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Tel: +41 22 566 2470

750 3rd Avenue, 5th Floor, New York, NY 10017
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Politics



America's secretary of state, Rex Tillerson, went to Moscow where he urged the Russians to drop their support for the Assad regime in Syria. The talks came after America fired a barrage of cruise missiles at the Syrian air-force base that had launched a chemical attack that killed at least 85 civilians. The swift American response to Syria's use of chemical weapons was a surprise, signalling a shift in the Trump administration's hitherto stand-offish approach. But a meeting of G7 foreign ministers rejected new sanctions against Russia.

Two bomb attacks at Christian churches in Egypt on Palm Sunday killed at least 44 people. Islamic State claimed responsibility. Egypt's president declared a three-month state of emergency.

America may approve the sale of warplanes to Nigeria to assist it in its fight against Boko Haram, a jihadist group. That would reverse America's previous policy of withholding arms because of concerns about human-rights abuses by the Nigerian army.

African migrants trying to reach Europe are being taken captive and sold in "slave markets" in Libya, the International Organisation for Migration has said, citing the testimony of victims.

Hakainde Hichilema, the leader of the main opposition party in Zambia, was arrested on charges of treason. Mr Hichilema lost a presidential election in 2016 by a narrow

margin in a poll that he claimed was rigged.

Sabres are rattling

China and South Korea agreed that sanctions on North Korea should be stiffened if it conducted another nuclear test. America dispatched what Donald Trump described as an "armada" to nearby waters. North Korea said it was ready to engage in "any mode of war desired" by the United States.

A military court in Pakistan sentenced an alleged Indian spy to death. It claimed that Kulbhushan Jadhav, an Indian naval officer, had been fomenting terrorism in the state of Balochistan.

Police and soldiers in the central Philippines clashed with suspected members of Abu Sayyaf, an Islamic terrorist group which normally operates in the south of the country. Five terrorists, three soldiers and a policeman were killed in the fighting.



Judicial executions in 2016 dropped by more than a third against 2015, according to Amnesty. It counted at least 1,032 people who were put to death, down from 1,634. But China, reckoned to be by far the world's most prolific executioner, was excluded from the tally, because it doesn't divulge data on death sentences. And a government report suggested that Vietnam, which also keeps executions secret, has been carrying out far more of them than had been assumed.

Security officials in Beijing announced that they would give rewards of up to 500,000 yuan (\$72,400) for information

about foreign spies. The capital's residents were urged to call a hotline should they have any leads.

The Communist Party chief of China's southern province of Guangdong, Hu Chunhua, paid his first visit to the village of Wukan, which in recent years has grabbed nationwide attention with its demonstrations by villagers in support of grassroots democracy. In 2016 the authorities began cracking down on the unrest. Mr Hu's trip was a sign that the party now feels back in control.

The nuclear option

Neil Gorsuch was sworn in as a justice on the Supreme Court. The Senate confirmed his nomination after the Republican leadership changed the rules. From now on a president's appointments to the court will be confirmed by a simple majority, rather than the three-fifths majority required by a filibuster.

Devin Nunes, the chairman of the House Intelligence Committee, stepped aside from its investigation into links between the Trump campaign and Russian officials. Mr Nunes had come under pressure for his ties to Team Trump.

Revisionist history

Marine Le Pen, the presidential candidate of France's National Front, denied that France was responsible for a round-up of 13,000 Jews who were sent to Nazi concentration camps. She argued that the collaborationist Vichy regime did not represent France. French Jewish groups protested. Though French presidents have said similar things, Ms Le Pen leads a party with a history of outright Holocaust denial.

Valeriya Gontareva resigned as the governor of Ukraine's central bank. Ms Gontareva has been credited with stabilising the economy after the Russian annexation of Crimea. She also closed 80 banks for their links to money laundering. But she had received death threats and said that the pressure was unbearable.



In a presumed jihadist attack, a man stole a lorry in Stockholm and drove it into the front of a department store, killing four people. Police arrested an immigrant from Uzbekistan who admitted to committing a terrorist act at a court appearance.

Keeping your opponents down

The government of Venezuela banned Henrique Capriles, a state governor who belongs to the opposition, from running for office for 15 years, triggering large demonstrations in Caracas and other cities in which two people died. Mr Capriles nearly defeated the president, Nicolás Maduro, in an election in 2013. He won't be able to run in the next one, due in 2018.

A justice of Brazil's supreme court approved investigations of eight members of Michel Temer's presidential cabinet and more than 60 congressmen. The investigations are connected to the Petrobras scandal, in which contractors funnelled cash to politicians in return for padded contracts with the state-controlled firm.

Labour unions in Argentina held a general strike in protest against the government's austerity policy. Mauricio Macri, who became president in December 2015, is trying to undo the populist legacy of his predecessor, Cristina Fernández de Kirchner.

America, Canada and Mexico are to bid together to host the football World Cup in 2026. Donald Trump, who wants to build a wall between America and Mexico, "encouraged" the idea, said Sunil Gulati, president of the United States' soccer federation.



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Business

The chief executive of **Barclays**, Jes Staley, was rapped for attempting to uncover the identity of a whistleblower who had written anonymous letters raising concerns about a senior executive at the British bank. Regulators are investigating Mr Staley for breaking rules that protect whistle-blowers. The bank's board has concluded that he "honestly, but mistakenly" believed his actions were permissible, but issued Mr Staley with a formal reprimand and said he would take a significant pay cut.

A report for the board of **Wells Fargo** into the account mis-selling scandal that engulfed the American bank last year heavily criticised its former chief executive, John Stumpf, and its former head of retail banking. The report also blamed the bank's decentralised management structure.

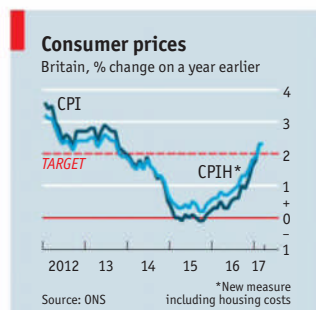
Formal notice

The Bank of England asked all firms with cross-border activities between Britain and the EU to detail their contingency plans following **Brexit**. Hoping to mitigate the risk to financial stability, Mark Carney, the bank's governor, highlighted the fact that financial services are Britain's most important export, with a trade surplus of £60bn (\$75bn).

Toshiba filed an unaudited version of its twice-delayed quarterly accounts, after failing to get auditors to approve the books. The troubled Japanese conglomerate issued a warning about its "ability to continue as a going concern". Its nuclear power-plant business, Westinghouse, recently filed for bankruptcy. One way it hopes to survive is by selling its semiconductor division, which Foxconn, a Taiwanese electronics contract manufacturer, has reportedly offered to buy for \$27bn.

Tesla briefly overtook General Motors in terms of market capitalisation, meaning that

for the first time, America's most valuable carmaker was not based in Detroit.



Britain's annual inflation rate stood at a three-and-a-half year high of 2.3% in March. The weakness of the pound has put increasing pressure on the price of everyday goods and food; alcohol and clothing were the biggest contributors to last month's figure. A drop in transport costs, notably air fares, offset other price rises.

Trouble in store

Whole Foods Market, the favoured supermarket of the organically minded, faced calls for a shake-up in its management. Jana Partners, an activist hedge fund, revealed that it had accumulated a 9% stake in Whole Foods, alongside a slate of individuals it may nominate to sit on the company's board. Whole Foods was a pioneer of green retailing, inspiring many

mainstream rivals to sell environmentally sound produce.

Whole Foods was not the only company to face calls from an **activist hedge fund** to reform. **BHP Billiton** rejected a proposal from Elliott Advisers to restructure and spin off its American oil business, which Elliott wants the miner to do in order to increase shareholder value. In a busy week for Elliott it also put pressure on Akzo-Nobel to sack its chairman. Elliott wants the Dutch chemical company to enter talks with PPG, an American rival that is seeking to take it over.

In an effort to placate investors after rejecting a takeover from Kraft Heinz, **Unilever** set out plans to restructure, which includes rethinking its dual legal structure and getting rid of its spreads business.

A joint offer from **Bain Capital** and **Cinven** won the bidding process for **Stada**, a German drugmaker. The deal is worth around €5.3bn (\$5.7bn), making it the biggest private-equity purchase of a European company in recent years. To secure their bid Bain and Cinven agreed to protections of Stada's workers from forced redundancy and assured the status of its production sites.

American employers added just 98,000 **jobs** to the payroll in March, half of what had been expected.

Jaeger, a British fashion house and retailer, was put into bankruptcy protection. Founded in 1884, Jaeger flourished during the 1960s, but sales have withered as its customer base has grown older.

Police in Mumbai arrested the alleged mastermind behind a **scam** in which call-centre operators posed as officials from America's Internal Revenue Service and duped 15,000 Americans into paying unpaid taxes that they didn't owe. Sagar Thakkar, aka "Shaggy", had fled to Dubai, but returned to India fearing that he would be handed over to America, where he faces charges, and the ire of swindled taxpayers.

The unfriendly skies

A video clip of a bloodied passenger being forcibly removed from a **United Airlines** flight because it was overbooked turned into a PR disaster. People used social media to complain that United should be beating the competition, not its customers.

