balance % of GDP 2017†	Interest rates, % 10-year gov't bonds, latest	Currency units, per \$ Dec 18th	Year ago
	latest	qtr*	2017†					latest 12 months, \$bn	% of GDP 2017†				
United States	+2.3	03	+3.3	+2.2	+3.4 Nov	+2.2 Nov	+2.1	4.1 Nov	-460.9 Q2	-2.5	-3.5	2.37	-
China	+6.8	03	+7.0	+6.8	+6.1 Nov	+1.7 Nov	+1.6	4.0 Q3§	+118.2 Q3	+1.3	-4.3	3.85§§	6.62
Japan	+2.1	03	+2.5	+1.5	+5.9 Oct	+0.2 Oct	+0.5	2.8 Oct	+198.8 Oct	+3.5	-4.4	0.04	112
Britain	+1.5	03	+1.6	+1.5	+3.5 Oct	+3.1 Nov	+2.7	4.3 Sep††	-128.9 Q2	-4.0	-3.0	1.23	0.75
Canada	+3.0	03	+1.7	+3.0	+4.0 Sep	+1.4 Oct	+1.5	5.9 Nov	-45.8 Q3	-2.9	-1.7	1.86	1.29
Euro area	+2.6	03	+2.4	+2.2	+3.7 Oct	+1.5 Nov	+1.5	8.8 Oct	+386.9 Sep	+3.1	-1.3	0.31	0.85
Austria	+3.2	03	+1.4	+2.7	+3.7 Sep	+2.3 Nov	+2.1	5.4 Oct	+61.1 Q2	+2.2	-1.0	0.46	0.85
Belgium	+1.7	03	+1.0	+1.7	+5.9 Sep	+2.1 Nov	+2.2	6.9 Oct	-5.3 Jun	-0.3	-2.1	0.53	0.85
France	+2.2	03	+2.2	+1.8	+5.5 Oct	+1.2 Nov	+1.1	9.4 Oct	-27.2 Oct	-1.5	-2.9	0.63	0.85
Germany	+2.8	03	+3.3	+2.4	+2.7 Oct	+1.8 Nov	+1.7	3.6 Oct†	+279.0 Oct	+7.9	+0.6	0.31	0.85
Greece	+1.3	03	+1.2	+1.3	+0.4 Oct	+1.1 Nov	+1.1	20.6 Aug	-0.8 Sep	-0.6	-0.8	3.94	0.85
Italy	+1.7	03	+1.4	+1.5	+3.1 Oct	+0.9 Nov	+1.4	11.1 Oct	+52.1 Sep	+2.6	-2.3	1.80	0.85
Netherlands	+3.0	03	+1.8	+3.2	+3.9 Oct	+1.5 Nov	+1.3	5.4 Oct	+76.0 Q2	+9.7	+0.4	0.40	0.85
Spain	+3.1	03	+3.1	+3.1	+7.0 Oct	+1.7 Nov	+2.0	16.7 Oct	+23.4 Sep	+1.4	-3.0	1.46	0.85
Czech Republic	+4.7	03	+1.9	+4.5	+10.4 Oct	+2.6 Nov	+2.5	2.6 Oct†	+0.9 Q3	+0.7	-0.1	1.43	21.8
Denmark	+1.2	03	-2.6	+2.2	+0.2 Oct	+1.3 Nov	+1.1	4.3 Oct	+27.6 Oct	+8.3	-0.6	0.39	6.30
Norway	+3.2	03	+3.0	+2.1	+4.2 Oct	+1.1 Nov	+2.0	4.0 Sep††	+21.1 Q3	+5.0	+5.2	1.55	8.34
Poland	+5.1	03	+4.9	+4.6	+12.3 Oct	+2.5 Nov	+1.9	6.6 Nov§	+0.3 Oct	-0.3	-3.3	3.25	3.56
Russia	+1.8	03	na	+1.9	-3.8 Nov	+2.5 Nov	+3.8	5.1 Oct§	+36.9 Q3	+2.3	-2.1	8.13	58.6
Sweden	+2.9	03	+3.1	+3.0	+6.0 Oct	+1.9 Nov	+1.9	5.8 Nov§	+21.1 Q3	+4.4	+1.0	0.74	8.42
Switzerland	+1.2	03	+2.5	+0.9	+8.7 Q3	+0.8 Nov	+0.5	3.0 Nov	+68.9 Q2	+9.7	+0.8	-0.14	0.99