Other economic data and news can be found on pages 80-81



The slide into dictatorship

Recep Tayyip Erdogan is carrying out the harshest crackdown in decades. The West must not abandon Turkey



TURKEY matters not just for its size, but also as a bellwether of the political forces shaping the world. For centuries it was the seat of a great empire. Today, as a frontier state, it must cope with the violence spewing out of war-ravaged Syria; it is a test case of whether democracy can be reconciled with political Islam; and it must navigate between Western liberalism and the authoritarian nationalism epitomised by Russia. In recent years under Recep Tayyip Erdogan, Turkey has gone backwards. This weekend it can begin to put that right.

On April 16th Turks will vote in a referendum over whether to abandon their parliamentary system for an executive presidency. A Yes is likely, but far from certain. There is nothing wrong with a strong president, but Turkey's new constitution goes too far. The country would end up with a 21st-century sultan minimally curbed by parliament (see pages 17-20). A Yes would condemn Turkey to the elected dictatorship of President Erdogan. A No might just let Turks constrain him.

Authority figure

After Mr Erdogan came to power in 2003, he and his AK party did a lot that was good. Encouraged by the IMF, he tamed inflation and ushered in economic growth. Encouraged by the EU, he tackled the cabal of military officers and bureaucrats in the "deep state", strengthened civil liberties and talked peace with the Kurds. He also spoke up for working-class religious conservatives, who had been locked out of power for decades.

But today Turkey is beset by problems. In the shadow of the Syrian civil war, jihadists and Kurdish militants are waging campaigns against the state. Last summer the army attempted a coup—probably organised by supporters of an American-based cleric, Fethullah Gulen, who had penetrated the bureaucracy, judiciary and army in their tens of thousands. The economy, once a strength, is growing slowly, plagued by cronyism, poor management and a collapse in tourism.

Mr Erdogan argues that, to put this right, Turkey needs a new constitution that will generate political stability. He says that only a strong president can galvanise the state and see off its enemies. Naturally, he is talking about himself.

The new constitution embodies the "illiberal democracy" of nationalists such as Viktor Orban of Hungary and Vladimir Putin of Russia, to whom Mr Erdogan is increasingly compared. On this view, election winners take all, constraints are obstacles to strong government and the ruling party has a right to subvert institutions, such as the judiciary and the press.

Yet this kind of stability is hollow. The most successful democracies make a point of separating powers and slowing governments down. The guiding idea of the American constitution is to stop presidents from acting as if they were monarchs, by building in checks and balances. Even the British prime minister, untrammelled by a written constitution, has to submit herself to the courts, a merciless press and a weekly grilling in Parliament, broadcast live.

Turkey is especially ill-suited to winner-takes-all government. It is divided between secular, religious and nationalist citizens, as well as Turks, Kurds, Alevites and a few remaining Greeks, Armenians and Jews. If the religious-conservative near-majority try to shut out everyone else, just as they were once shut out, Turkey will never be stable.

But the most important argument against majoritarian politics is Mr Erdogan himself. Since the failed coup, he has been governing under a state of emergency that demonstrates how cruelly power can be abused.

The state is entitled to protect its citizens, especially in the face of political violence. But Mr Erdogan has gone far beyond what is reasonable. Roughly 50,000 people have been arrested; 100,000 more have been sacked. Only a fraction of them were involved in the coup. Anyone Mr Erdogan sees as a threat is vulnerable: ordinary folk who went to a Gulenist school or saved with a Gulenist bank; academics, journalists and politicians who betray any sympathy for the Kurdish cause; anybody, including children, who mocks the president on social media. Whatever the result on April 16th, Mr Erdogan will remain in charge, free to use—and abuse—his emergency powers.

During the campaign he accused the Germans and Dutch of "Nazi practices" for stopping his ministers from pitching for expatriate votes. EU voices want to suspend accession talks—which, in any case, are moribund. Before long, the talk may even turn to sanctions. Some in the West will point to Turkey's experience to claim that Islam and democracy cannot coexist. But to give up on that idea would be to give up on Turkey itself.

The fault is not so much with political Islam—many AK members and voters are uneasy with the new constitution. It is with Mr Erdogan and his inner circle. Although he is a religious man, he is better seen as an old-fashioned authoritarian than as a new-fangled Islamist. The distinction matters because AK, or an Islamist party like it, is bound to feature in Turkey's democracy. Mr Erdogan, however, will one day leave the stage, taking his authoritarian instincts with him.

Hold him close

Hence the outside world should not give up on Turkey, but be patient. Partly, this is self-interest. As a NATO member and a regional power, Turkey is too important to cut adrift. It will play a vital part in any peace in Syria. Driving it into Russia's arms makes no sense. Turkey has also been a conduit for refugees into the EU as well as vital in controlling their inflow. The refugee situation is in flux: the EU will need to keep talking to Turkey about how to cope with the resulting instability.

Engagement is also in Turkey's interests. The EU is its biggest trading partner. Contact with it bolsters the Western-leaning Turks who are likely to be Mr Erdogan's most potent opposition. NATO membership can moderate the next generation of officers in its armed forces. Although Turkey will not join the EU for many years, if ever, a looser EU, with several classes of member or associate country, might one day find room for it.

Turkey will remain pivotal after April 16th. If Mr Erdogan loses, Turkey will be a difficult ally with a difficult future. But if he wins, he will be able to govern as an elected dictator. ■

Syria

What next?

Donald Trump's missile strike on Syria was justified. But his strategy is confused and confusing



THERE are good reasons to cheer the missile attack ordered by Donald Trump on a Syrian air base on April 6th. It sent a message to Bashar al-Assad, Syria's despot, that America would not tolerate his use of chemical weapons. It also showed that Mr Trump, despite many indications to the contrary, was prepared to act to uphold an international norm and to do so for humanitarian reasons: he was outraged by a nerve-gas attack that killed more than 80 people in the rebel enclave of Idlib. But one barrage doesn't make a strategy.

Before Mr Trump saw television pictures of poisoned children, he had said that getting rid of Mr Assad was no longer a goal of American policy, as it had been, at least notionally, under Barack Obama. In the week before the chemical attack, both the secretary of state, Rex Tillerson, and America's UN ambassador, Nikki Haley, had confirmed that shift, thus possibly increasing Mr Assad's sense of impunity. The priority for Mr Trump was the defeat of Islamic State (IS). Wider questions about Syria's future would come later.

Inevitably, those questions are now back to the fore. When military force is used, it is reasonable to ask: what next? Various members of the administration have tried to explain the thinking behind the missile strike (see page 21). Mr Tillerson, on his way to a G7 foreign ministers' meeting in Italy, castigated the Russians for "incompetence" in failing to restrain their repulsive ally, but said that nothing else had changed. Ms Haley contradicted him, arguing that there could be no peace with Mr Assad still in power. H.R. McMaster, Mr Trump's national security adviser, tried splitting the difference. Mr Trump himself was uncharacteristically reticent. Confusion reigns.

What might Mr Trump now do about the Syrian regime's

continued use of other indiscriminate weapons against civilians, such as barrel bombs packed with scrap metal? Maybe nothing. But in Italy Mr Tillerson suddenly suggested a new policy of unlimited interventionism, saying: "We rededicate ourselves to holding to account any and all who commit crimes against the innocents anywhere in the world." A few hours later Sean Spicer, the president's press secretary, said: "If you gas a baby, if you put a barrel bomb into innocent people, I think you will see a response from this president." Does that mean that Mr Trump now favours overthrowing Mr Assad? Surely not, for that would mean direct confrontation in the air with Russia and on the ground with Mr Assad's other ally, Iran.

Instead of confusing rhetoric, the administration should be preparing for the day, fast approaching, when IS in Syria has been thrown out of its "capital" in Raqqa by American-backed Kurdish and Arab forces. When the jihadists no longer hold significant territory, America should be prepared to lead international forces protecting mainly Sunni Arab and Kurdish areas in the east and north of the country from the Assad regime's attempts to widen its area of control. The temporary de facto partition of Syria offers the best hope of a political settlement that ultimately leads to Mr Assad's departure. Yet if Mr Trump is thinking about such a plan, there is no sign of it.

Of Putin and predictability

After the missile strike, any lingering notion that Mr Trump might strike a grand bargain with Russia over Syria is dead. The end of his bromance with Vladimir Putin is welcome—America's interests and Russia's are so at odds that it was always doomed to fail. However, it would be nice to think that Mr Trump was pursuing a coherent strategy abroad, rather than reacting to what he had just seen on Fox News. Unpredictability has its uses in foreign policy, but it is worrying that even Mr Trump's closest aides have no idea what he will do next. ■

Rural education in China

Separate and unequal

Chinese schools discriminate against 60% of the population. This is both cruel and counterproductive



LAST year some images went viral on the internet in China. They showed children descending an 800-metre (2,600-foot) rock face on rickety ladders made of vines, wood and rusty metal. Their destination: school. The photographer was told by a

local official that "seven or eight" people had died after losing their grip. Yet the children did this regularly—there is no school at the top of the mountain in Sichuan province where they live. The photographs conveyed two striking aspects of life in the Chinese countryside: a hunger for education so strong that

children will risk their lives for it, and a callous lack of government attention to the needs of rural students.

In many ways, education in China is improving. Since 2000 the annual tally of students graduating from university has increased nearly eightfold, to more than 7.5m. But many rural students are neglected by China's school system, and they are not the only ones. So, too, are the children of migrants who have moved to the cities from the countryside and poor students who want to go to senior high school.

This is not only unfair; it is also counterproductive. China faces a demographic crunch: its workforce is shrinking and it can no longer depend on cheap, low-skilled migrant labour to power its growth. Its young—especially those with rural roots—▶▶

▶ need to become more skilled. That calls for better education.

The government has not been completely blind to the need to ensure that rural people have enough schooling to work in factories, but it has shown little sense of urgency. The school-children from Sichuan are a case in point. So perilous was their journey to school that officials arranged for them to board, like tens of millions of children in rural China. They travel back home only every few weeks.

That may sound like progress. Since the population of young people in the countryside is falling so smaller schools are closing. Better to board than to trek for miles every day to one that is still open. But conditions at these boarding schools are often appalling (see page 37). Many children do not get enough to eat, which affects their health and their ability to learn. So poor is their nutrition that they are often shorter than their counterparts at day schools.

And it is not just the boarders who suffer. In all kinds of education, rural children have less chance of doing well than their urban counterparts. Less than 10% of them go to senior high-school, compared with 70% of their peers in cities. That is because the government stacks the system against them.

Everyone in China has to attend school for nine years—until the end of junior high school. But it was not until 2007 that all rural children could do so without paying. Like city dwellers, they still have to pay for senior high school. But their families tend to be much poorer, so few can afford it. And rural schools are far more rudimentary. Local governments are responsible for running them. If officials have tax revenue to spare, they

see no point in doling it out in the countryside. How can you boost growth, they wonder, by spending money on villagers who will eventually move away?

It is no better for the migrants once they are in the cities. China's household-registration system, known as *hukou*, treats rural migrants as second-class citizens. Their children are often barred from state-funded urban schools. They must pay to send them to ramshackle private ones instead, which are often worse than rural state schools. Even there, children's education is frequently disrupted: officials have forced many such places to close, citing safety and other concerns.

Who's blocking the schoolhouse door?

People with rural *hukou* make up nearly 60% of the population. So it is vital that the system is scrapped. Everyone in China deserves the same access to public education, health care and other services. The central government must also do more to ensure that rural schools have enough money to teach and feed their pupils—basic education is too important to be left to ill-motivated local authorities. And it must give more financial support to the rural poor in order to help their children graduate from high school and enter university.

People from the countryside are the unsung heroes of China's economic rise. The migration of more than 200m of them into cities, where their labour is more productive than it is in the fields, has been the rocket fuel of the country's spectacular growth. In China, as elsewhere, education is what will make society fairer, and ultimately wealthier. ■

Startups

Silicon pally

Venture capitalists play an outsize role in technology's sexism problem



“**B**OOBER” is the nickname Travis Kalanick, the boss of Uber, used to describe the effect that the ride-hailing startup had on his attractiveness to the opposite sex. Mr Kalanick's wisecrack seems to have been emblematic of a deeply macho

culture. An investigation is under way into allegations from a former employee that Uber refuses to promote capable women or to take complaints about harassment seriously. The results are due to be released in the coming weeks.

Uber is not the only technology star in the spotlight for its treatment of women. Google has been accused by America's Department of Labour of paying female employees significantly less than male ones (see page 54). Google flatly denies the charge. But that technology in general, and Silicon Valley in particular, has a gender problem is not in doubt. A survey of 210 women in the valley found that 60% had experienced unwanted sexual advances and that two-thirds felt excluded from important social and networking opportunities. PayScale, a research firm, has found that only 21% of American tech executives are female (the figure in other industries is 36%). Women in tech are paid less than men, even after controlling for experience, education and responsibilities.

Not all these problems can be laid at the door of Silicon Val-

ley. Plenty of people are worried about the small number of girls taking science, technology, engineering and mathematics courses. Only 18% of bachelor's degrees in computer science in America were awarded to women in 2013, down from 37% in 1985. Pay gaps are pervasive, too.

But that shouldn't let the valley off the hook. It prides itself on solving difficult problems and on being a meritocracy. Being as bad as everywhere else in its treatment of women falls disappointingly short. More to the point, the valley suffers from a distinctive form of sexism which is in its power to fix.

Venture capitalists are the technology industry's demigods. Through their cheques, connections and advice, they determine which startups succeed and which languish. They are bright, clannish and almost exclusively male. Only around 6% of partners at venture-capital firms are women, down from 10% in 1999. Less than 40% of the top 100 venture-capital firms have a female partner charged with investing. Many of the most highly regarded funds, including Benchmark and Andreessen Horowitz, have none.

For a set of people who finance disruptive firms, venture capitalists are surprisingly averse to disrupting their own tried-and-tested way of doing things. They sit in small groups, meet entrepreneurs and repeat a single formula for investing whenever possible. John Doerr, who backed companies like Google, summed up his philosophy thus: “Invest in white male nerds who've dropped out of Harvard or Stanford.” ▶

Defenders of the valley have two retorts. One is that throwing stones at the most successful business cluster on Earth makes no sense. Market forces ensure that the best ideas win funding, irrespective of gender. The data suggest a different story. Only 7% of the founders of tech startups in America that raised \$20m or more are women, according to recent research by Bloomberg. Yet nobody would argue that men make the best founders nine times out of ten. On average, firms founded by women obtain less funding (\$77m) than those founded by men (\$100m). The VC industry has been successful enough to ward off the pressure to change. That does not make it perfect.

A second defence is that VCs rely on tight-knit relationships, in which trust is essential. Call this the “dinner with Mike Pence” gambit, after the American vice-president’s reported refusal to eat alone with a woman other than his wife. On this ar-

gument, any outsider, particularly one lacking a Y chromosome, is liable to upset the club’s precious dynamic. Venture capital is indeed a strange mix of capital and contacts, and peculiarly hard to industrialise as a result. But as a justification for sexism, clubbiness is an argument that is as old as it is thin.

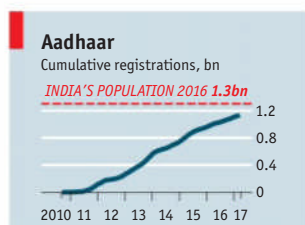
Y combinator, X chromosomes

Plenty of studies show that diverse teams are more productive. Hiring more women in venture capital seems to increase the odds of finding and funding those elusive female entrepreneurs. Venture capitalists play a vital role in shaping the culture of startups: investors who value diversity are likelier to guide them away from the reputational and legal risks that beset offices full of “brogrammers”. Silicon Valley is a remarkable place. But it is time for the boy’s club to grow up. ■

Identity and privacy

Per Aadhaar ad astra?

India’s biometric identity scheme is a marvel. But it should be voluntary



WHAT would Gandhi have made of Aadhaar, the ambitious scheme to provide each of India’s 1.3bn residents with a unique, biometrically verifiable identification? There is much that might have impressed the great pacifist. Before Aadhaar’s

launch in 2010, many Indians had no proof of identity that could be recognised across the sprawling, multilingual country; now 99% of adults do. A cheap, simple and accurate way to know who is who, it helps the state channel services, such as subsidies, to those who really need them, thwarting corruption and saving billions. Linked to bank accounts and mobile phones, the unique 12-digit numbers can be used for swift, easy transfers of money. In time, they should help hundreds of millions of Indians enter the formal, modern economy.

Yet Gandhi might also have been alarmed. After all, he cut his political teeth resisting a scheme to impose identity passes on unwilling Indians. That was over a century ago, in South Africa. Aadhaar could scarcely be further removed in intent from colonial racism: it is designed to include and unite, not exclude. Still, many Indians worry that a programme billed as voluntary is increasingly, with little public debate, being made mandatory. This puts the whole project, and all its benefits, at risk of being struck down by the courts. And the government’s high-handed dismissal of concerns about its methods is stoking fears that it might misuse the data it has collected.

In recent months the government of Narendra Modi, the prime minister, has made access to a dozen government programmes contingent on possession of an Aadhaar card (see page 32). In March it sneakily inserted into a fast-tracked budget bill a rule that requires taxpayers to link their tax number with Aadhaar. There is talk of adding such things as school lunches and the purchase of airline tickets to this list. In answer to a question in parliament about whether the state was, in effect, forcing citizens into the Aadhaar scheme, the reply from India’s minister of finance was blunt: “Yes, we are.”

This would appear to contradict India’s Supreme Court. Its

judges have yet to rule on a score of petitions aimed at stopping Aadhaar, but in the past two years the court has issued several statements asserting that the identity scheme should be voluntary—or at any rate that it should remain so until the court decides otherwise. Until it issues a binding opinion, the danger lingers that a pile of important government schemes could in future find themselves dangling in legal limbo.

In theory, the law on Aadhaar passed last year by Mr Modi’s government includes stringent protections against the sharing of information; its rules allowing exceptions on grounds of national security, although vaguely worded, appear well intended. Sweden has required all citizens to have a national ID number since 1947—the year of India’s birth—with little trouble. Most Swedes consider the scheme, which is linked to tax, school, medical and other records, an immense convenience.