Turkey	+11.1	03	na	+5.0	+8.9 Oct	+13.0 Nov	+10.0	10.6 Sep§	-41.9 Oct	-3.5	-2.0	12.26	3.83
Australia	+2.8	03	+2.4	+2.4	+3.5 Q3	+1.8 Q3	+2.0	5.4 Nov	-22.2 Q3	-1.4	-1.7	2.53	1.30
Hong Kong	+3.6	03	+2.0	+3.7	+0.3 Q3	+1.5 Oct	+1.6	3.0 Nov††	+15.2 Q2	+6.4	+1.7	1.80	7.82
India	+6.3	03	+8.7	+6.5	+2.2 Oct	+4.9 Nov	+3.4	5.0 2015	-33.6 Q3	-1.5	-3.1	7.18	64.2
Indonesia	+5.1	03	na	+5.1	+6.4 Oct	+3.3 Nov	+3.9	5.5 Q3§	-13.3 Q3	-1.6	-2.8	6.48	13,581
Malaysia	+6.2	03	na	+5.8	+3.4 Oct	+3.7 Oct	+3.9	3.4 Oct§	+9.2 Q3	+2.5	-3.0	3.98	4.08
Pakistan	+5.7	2017**	na	+5.7	+2.6 Sep	+4.0 Nov	+4.1	5.9 2015	-14.5 Q3	-4.9	-5.9	7.93†††	110
Philippines	+6.9	03	+5.3	+6.6	+6.6 Oct	+3.3 Nov	+3.2	5.0 Q4§	-0.5 Sep	-0.3	-2.1	5.68	50.5
Singapore	+5.2	03	+8.8	+3.1	+14.6 Oct	+0.4 Oct	+0.6	2.2 Q3	+57.4 Q3	+18.3	-1.0	1.98	1.35
South Korea	+3.8	03	+6.3	+3.1	+5.9 Oct	+1.3 Nov	+2.1	3.2 Nov§	+81.9 Oct	+5.5	+0.8	2.43	1,089
Taiwan	+3.1	03	+6.8	+2.4	+2.8 Oct	+0.3 Nov	+0.6	3.7 Oct	+74.1 Q3	+13.6	-0.1	0.97	30.0
Thailand	+4.3	03	+4.0	+3.5	+0.1 Oct	+1.0 Nov	+0.5	1.3 Oct§	+46.9 Q3	+11.3	-2.5	2.28	32.6
Argentina	+2.7	02	+2.8	+2.8	+2.5 Oct	+22.3 Nov	+25.2	8.3 Q3§	-19.7 Q2	-3.9	-6.1	5.39	17.6
Brazil	+1.4	03	+0.6	+0.8	+5.2 Oct	+2.8 Nov	+3.4	12.2 Oct§	-9.6 Oct	-0.7	-8.0	9.11	3.29
Chile	+2.2	03	+6.0	+1.4	+5.0 Oct	+1.9 Nov	+2.2	6.7 Oct§††	-4.6 Q3	-1.3	-2.7	4.66	621
Colombia	+2.0	03	+3.2	+1.6	+0.3 Oct	+4.1 Nov	+4.3	8.6 Oct§	-11.1 Q3	-3.6	-3.3	6.31	2,970
Mexico	+1.5	03	-1.2	+2.1	+1.1 Oct	+6.6 Nov	+5.9	3.4 Oct	-16.1 Q3	-1.9	-1.9	7.47	19.0
Venezuela	-8.8	04~	-6.2	-12.5	+0.8 Sep	na	+931	7.3 Apr§	-17.8 Q3~	-0.7	-19.4	8.24	9.99
Egypt	+5.0	02	na	+4.2	+25.0 Oct	+26.0 Nov	+26.8	11.9 Q3§	-12.2 Q3	-6.4	-10.8	na	17.8
Israel	+2.1	03	+4.1	+3.6	+3.2 Sep	+0.3 Nov	+0.3	4.2 Oct	+10.5 Q3	+3.1	-1.3	1.65	3.51
Saudi Arabia	+1.7	2016	na	-0.7	na	-0.2 Oct	-0.3	5.6 2016	+7.0 Q2	+3.3	-6.6	3.68	3.75
South Africa	+0.8	03	+2.0	+0.7	+1.1 Oct	+4.6 Nov	+5.3	27.7 Q3§	-7.3 Q3	-2.3	-3.9	8.86	12.6