Stockholm on the Ganges

But India is not a tidy Nordic kingdom. Mr Modi’s government, with its strident nationalism and occasional recklessness—such as last year’s abrupt voiding of most of the paper currency in circulation—does not always inspire confidence that it will respect citizens’ rights and legal niceties. By sneaking the linkage between Aadhaar and tax into a budget bill, it raises concerns about intent: will the government stalk tax evaders, or perhaps enemies of the state, using ostensibly “fire-walled” Aadhaar data? Many Indians will remember that, following sectarian riots in the past, ruling parties were accused of using voter rolls to target victims.

Mr Modi, who before taking office dismissed Aadhaar as a “political gimmick”, has been right to seize on its potential to transform India. It can bring more efficiency to government, convenience to citizens and savings to businesses that need to identify their customers. But for Aadhaar to fulfil its potential, Indians must trust that it will not be misused. Adopting coercive regulations, ignoring the Supreme Court’s qualms and dismissing critics preemptively will achieve the opposite. As for the Supreme Court, it should stop dithering and make its views clear. Gandhi, a lawyer as well as an activist, would certainly have approved of that. ■



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

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War in Yemen

Regarding your article on Yemen (“Beggar thy neighbour”, March 25th), I want to make it clear that Saudi Arabia is leading an international coalition, with the full backing of the UN Security Council, to restore the country’s legitimate government. Saudi Arabia does not want to be at war in Yemen. But the alternative is to turn our back and allow it to become a lawless state in the hands of rebel groups and terrorists.

We are doing everything in our power to mitigate the impact of the conflict on Yemeni civilians. We have provided more than \$560m worth of humanitarian assistance, working with the UN and international NGOs to ensure aid is distributed to all parts of the country. The coalition is providing inspection-free access for aid ships from trusted organisations to Yemeni ports. Since April 2015 Yemen has received 4.9m tonnes of food aid and 37,200 tonnes of medical equipment. We are as concerned as anyone that the port of Hodeidah is a bottleneck for humanitarian supplies. We have called for Hodeidah to be placed under UN supervision, which would facilitate humanitarian flows and end the rebels’ use of the port for weapon smuggling and people trafficking.

MAJOR GENERAL AHMAD ASIRI
Coalition spokesman
Riyadh, Saudi Arabia

An author responds

Parents who, after reading your review of my book “Testosterone Rex”, might “cock an eyebrow” at my supposed disregard of “studies of actual sex differences”, can cock with confidence (“Gender fluidity”, April 1st). My book refers to over 70 such studies of humans, including four on children’s toy preferences.

You also accused me of attacking some straw men: that the brains of males and females are categorically different; that individuals are uninfluenced by the environment; and that absolute levels of

testosterone determine behaviour. In fact, my book wastes no space challenging such extreme views. It instead questions common, fundamental assumptions about the relations between sex, environment, brain and behaviour. It explains, for example, that an experience can eliminate or reverse a sex difference in the brain, that an environmental change can eliminate or reverse the expression of an adaptive behaviour, and that gender constructions modulate testosterone.

CORDELIA FINE
Professor of history and philosophy of science
University of Melbourne

He has his supporters

You said that Yogi Adityanath, the new chief minister of Uttar Pradesh, has championed “reactionary Hindu causes” (“Agent orange”, March 25th). If you mean issues such as the illegal influx of Bangladeshis, jihadi terrorism and the collusion of extremists with politicians, then these are all legitimate concerns for Indians.

KALPIT MANKIKAR
Mumbai

School report

“Down in the valleys” (March 25th) gave a one-sided view of the Welsh government’s education reforms. I was rather surprised that you chose to quote a report from the OECD from three years ago, which led you to describe a “less sunny” outlook for education. You overlooked an OECD report published in February this year, which I commissioned, that reviews progress in some of the areas you highlighted. That report is considerably more positive and replaces its previous warning of “reform fatigue” with a commendation that the OECD had “witnessed progress in several policy areas and a shift... away from a piecemeal and short-term policy orientation towards one that is guided by a long-term vision.” They concluded that “the commitment to improving the teaching and learning in Wales’s

schools is visible at all levels of the education system.”

KIRSTY WILLIAMS, AM
Education secretary in the Welsh government
Cardiff

The law in Singapore

You imply that Amos Yee was prosecuted in Singapore for political dissent, and not for making vicious statements about Christians and Muslims (“No place for the crass”, April 1st). That is not true. In 2015 Mr Yee insulted Christians, saying Jesus Christ was “power hungry and malicious” and “full of bull”. In 2016 he said: “The Islamics seem to have lots of sand in their vaginas... But don’t mind them, they do after all follow a sky wizard and a paedophile prophet. What in the world is a ‘moderate Muslim’? A fucking hypocrite, that’s what!”

The Economist may agree with the American judge that such bigotry is free speech. But Singapore does not countenance hate speech, because we have learnt from bitter experience how fragile our racial and religious harmony is. Several people have been prosecuted for engaging in such hate speech.

Contrary to the suggestion in your article, Singapore’s laws on contempt do not prevent fair criticisms of court judgments, as the article itself demonstrates. Singapore’s court judgments, including on Mr Yee’s case, are reasoned and published, and can stand scrutiny by anyone, including *The Economist*.

FOO CHI HSIA
High Commissioner for Singapore
London

Poles’ opinion

The notion that the ruling Law and Justice party in Poland is paranoid is shared by many Poles all over the world (“Pyromaniac politics”, March 18th). But maybe that attitude is not entirely unjustified. As John le Carré wrote in “The Secret Pilgrim”: “I never understood why so many Poles have a soft spot for us. Our repeated be-

trays of their country have always seemed to me so disgraceful that if I were Polish, I would spit on every passing British shadow, whether I had suffered under the Nazis or the Russians—the British in their time having abandoned the poor Poles to both.”

ANDRZEJ DERKOWSKI
Oakville, Canada

Deep thought



Plans by Elon Musk to integrate computers with our brains brought to mind “The Hitchhiker’s Guide to the Galaxy” (“We can remember it for you wholesale”, April 1st). Upon hearing that his brain might be replaced with an electronic one, Arthur Dent is insulted by the suggestion that it only needed basic programming and that no one would know the difference. Arthur protests: “I’d know the difference!” To which his interlocutor responds, “No, you wouldn’t, you’d be programmed not to.”

SCOTT WRIGHT
Wappingers Falls, New York

Our foolish tax on efficiency

After looking for papers on “facile externalities” in the *Scandinavian Journal of Economics*, I got suspicious of the inclusion of a middle initial in the author’s name, Danilov P. Rossi, in “Friction lovers” (April 1st). You seldom do that. I solved the anagram. But am I still a *poisson d’avril*?

JOSE TUDON
Chicago ■

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On the razor's edge

Also in this section

19 The shock of the coup

ISTANBUL

Voters are split over giving new powers to Recep Tayyip Erdoğan. Be warned: he would use them without restraint

IT IS hardly a fair contest. In the campaign for Turkey's constitutional referendum, due on April 16th, the Yes side has harnessed the power of the state to crush the Noes. Selahattin Demirtas, co-leader of a pro-Kurdish party, was poised to become one of the main No voices but has ended up behind bars on trumped-up terror charges. He faces 142 years in prison. A Kurdish-language song calling for No has been banned. A study of 168.5 hours of campaign coverage on 17 national television channels at the start of March showed that Yes supporters got 90% of the airtime. The route from Sabiha Gokcen airport, outside Istanbul, has more than a dozen building-sized banners with an image of the president, Recep Tayyip Erdoğan, or his prime minister extolling a Yes vote. Giant No banners are nowhere to be seen.

Stacked as it is, the ballot could not be more consequential. Voters must decide whether to abandon a parliamentary system in favour of an executive presidency that would give the head of state complete power over the budget and the executive, and huge sway over the judiciary. MPs would have minimal powers of scrutiny.

The result will help determine the fate of Mr Erdoğan, who has governed since

2003—first as a reforming prime minister, but lately as a strongman president who has come to treat all opposition as a form of treason. A No would be a grave blow for Mr Erdoğan. A Yes would root his power in the very foundations of the state.

The fate of Turkey is at stake, too. Ever since Mr Erdoğan took power, the country has been a test of what happens when democracy is put together with political Islam. Turkey was also an example of the benign influence of the European Union, which encouraged open markets and civil rights. Some years ago Mr Erdoğan began to reject all that for nationalism and autocracy. Lately he has courted Russia and the Gulf monarchies. He would use a Yes as a popular endorsement of that illiberal path.

Since Mr Erdoğan has all the advantages, anything but a resounding victory ought to count as a defeat. At least 40% of the country—religious and conservative—will support him come what may. He chose the timing of the vote in the wake of a failed coup last summer, when most of Turkey had united behind him. He has attacked the EU, Turkey's biggest market, in an attempt to stir up nationalist support. The authorities have nearly 50,000 people in detention, whom it calls coup-support-

ters and terrorists; it has sacked 100,000 more. Abetted by a captive, frightened judiciary, the police are rounding up anyone Mr Erdoğan designates as an enemy.

He has a healthy lead in the polls (see chart 1 on next page). Yet in the privacy of the polling booth, voters might deny Mr Erdoğan his victory. Outside the ferry terminal in Uskudar on the Asian shore of the Bosphorus, across the water from one of the sultans' palaces, the AK party, co-founded and led by Mr Erdoğan until he became president, has more workers handing out leaflets than there are punters willing to take them. The red and white tent of its nationalist allies bales out the peppery strains of Turkish bagpipes to Istanbulis who turn their shoulders and walk by. The country is uneasy, rocked by the failed coup and murderous bombing campaigns of jihadists and Kurdish separatists. Corruption, state interference and a collapse in tourism are weighing on the economy.