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. ~2014. **Year ending June. ††Latest 3 months. ††3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

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	Index Dec 18th	% change on one week	Dec 30th 2016 in local \$ currency terms
United States (DJIA)	24,792.2	+1.7	+25.5 +25.5
China (SSEA)	3,422.4	-1.6	+5.3 +10.6
Japan (Nikkei 225)	22,901.8	-0.2	+19.8 +24.4
Britain (FTSE 100)	7,537.0	+1.1	+5.5 +14.4
Canada (S&P TSX)	16,131.6	+0.2	+5.5 +10.1
Euro area (FTSE Euro 100)	1,241.1	+0.6	+11.6 +25.0
Euro area (EURO STOXX 50)	3,609.4	+0.8	+9.7 +22.8
Austria (ATX)	3,406.9	+1.7	+30.1 +45.7
Belgium (Bel 20)	4,024.7	+0.1	+11.6 +25.0
France (CAC 40)	5,420.6	+0.6	+11.5 +24.9
Germany (DAX)*	13,312.3	+1.4	+16.0 +29.9
Greece (Athex Comp)	783.8	+6.1	+21.8 +36.4
Italy (FTSE/MIB)	22,390.5	-1.3	+16.4 +30.4
Netherlands (AEX)	553.3	+0.9	+14.5 +28.2
Spain (Madrid SE)	1,035.9	-0.5	+9.8 +23.0
Czech Republic (PX)	1,069.1	+1.0	+16.0 +36.5
Denmark (OMXCB)	922.9	+0.9	+15.6 +29.3
Hungary (BUX)	38,744.2	+3.1	+21.1 +33.5
Norway (OSEAX)	888.8	+0.8	+16.2 +20.0
Poland (WIG)	63,539.0	+2.5	+22.8 +43.9
Russia (RTS, \$ terms)	1,147.9	+0.3	-0.4 -0.4
Sweden (OMX30)	1,615.6	-0.2	+6.5 +14.8
Switzerland (SMI)	9,452.3	+1.5	+15.0 +18.6
Turkey (BIST)	110,247.9	+1.0	+41.1 +29.8
Australia (All Ord.)	6,130.0	+0.8	+7.2 +13.8
Hong Kong (Hang Seng)	29,050.4	+0.3	+32.0 +31.0
India (BSE)	33,601.7	+0.4	+26.2 +33.4
Indonesia (JSX)	6,134.0	+1.8	+15.8 +14.9
Malaysia (KLCSE)	1,751.6	+1.9	+6.7 +17.3
Pakistan (KSE)	38,384.0	-0.3	-19.7 -23.6
Singapore (STI)	3,414.8	-1.3	+18.5 +27.2
South Korea (KOSPI)	2,481.9	+0.4	+22.5 +35.9
Taiwan (TWI)	10,506.5	+0.3	+13.5 +22.0
Thailand (SET)	1,723.7	+1.0	+11.7 +22.7
Argentina (MERV)	27,137.3	-0.6	+60.4 +44.5
Brazil (BVSP)	73,115.4	+0.4	+21.4 +20.3
Chile (IGPA)	28,060.9	+11.3	+35.3 +46.0
Colombia (IGBC)	11,099.6	+0.3	+9.8 +11.0
Mexico (IPC)	48,634.5	+2.0	+6.6 +15.5
Venezuela (IBC)	1,291.1	-0.1	-95.9 na
Egypt (EGX 30)	14,721.5	+2.0	+19.3 +20.9
Israel (TA-125)	1,333.8	+0.6	+4.5 +14.7
Saudi Arabia (Tadawul)	7,191.6	+1.3	-0.6 -0.6
South Africa (JSE AS)	57,707.4	-0.5	+13.9 +23.5

Real wages

Growth in real (inflation-adjusted) wages has fallen across the developed world in recent years. Labour markets have been tightening, but inflation has also risen from the lows caused by the oil price crash in late-2014. In Britain prices are growing faster than wages. The vote in 2016 to leave the European Union is partly to blame: the pound's subsequent tumble has made imports dearer, pushing up inflation. Rising prices also constrained real-wage growth in America, despite a plummeting unemployment rate that has sparked large pay rises in some bits of the economy. Elsewhere, only modest growth is expected. The OECD reckons that real-wage growth will average 0.6% over the next few years.



Source: Haver Analytics

Other markets

	Index Dec 18th	% change on one week	Dec 30th 2016 in local \$ currency terms
United States (S&P 500)	2,690.2	+1.1	+20.2 +20.2
United States (NAScomp)	6,994.8	+1.7	+29.9 +29.9
China (SSEB, \$ terms)	337.2	-0.3	-1.4 -1.4
Japan (Topix)	1,817.9	+0.3	+19.7 +24.2
Europe (FTSEurofirst 300)	1,546.2	+1.0	+8.2 +21.2
World, dev'd (MSCI)	2,104.0	+1.1	+20.1 +20.1
Emerging markets (MSCI)	1,130.4	+0.9	+31.1 +31.1
World, all (MSCI)	511.7	+1.1	+21.3 +21.3
World bonds (Citigroup)	948.1	+0.3	+7.3 +7.3
EMBI+ (JP Morgan)	836.4	+0.5	+8.3 +8.3
Hedge funds (HFRX)	1,265.4 [§]	-0.2	+5.1 +5.1
Volatility, US (VIX)	9.5	+9.3	+14.0 (levels)
CDSs, Eur (iTRAXX) [†]	47.4	+0.2	-34.4 -26.5
CDSs, N Am (CDX) [†]	49.5	-1.8	-26.9 -26.9
Carbon trading (EU ETS) €	7.4	+3.4	+12.3 +25.8

Sources: IHS Markit; Thomson Reuters. *Total return index.

[†]Credit-default-swap spreads, basis points. [§]Dec 15th.

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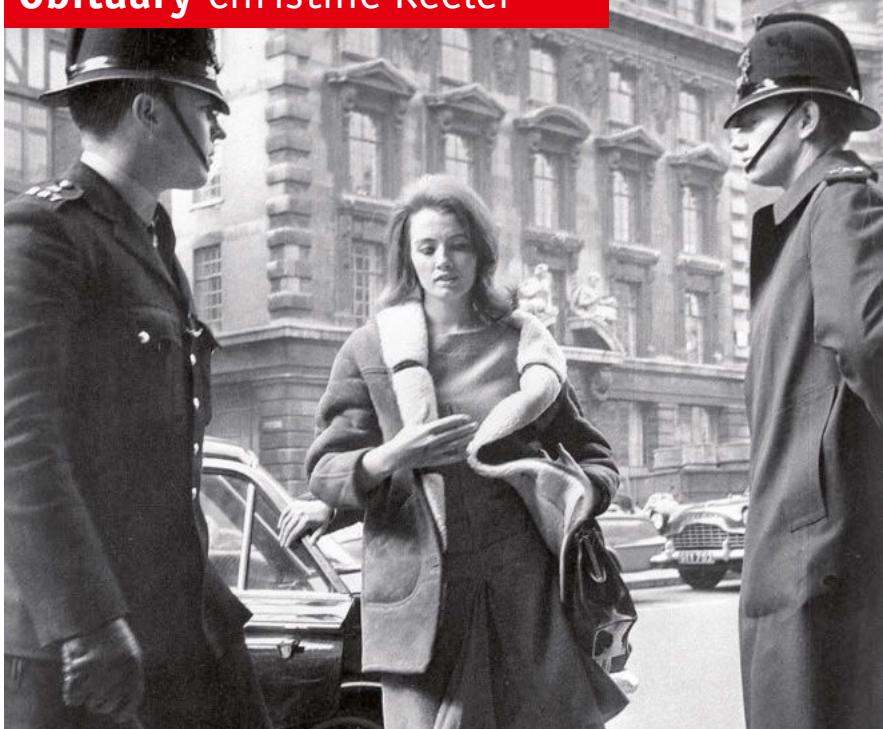
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A woman of no importance