Early in Mr Erdoğan's rule, Turkey made great progress towards democracy. But Turks who can remember the detentions and torture after the military coup in 1980 say that today's are a throwback to those dark times. Workers inform on their colleagues, students on their professors, hus- ▶▶

bands on their wives. Some within AK—including, it is said, dissident party leaders—think that, this time, Mr Erdogan has gone too far.

The district of Basaksehir, about 20km from the heart of Istanbul, helps explain the enduring popularity of Mr Erdogan and his party. A few decades ago such a place would have been a shanty town, put up by peasants who left the Anatolian countryside in their millions in search of work. Mr Erdogan and AK gave a voice to such “black” Turks, who suffered under the arrogant, secular “white” Turkish elite. Today, it is clean and well-appointed. Tidy apartment blocks tower alongside immaculate roads. Shops and cafés testify to a new affluence. To the visitor's eye Basaksehir lacks character, perhaps, but to devout, working-class Turks it stands for dignity, self-respect and prosperity.

It is easy to forget how abysmal the economy was in 2003 when Mr Erdogan came to power. The crisis of 2000-01, the third in a decade, caused collapses in the currency and GDP and led to the intervention of the IMF. Under the stewardship of the fund and with encouragement from the EU, Mr Erdogan's government brought down inflation, which had briefly exceeded 100% in the early 1990s, and rescued the banks. Foreign investment soared. The country became Europe's workshop. Thanks to their newfound stability, Turkish entrepreneurs grew rich.

Change the system

Mr Erdogan wants voters to believe that Sunday's referendum is all about recovering this stability. Sitting in the AK office in Basaksehir, Mustafa Sentop, who helped draft the new constitution, argues that a man of Mr Erdogan's calibre has accomplished things in power despite the system, not because of it. In its 94 years as a republic, Turkey has had 65 governments. Shadowy oligarchies have infiltrated the army and the bureaucracy in order to usurp elected politicians. There is a history of terrorism, plots and coups. “We will stop that,” Mr Sentop vows.

Formally, the new constitution abolishes the prime minister's office and divides power between parliament, which legislates, and the president, who acts. In practice, it enthrones the president as a term-limited sultan and parliament as his court.

Mr Sentop points out that France and the United States have powerful presidents, too. But under the new constitution, unlike the Assemblée Nationale and Congress, the Turkish parliament will not control the details of spending or have a say over presidential appointments. Neither will it be able to subject the cabinet to questions, except in writing. Besides, in France and America the independence of the media and the courts is well-established. In Turkey Mr Erdogan has spent re-

cent years turning them into his fiefs.

The chances are that the president will dominate parliament politically, too. Because executive and legislative elections will coincide, unlike those in France and America, where they are not always aligned, the president and the parliamentary majority are likely to come from the same party. Turkey operates a list system, in which party leaders control who gets a seat. The new constitution allows Mr Erdogan to retain control of his party, giving him power to handpick parliamentary candidates. Those who challenge him would pay a high price.

The reform has met strong criticism abroad. The Venice Commission, a panel of constitutional experts who advise the Council of Europe, calls it “a dangerous step backwards”, saying that the new constitution “lacks the necessary checks and balances to safeguard against becoming an authoritarian” regime. Human Rights Watch, an NGO, says that it poses “a huge threat to human rights, the rule of law and the country's democratic future”.

Within Turkey, however, voters' perceptions are coloured by the terror attacks and the attempted coup. The outside world has failed to grasp just how besieged Turks feel. And that has strengthened Mr Erdogan.

First came the spiral of terror and retribution. Early on, Mr Erdogan had been ready to make peace with the Kurds. Perhaps because his people had also suffered under Turkey's secular governments, or because he stood to win votes among conservative Kurds, he offered new rights and a promise to resolve a 30-year war between security forces and the PKK, a Kurdish militia. Later he saw them as potential allies over the constitution. With their support, he would win his executive presidency and they would gain autonomy in the south-east, where they are in the majority.

But peace talks with the PKK fell apart in 2015. Kurdish success fighting with the Americans against Islamic State (IS) in Syria raised their hopes of a homeland in Turkey. After Mr Demirtas told him in early 2015 that he would never get his new constitution, a furious Mr Erdogan disowned

the peace process. When the PKK blamed him for a deadly IS bombing against pro-Kurdish activists and killed two Turkish policemen, Mr Erdogan launched an offensive against its bases in northern Iraq, accompanied by mass arrests. A spiral of PKK bombings against Turkish security forces and ruthless army reprisals rocked the south-east. Under pressure in Syria, IS continued unleashing its own suicide-bombers against Turkey.

Guns and steel

After the terrorism came the putsch. Most Turks thought they had consigned military coups to history. But on the night of July 15th last year rebel troops stationed tanks at Istanbul's main airport, occupied Taksim Square and took up positions on the two bridges crossing the Bosphorus. They put their top commanders under arrest. In the capital, Ankara, their jets bombed the parliament building and the grounds of the presidential palace.

But within hours the coup collapsed. A squad attacked the hotel in Marmaris where Mr Erdogan had been on holiday—but he was already gone. In a remarkable display of people power, Turks poured onto the streets to defend civilian life.

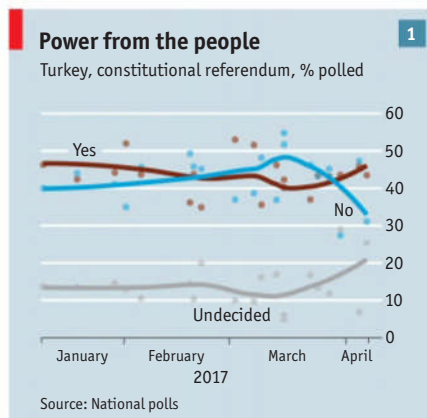
Mr Erdogan has seized on the violence to whip up a frenzy of paranoia and nationalism. He has memorialised the bungled coup, in which almost 250 people died, as Turkey's second war of independence—setting himself up as the equal of the republic's founder, Mustafa Kemal Atatürk (see box on next page).

Behind the crude myth-making lies the paranoia—which has at least one foot in reality. The police, judiciary, intelligence services and, it turned out, army had all been penetrated by unknown thousands of the followers of Fetullah Gulen, a cleric living in self-imposed exile in America.

The Gulenist movement is part self-help group, part secret society. Its 75-year-old head preaches a tolerant Sufi Islam. For many, affiliation was the route to a good education and upward mobility. In the old days, when to be devout was dangerous, it offered protection. But Gulenists continued to operate in the shadows through the 2000s, “like a Dan Brown novel”, says a journalist who, like most people in Turkey these days, will speak to the foreign press only on condition of anonymity, even though he is a supporter of AK.

The Gulenists were organised in secret stand-alone cells, as if they were revolutionaries. They helped each other gain influence by rigging state exams and fixing promotions. In the government's telling, those who infiltrated the army lay low for years, pretending to be secular, by drinking alcohol and letting their wives uncover their hair.

If anyone should have grasped the threat, it was Mr Erdogan. When he first



came to power the Gulenists provided the brains, he and his party the votes. Together they took on Turkey's "deep state". He used Gulenist prosecutors and judges to purge the army of secular officers—sometimes on thin or forged evidence. He stood by as the Gulenists destroyed their enemies in show trials or through smear campaigns in their newspapers and television stations.

Inevitably Mr Erdogan and Mr Gulen turned on each other, using the methods that the deep state had once used against

them. The details are murky, but the first blow may have been a Gulenist attempt to arrest Mr Erdogan's intelligence chief in 2012. The two men became locked in a fight for survival after someone released taped conversations implicating Mr Erdogan and his family in corruption—which he strenuously denies. Having compiled a roster of suspected Gulenists in the army, Mr Erdogan was about to swoop. The plotters, joined by some secularists, struck first.

Faced with an enemy within and sepa-

ratists and terrorists without, Mr Erdogan had a duty to strike back, say AK politicians. "Nowhere in the world is supporting terrorism acceptable," says Ravza Kavacki Kan, an MP for Istanbul.

And so, in the name of democracy and the rule of law, Mr Erdogan unleashed a whirlwind. In the south-east, between July 2015 and the end of last year, several thousand people lost their lives—800 of them government forces. The fighting displaced hundreds of thousands. Entire districts were flattened by artillery and bulldozers because, the government says, they were booby-trapped. Politically, the crackdown paid off. Denied a majority in parliament in an election in June 2015, AK regained it five months later. The government has since expanded the crackdown, jailing thousands of Kurdish activists, including 13 MPs, and kicking out the mayors of over 80 towns, on the ground that they have ties to the PKK.

Since the coup the police have arrested or sacked 168 generals—about half the total, among them many close to NATO—some for being too slow to come out in support of Mr Erdogan. The judiciary has lost 4,000 members. About 6,300 academics are out of a job or in jail, several hundred for signing an open letter objecting to the counter-insurgency campaign in the south-east. Roughly 160 media outlets have closed, many of them backers of Mr Gulen. Within six months of the coup, police had detained some 4,000 social-media users. And so it goes on.