Christine Keeler, the woman at the centre of the Profumo scandal in the 1960s, died on December 4th, aged 75

GROWING up in Wraysbury, Berks, she never thought she was beautiful. Young girls didn't know such things. Her cheeks were too rosy, her teeth were too big, and she had a habit of chewing her lower lip when she was thinking. She hated her breasts, too. She would much rather be a tomboy, riding a bike without brakes and swimming with the local lads in the gravel pits. She couldn't understand why her stepfather tried to kiss her and put vapour-rub on her chest when she had colds. But it didn't take her long to realise that she, Christine Keeler, had a crazy effect on men.

She still insisted on hiding her bust when she posed for that photo, the one that for millions of people summed up the Swinging Sixties and sexual liberation in Britain. There she was, naked or near enough on a fake designer chair. Pouting, daring, glowing with sexual power. The woman whose simultaneous affairs with John Profumo, the war minister, and Yevgeni Ivanov, a Soviet naval attaché, put her at the crux of cold-war politics. The woman the FBI spied on, codename "Bowtie", and who brought down Harold Macmillan's Conservative government. Looking back, it was staggering to contemplate the role she had played in English history.

Not that it always seemed that way at the time. She was a showgirl of 17 at Mur-

ray's in Soho when she met Stephen Ward, who introduced her to Profumo. For posing topless in a red-lit dingy room she got £8.50 a week, which just about fed the gas meter. But Stephen took her back to his flat in Bayswater, not to sleep with her, but to offer her round to rich patients of his osteopathy practice. Straight away she became his coffeemaker and let him set the rules of her life. He called her "little baby", and liked to hear all the details of her affairs, though when she protested that one of his heavies had raped her he didn't seem bothered, as long as she had no bruises.

Her beauty gave her such power in those days. She moved in for a while with Peter Rachman, the most notorious slum landlord in London, who showered her with diamonds. She was his possession, but why should she care? She was swanning through high society having mostly larks and a laugh, so it was no surprise that when she met Profumo, "Jack" to her, she happened to be swimming naked in Lord Astor's pool at Cliveden. They had an affair for a month or so. Little did he know that the girl he so eagerly thrust to the sofa had also slept with a Soviet agent! Little did he know that Stephen was a spymaster, who probably used her as a decoy while he stole papers from Jack's briefcase, and wanted her to winkle out from him exactly

when Soviet nuclear warheads were being moved to Germany. She could do that, because she knew about East-West relations; and if she didn't do it, it was only because she would not betray her country.

But no one in the Establishment believed her tales, the tall ones or even the true ones. So when Jack told the House of Commons he had no improper acquaintance with her, that was it. She was a bad girl, as all girls were bad who had a bit of sex in those days. She too felt she was really bad at 15 when she lost her virginity: damaged goods, and it was worse still later when she tried to abort her baby with a pen, but what could you do? It was impossible to speak up for yourself.

Immoral earnings

Lord Denning, who wrote the report on Jack's case, told her to keep quiet and behave. His report said there had been no security risk, and called her a prostitute. She wasn't, as she'd almost never slept with men for money. Then Jack told someone that she was completely uneducated and couldn't talk about anything except make-up, hair and gramophone records. Well, she might have left school at 15, but she was addicted to cryptic crosswords. She had principles, too, as good as anybody else's. And she might be a tart, as Macmillan called her, but she wasn't a scrubber. She dressed well and always had style. Worst of all was the title the press fastened on her for ever and ever and ever, "vice queen". All the shame and all the blame.