On the wrong side of the state

Many people caught up in the mania did not deserve it. Much of the time, Mr Erdogan has acted under sweeping emergency powers. These are so broadly drafted that almost anyone can be detained. The authorities are quick to see guilt by association. Critics say that gives a foretaste of what a Yes vote would enable Mr Erdogan to do as president.

Emine was a primary-school teacher who had savings with a Gulenist bank and belonged to a trade union with Gulenist connections. She was sacked by decree. Her neighbours are frightened of being seen with her. Her husband has been branded a traitor. Her children are being bullied and in therapy. She is taking antidepressants. For support she meets other women who found themselves on the wrong side of the line—a statistician who tweeted her doubts about the coup, someone who went to a Gulenist school. Emine believes she has no future. "We have no power or jobs," she says. "It is civil death."

AK loyalists talk of "crypto-Gulenists" and PKK terrorists hiding in plain sight. "There is no difference," Mr Erdogan said last year, "between a terrorist with a gun and a bomb in his hand and those who use their work and pen to support terror." MP, ▶▶

Remembering the coup

Brave "New Turkey"

ISTANBUL

The legacy of a failed attempt to topple the government

AFTER months in hospital and several operations, Sabri Unal is beginning to regain the use of his right arm. On July 15th last year, alarmed by reports of an army coup, Mr Unal was injured in a forlorn attempt to block a pair of tanks roaring down an Istanbul avenue. When the first tank showed no signs of stopping, he dived between its tracks, avoiding death by a split second. When another approached moments later, he threw himself to the ground once again. That tank's tracks mangled his arm. Asked what inspired him to take to the streets that night Mr Unal, a web programmer, offers a straightforward answer. "As long as I can remember," he says, "I have been against coups everywhere."

The shock of the coup, the bloodiest in Turkey's history, and the courage of thousands of people like Mr Unal who risked their lives to oppose it, has been overshadowed in the world beyond Turkey's borders by the mass purges, detentions and reports of torture that followed it. In Turkey, it has been different. To legitimise President Recep Tayyip Erdogan's draconian policies and to boost his attempt to bolster his powers through a new constitution, the memory and trauma of the coup have been nourished, politicised and consecrated.

In Mr Erdogan's hands, the coup has turned into the cornerstone of what the president and his supporters refer to as the "New Turkey": a more religious, more anti-Western and less predictable incarnation of the republic founded by Kemal Ataturk over nine decades ago. Universities, parks, stadiums, swimming pools and other landmarks across the country, including the Bosphorus bridge where soldiers fired on unarmed protesters, have been renamed after the coup and its victims.

On the streets of most cities, billboards proclaiming that Turks will never succumb to putschists or terrorists min-



They stopped the tanks rolling

gle with banners calling for a Yes vote in the constitutional referendum. At the start of the school year, children across the country were made to watch a video that moved seamlessly between footage of the coup and images of Ottoman troops squaring off against Allied forces during the first world war. The education ministry has added a class on the events of July 15th 2016 to the curriculum.

Mr Erdogan compares the coup to Turkey's war of independence. His aides reach for even more creative historical parallels. July 15th was a "revolution" that will shape Turkey "just as much as 1789 influenced France and just as the Bolshevik revolution influenced Russia", says Mehmet Ucum, a presidential adviser. The coup exposed and brought down the "antidemocratic structure" within the bureaucracy, Mr Ucum claims. The new constitution will help fill the vacuum, he insists. "We have to rebuild the state from the ground up."



► academic, author, journalist or the director of an NGO, “that person is a terrorist.” It looks as if the state is acting against individuals, rather than their crimes. On March 30th 21 journalists suspected of being Gulenists were acquitted. After an outcry by AK supporters all the journalists were re-arrested before they could leave prison, 13 of them on new charges of “attempting to overthrow” the government. The judges who heard the case were dismissed.

For emergency use

Safak Pavay, an opposition MP, argues that Mr Erdogan has weaponised his emergency powers. “The law is only being used against us,” she says, “not to provide justice for everyone. Foreign policy has been weaponised, too, perhaps because Mr Erdogan thinks the referendum result is in doubt. After Germany and the Netherlands refused to accept government ministers campaigning for a Yes among Turks in their countries, Mr Erdogan accused them of “Nazi practices”. The Dutch, he said, had murdered Muslims in Srebrenica during the Balkan wars. No matter that they were in fact UN peacekeepers who killed nobody. Mr Erdogan is calculating that, when Europeans hit back, patriotic Turks will rally to the flag.

At the same time, Mr Erdogan is signalling that he is prepared to shift towards Russia. This may be a ploy to provoke the EU. But it also reflects how the army and the bureaucracy are increasingly in thrall to a “Eurasian” faction whose leaders spurn NATO and the West and look to a Turkish version of the nationalism that has served Vladimir Putin. Although Turkey shot down a Russian warplane on the Syrian border and Russia’s ambassador to Turkey was assassinated last year, military and intelligence co-operation between the two countries has never been so close.

NATO is worried. So is the EU, which has struck a deal with Turkey over Syrian migrants and is mired in increasingly futile talks over Turkish membership. Under Mr Erdogan, an essential ally in a troubled region is drifting away.

Given Mr Erdogan’s power today, what

difference would victory in the referendum make? Optimists outside Turkey hope that it would inspire him to be conciliatory in an attempt to unite the country. But he is by nature a bully in a culture that admires displays of strength. More probably he would use the chance to move against the next lot of enemies. That may include the secular opposition as well as some bigwigs in his own party.

Constitutionally, Mr Erdogan would be almost untouchable. As president, he would have two five-year terms (and, under some circumstances, a third). He and his allies in parliament would be able to appoint loyalists to the most senior judicial panels, immunising him and his family against prosecution should corruption allegations resurface. Some think he is grooming his son-in-law, the energy minister, as his heir.

And yet, Mr Erdogan would face obstacles. The talented administrators of his early years have gone, replaced by yes-men



A rare vote for No

and second-raters. Economic growth was 2.9% last year, half its rate in the early 2000s (see chart 2). GDP per head is stagnant. Without the anchors of the IMF and the EU, Turkey has gradually shifted away from the economic orthodoxy that worked so well in the past. Inflation is over 11%, the highest since 2008.

Rather than returning to economic reform, the government is pinning its hopes for reviving the economy on a sovereign-wealth fund financed by state shareholdings and with up to \$200bn to invest. But that is likely only to increase Mr Erdogan’s control over the economy, hardly a promising sign—and not just because of incompetence. In recent years cronyism, always a problem, has become steadily worse.

If Mr Erdogan is vulnerable anywhere it is here. Unlike Russia, with its oil, Turkey needs foreign exchange and investment. Corruption and political repression will drive them away—even as they eat up resources. Eventually the pain will fall on the merchants and business people who are the backbone of AK support.

Already, there are signs that Mr Erdogan’s popularity is waning. “Chief”, a biopic eulogising his career, has proved a failure with critics and audiences. At a recent performance at 11am in the town of Izmit, the box office refused a cinema-goer a ticket: he would have been the only member of the audience.

And if Mr Erdogan loses? The consequences of No are harder to predict. A defeat of any kind would be a humiliation. But Turkey would still be under emergency rule, giving the president vast power.

A heavy defeat could embolden dissidents and reformists within AK to attempt to restrain Mr Erdogan. It would also encourage his opponents. After the repression, dissidents, the media and ordinary Turks would leap at the chance to speak out. “There is a wall of silence in this country,” says Selma Atabey, a former nurse and trade-union member, sacked after the coup. “A No in the referendum would help break it down.”

Yes and No

A narrow loss, however, might lead Mr Erdogan to take desperate measures. A master at manipulating conflict to his own advantage, he could engineer another clash with the Kurds. He could call an early election in the hope of winning a large majority. Some fear that his government could put forward another new constitution, with a few cosmetic amendments. This time, with a big enough majority, it would not need to go to a referendum.

Whatever the result on April 16th, Turkey has entered a dark period. A vote for Yes would saddle the country with an elected dictator. A No would not save Turkish democracy. But it would let it live to fight another day. ■



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Donald Trump's foreign policy

On a whim and a prayer

WASHINGTON, DC

America's global role looks more normal than Mr Trump promised, but still odd

THE salvoes of cruise missiles Bill Clinton launched in August 1998, against a suspected chemical-weapons factory in Sudan and an al-Qaeda camp in Afghanistan, were considered by many American lawmakers to be ineffectual, or worse. Mr Clinton had admitted canoodling with Monica Lewinsky three days earlier—had he taken his cue from a recent Hollywood film, “Wag the Dog”, in which a fictional president invents a war to shift attention from a sex scandal? By contrast, the strikes Donald Trump launched on the Shayrat air base in Syria on April 6th, which were of similarly limited size and ambition—designed to make a point, not war—have been feted, on the left and right, as a well-judged action by a commander-in-chief who may be starting to find his feet. Hillary Clinton, Mr Trump's defeated Democratic rival, said she would have acted similarly. “Donald Trump became president!” said Fareed Zakaria, a liberal pundit, on CNN.

The contrasting responses to these strikes, almost two decades apart, illustrate the extent to which foreign policy is often judged more on its domestic political context than its prospects of success. Mr Clinton's point, that the Islamist rulers in Kabul and Khartoum should stop succouring Osama bin Laden, and Mr Trump's, that Bashar al-Assad should stop gassing his fellow Syrians, both justified military action. Visibly upset by television images of dead Syrian children, Mr Trump explained his salvo in a tone of admirable

moral outrage. “Even beautiful babies were cruelly murdered in this very barbaric attack,” he said. “No child of God should ever suffer such horror.” Yet Mr Trump's raid had two additional things going for it.

First, the modest military action Mr Clinton preferred doesn't look so bad compared with what followed. After George W. Bush's costly wars, then Barack Obama's failure to enforce a “red-line” warning against Mr Assad's chemical weapons use, many Americans want to bloody the Syrian dictator's nose, but not war. Second, there is indeed evidence that Mr Trump is adopting a more conventional foreign policy. And almost everyone who applauded his missile strike is desperately keen, given the president's erstwhile indifference to America's international standing and inattention to geopolitics, to encourage that orthodox drift. For the same reasons, however, they are liable to be disappointed.

A call from HR

The growing orthodoxy can be mainly attributed to the influence of Mr Trump's impressive national-security team. At the National Security Council, H.R. McMaster has been cleaning shop following the enforced exit of his short-lived predecessor, Michael Flynn. A respected Russia analyst, Fiona Hill, has been hired. Mr McMaster's deputy, K.T. McFarland, a former Fox News talking-head with scant qualifications for such an important role, is being eased off to an untaxing ambassadorship. James Mattis,

the defence secretary, and Rex Tillerson, the secretary of state, are supportive of these changes; like Mr McMaster, they are experienced managers, with orthodox views and to varying degrees project an aura of authority, despite the fact that almost none of their subordinates, the political appointees upon whom cabinet chiefs depend, have been appointed.

Their efforts have also been assisted by reality, which has tended to make Mr Trump's erstwhile foreign-policy impulses appear untenable. Having argued that America's interests were best served by leaving Mr Assad in place—and, for the same reason, having warned Barack Obama back in 2013 not to launch the missile strike that he now blames him for not launching—Mr Trump found the televised images of the Syrian dictator's attack on Khan Sheikhoun too repugnant to ignore. Having refused to criticise Russia's president, Vladimir Putin, whose authoritarian leadership Mr Trump admires, he is now digesting reports that the Russians had warning of the attack, then bombed the hospital to which its victims had been sent in an attempt to destroy the evidence.

These pressures—able cabinet chiefs and a world less amenable to major foreign-policy revisions than Mr Trump supposed—will endure. So the drift to orthodoxy will probably continue, but with two equally important caveats. First, Mr Trump's willingness to take and abruptly abandon radical positions, like the clubhouse commander-in-chief he resembles in all ways except one (he actually is the commander-in-chief), will still impinge on American foreign policy. An almost untrammelled preserve of the presidency, it tends to reflect the character of its incumbent more than any other branch of policymaking: under Mr Clinton, foreign policy was ingenious, but sometimes too tactical; under Mr Bush, it was well-meaning, but ▶▶

▶ arrogant and rash; under Mr Obama, it was intellectually coherent, yet at times inflexible. Mr Trump's foreign policy is also shaping up in his image. Well-judged though the missile strike was, it is astonishing that he could have conducted such a momentous policy about-turn in a matter of hours on the strength of a news report.

Mr Trump's able lieutenants will not be able to compensate fully for such presidential foibles—as has been apparent in the confused messages coming out of the administration on what the strike augurs for Mr Trump's Syria policy and use of force. Mr Tillerson, having at first cautioned against thinking it augured anything, declared on April 10th that Mr Trump's America would henceforth be an avenging angel for human rights: "We rededicate ourselves to holding to account any and all

who commit crimes against the innocents anywhere in the world." Sean Spicer, the White House spokesman, seconded that: "If you gas a baby, if you put a barrel bomb into innocent people, I think you will see a response from this president." That did not sound very "America First", the principle of narrow national interest Mr Trump preaches. Sure enough, Mr Spicer, who has had a middling week—to emphasise Mr Assad's heinousness, he said that even Hitler didn't "sink to using chemical weapons", a bizarre claim—later issued a retraction. "Nothing has changed in our posture," he clarified. "The president retains the option to act in Syria against the Assad regime whenever it is in the national interest". Mr Trump, in short, reserves the right to do something, or nothing.

The second big caveat to Mr Trump's ac-

ceptance of reality concerns two areas where his views are both fixed and outside the bipartisan consensus that has generally defined foreign policy since the second world war. One is immigration, especially of Muslims, which Mr Trump wants to curb. The other, probably more important, is America's terms of trade, which Mr Trump believes are grossly unfair. Here, too, there has been tentative reassurance. His immigration curbs have been blocked by the courts. The meeting Mr Trump held with Xi Jinping on April 6th and 7th appears to have been civil and anodyne. But it would be unwise to bank on Mr Trump jettisoning the only political views he has consistently held over decades. In the end, the couple of areas where the president has firm views seem likely to matter more than the many areas where he has none. ■

Modern warfare

Useful idiots, updated

How a corner of America's media wound up as apologists for Bashar al-Assad

A COUPLE of days after the chemical weapons attack in Syria, some Twitter users in America began sharing a theory: the pictures had been concocted as a pretext for launching a missile attack. The notion was endorsed by Alex Jones, who runs a website called Infowars, which has successfully spread the idea that the Sandy Hook school shooting in Connecticut was a hoax and that Hillary Clinton was involved in a paedophile ring run from a pizzeria in Washington, D.C. Mr Jones was until recently a fervent supporter of Donald Trump. Campaigning last year, candidate Trump returned the favour: "Your reputation is amazing, I will not let you down," Mr Trump said. Now, it seems, he has.

The story of how Mr Jones fastened onto his Syria conspiracy has been

pieced together by Ben Nimmo and Donara Barojan of the Atlantic Council, a think-tank. It begins in Syria, where a pro-Assad website published an article claiming that those who came to the aid of the attack's victims were not wearing protective gloves, and therefore it must be a hoax. It also claimed that a TV station had inadvertently announced plans to cover the strike before it had taken place. This idea was then picked up by several websites, including the Centre for Research on Globalisation, a hub for conspiracy theories and fake stories.

From there it was a short hop to American conspiracy sites, such as Mr Jones's Infowars, which claimed the whole thing was a "false-flag" operation funded by George Soros. Mike Cernovich, another conspiracy theorist praised by the president ("in a long gone time of unbiased journalism he'd win the Pulitzer"), took a similar line and spread the phrase #SyriaHoax. It was given a bump by computer programs used to boost stories on social media (one Twitter account used #SyriaHoax 155 times). A foreign government might have had a hand in this: the Senate has heard testimony that Russia used this technique to spread fake news stories during last year's election. Since April 6th, #SyriaHoax has been used in 192,000 tweets—85% of which originated in the United States. The hashtag reached 13.6m Twitter users in a single hour according to Keyhole, a social-media analytics firm. And that is how some self-publicists, posing as American patriots, became apologists for the Assad regime, which drops poison gas on children.



Alex Jones, co-conspirator

Trust forests

Elliott less

SCOTTSBURG, OREGON

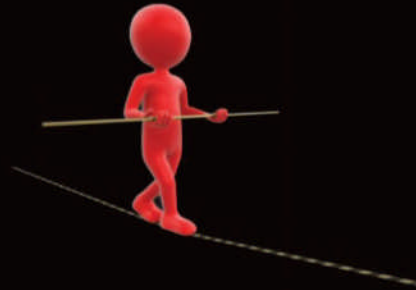
A tussle that raises concerns about handing more federal land to states

DEEP in Oregon's Elliott State Forest, past groves of 200-foot Douglas firs and bigleaf maple trees dripping with emerald green Spanish moss, Joe Metzler pulls over his Toyota truck and peeks over a precipitous slope covered in tree stumps for signs of elk. Mr Metzler, a retired coast-guard rescue swimmer who looks a good deal younger than his 49 years, frequently hunts in the area. To make a clean kill with his bow and arrow, he sometimes camps out in the forest for a week. Then comes the really tough part: hauling 300lb of meat to his car, which is sometimes parked miles away. "It is not old man's hunting," he says gleefully.

Soon Oregon may sell 82,500 acres, or most of what remains of the dense forest, to a timber company and a Native American tribe. The proposal would allow public access on half the land. But sportsmen, who can currently roam the forest mostly as they please, worry it will be hard to reach or unsuitable for hunting. Environmentalists fret protections for threatened species would be relaxed.

The Elliott State Forest is not directly owned by the state; it is state trust land, which is required by Oregon's constitution to produce profit for public schools. The Elliott does that through logging. State trust lands are common in the American West. They trace their roots to 1803, when Ohio joined the union and was given a grant of land to support public education. The practice was replicated throughout the process of state accession, and today there are approximately 46m acres of such lands, 85% ▶▶

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Where the elk roam

▶ of which lie west of the Rocky Mountains.

Recently the Elliott State Forest has struggled to meet its financial responsibilities. A series of environmental lawsuits to protect threatened species such as Coho salmon, a Pacific fish, and marbled murrelet, a small sea bird, led to injunctions that crushed logging. Between 2012 and 2013 net revenues from timber in the forest plunged from \$5.8m to -\$3.3m. Oregon has since dithered between selling the forest and finding another way to compensate the trust.