After the whole mess came out in 1963, and Stephen was charged with living off immoral earnings—but killed himself before the verdict—and Jack resigned, she lost all her protectors. For a while she hoped her fame might get her into films, but her nervous screen test went nowhere. Nor did modelling or journalism. She had always smoked, but now she smoked too much, and kept sliding down to grotty council flats and life on benefits. Rock bottom. Two marriages turned out badly, except for two sons, and even one of those grew up estranged from her. She supposed she was probably too insecure to love.

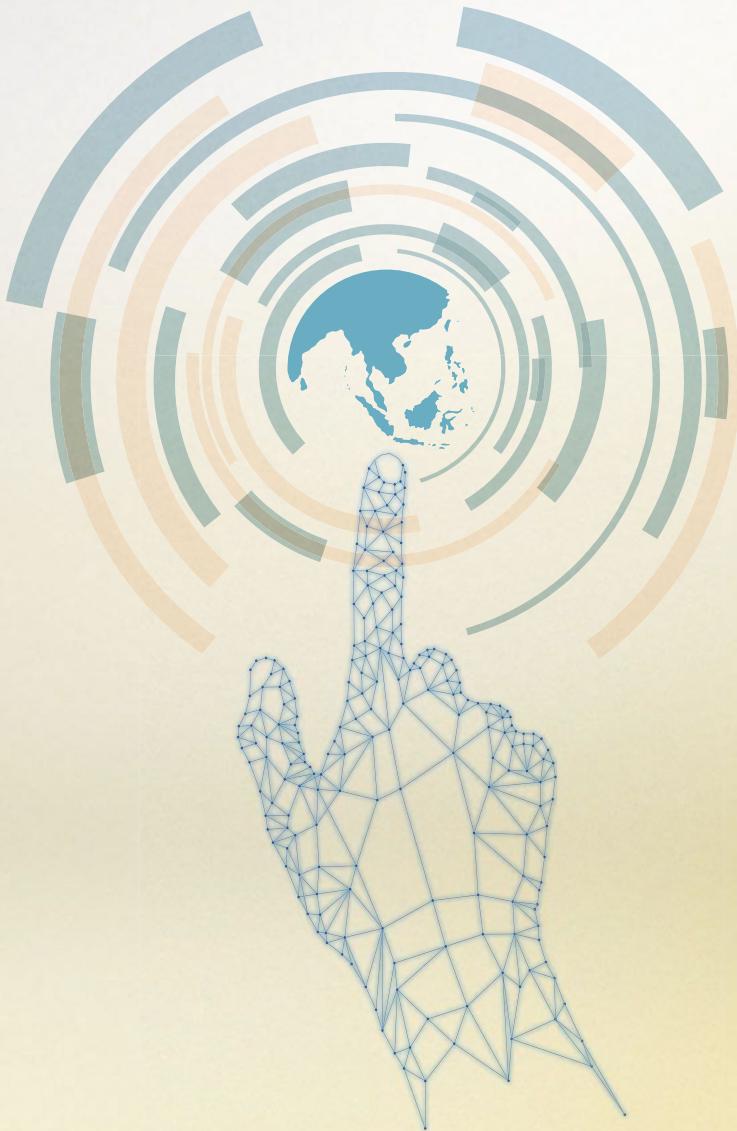
Her strength lay in reminding herself how powerful she had been. Over the years she produced, with help, four books, promoting each one as truer than the last and fuller of spy-details which only she knew. From her grey solitary life of cats and bird-feeding and slopping in shabby clothes to the shops she took herself back to her glory days of international importance. For sex was just a game, but spying was serious. Although she had to admit that the real Christine had disappeared somewhere along the way: perhaps around the time she had first realised she could turn men's heads in the street, because she was so beautiful. ■

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