The potential sale comes at a moment of great angst about public lands and increased scrutiny of state stewardship. At the Republican National Convention last year, the party's platform included a provision for the transfer of federal lands to the states. In January, prodded by Rob Bishop, a Republican congressman from Utah, Congress changed a key budget rule that will make it easier for such a transfer to take place. But not everyone wants it. States have far leaner budgets for land management than the federal government does. The fear that they will emphasise profit over access and conservation—or, worse, need to sell the lands they gain—has created eclectic political alliances. Nowhere is this clearer than in Oregon, where the potential sale of the Elliott State Forest has led conservative hunters and anglers to join tree-hugging environmentalists and Kate Brown, the Democratic governor, to oppose the sale.

Several states have been successful at managing trust lands. Some of Arizona's are close to Maricopa County, home to more than 60% of the state's population; they make money by leasing and developing those lands. New Mexico's trust lands are flush with oil; by exploiting them, the state raked in almost \$500m in 2016. A report published in 2015 by the Property and Environment Research Centre, a think-tank, found that between 2009 and 2013 state trust lands in Montana, Arizona, Ida-

ho and New Mexico returned \$14.51 on every dollar spent, compared with 73 cents on every dollar spent by the US Forest Service and the Bureau of Land Management, the main stewards of federal land, which are not required to make a profit. But if state trust lands start to struggle financially, "it's perilous. Things can go from bad to sale really quickly," says Dean Finnerty, who works as a hunting and fishing guide in the Elliott State Forest.

There is a precedent for such worries. According to the Wilderness Society, a conservation group, Idaho has shed 41% of its lands since statehood; 100,000 acres have been offloaded since 2000. Oregon has sold all but 780,000 acres of its original 3.4m. Selling 82,500 more would not only upset those who love the Elliott, but fuel a wider worry about what happens when public lands are handed to states. ■

St Louis

Millennials to the rescue

ST LOUIS

Green shoots in one of the country's most troubled cities

AWALK from the history museum on the edge of St Louis's verdant Forest Park, past grand faux-Tudor mansions on Lindell Boulevard, leads to the wealthy white neighbourhood of Central West End. Turn left on Euclid Avenue and you pass the Drunken Fish sushi restaurant, Golden Grocer Natural Foods, trendy espresso bars and Left Bank Books, displaying titles thoughtfully chosen by bibliophile shop assistants. Then these businesses suddenly stop, a block or so away from Delmar Boulevard. This is the city's unofficial demarcation line.

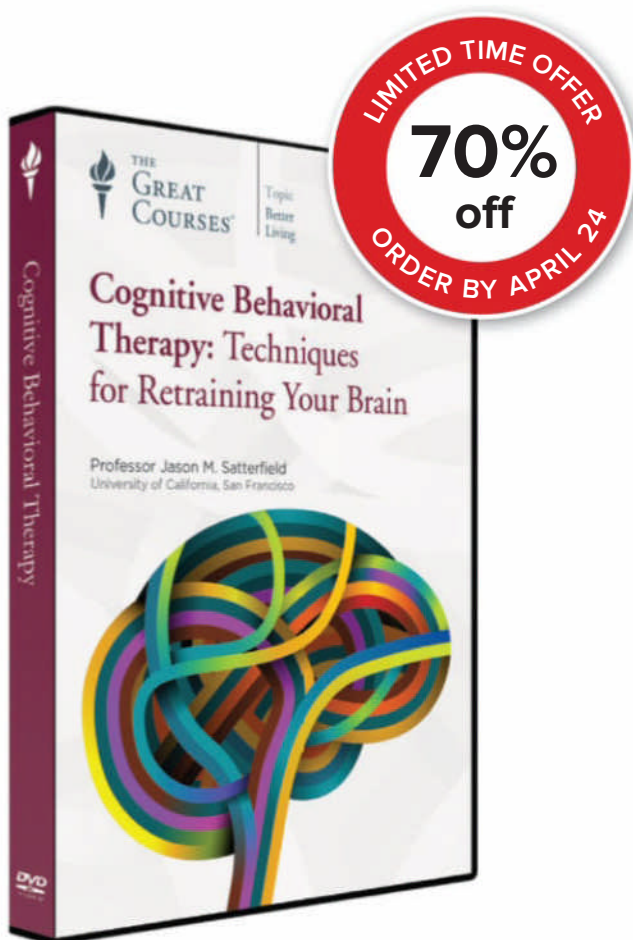
The area directly to the north of Delmar

Boulevard is 99% black, according to Washington University and the University of St Louis. Boarded-up and crumbling houses, dollar shops and fried-chicken outlets dominate the picture. The median home value north of Delmar is a quarter of the value of houses south of Delmar. Only 5% of residents who are 25 or older north of Delmar have a bachelor's degree, compared with 67% south of it.

Situated on the banks of the majestic Mississippi on the boundary of Illinois and Missouri, St Louis is a border city still shaped by the racial attitudes of the old South and the property arrangements of the old north. During the decades of the great migration, when blacks from the rural South moved to cities in the north, it became one of America's most segregated cities. St Louisians resorted to private racial covenants to prevent blacks from buying properties in white districts. "Shall St Louis be the slave master?" reads the caption of a handbill from 1916 on display at the Missouri History Museum; it shows a white man cracking a "negro-segregation" whip at a black mother and her three children to shoo them back to the slave quarters. Despite this and other efforts to persuade them, St Louisians voted overwhelmingly in favour of two ordinances that would prevent anyone buying a home in a neighbourhood with a population of more than 75% of another race. The Supreme Court struck them down in 1917, but they set the tone for race relations in the city for the following few decades.

Some say the city's apogee was in 1904, when it hosted the World's Fair and the summer Olympics. At the time it was America's fourth-largest city after New York, Chicago and Philadelphia; it had the second-oldest symphony orchestra, a grand opera house, one of the world's largest and busiest railway terminals, one of its most popular urban parks and some of the country's best breweries, bearing German names such as Griesedieck or Winkelmeier. Others argue that the decline started in the 1950s, when the city's population peaked at 850,000 residents. It has been downhill ever since, with a trajectory familiar to many cities in the rustbelt: deindustrialisation and depopulation, as first whites and then middle-class blacks fled to the suburbs.

Today St Louis is a shadow of its former self. With 188 murders last year, it had the highest murder rate per person in the country. Nearly all the suspects were black, as were their victims. In a city of only 315,000 residents these days, almost one-third live at or below the federal poverty level. Most of them are black. The city once renowned for its economic might and the talents of its offspring—from T.S. Eliot and Yogi Berra to Josephine Baker and Chuck Berry—is now more famous for the race riots in Ferguson, one of its suburbs. ▶▶



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Traces of the once-great city are everywhere. Many multinationals still call St Louis their home, from Anheuser-Busch (beer) and Ralston Purina (pet food) to McDonnell Douglas (aerospace) and Monsanto (agrochemicals). St Louis is also the biggest centre of financial-services firms outside Manhattan, with companies such as Edward Jones and Stifel Financial. Yet many of the big firms have been gobbled up: Ralston Purina has been bought by Switzerland's Nestlé, Boeing now owns McDonnell Douglas and Monsanto is in the process of merging with Germany's Bayer. On April 5th JAB, a German conglomerate that owns Krispy Kreme Doughnuts and other food brands, announced it was taking over another St Louis success story, with the acquisition of Panera Bread, a bakery chain, for \$7.5bn.

St Louisians cringe every time one of their home-grown companies is taken over, as this tends to come with job cuts. Yet the creation of attractive takeover targets also shows the city's knack for entrepreneurship, which endures. In 2002 Washington University, St Louis University and others teamed up to create the Cortex innovation community, built on industrial land between the two universities. Cortex is now home to about 325 companies, with names like CoFactor Genomics and Boundless, which have found a home in the Centre for Emerging Technologies, an incubator; the BioGenerator, an accelerator that works with startups for a short, intense time; TechShop, a workspace for prototyping; or another of the seven innovation centres. By next year the eighth office building will be added, along with a light-rail station connecting Cortex to the airport and a hotel. Last month Microsoft announced that it will move its regional headquarters into the new Cortex building next year.

These efforts are showing hopeful results. Nearly 15,000 new college-educated millennials moved to St Louis between 2000 and 2014, according to the Pew Charitable Trust, which makes the city millennials' fourth-most-popular destination, eclipsing both Chicago (11th) and Seattle (19th). In a report on the rise of innovation districts, the Brookings Institution, a think-tank, cited Cortex as one of the seven best examples. On April 11th and 12th Dennis Lower, the chief executive of Cortex, played host to 12 other mayors to parade these achievements. Until recently, no forward-looking mayor would have bothered to travel to St Louis for inspiration.

Long-term success, however, requires this renaissance to include the northern part of the city. Here, too, there are some encouraging signs. Half the students at the Collegiate School of Medicine & Bioscience, a magnet high school attracting the best pupils in the area, which was developed by Cortex, are black. It is a start. ■

Closing Rikers jail

Siren island

NEW YORK

The plan to close the city's most famous jail reflects a wider improvement

KALIEF BROWDER was 16 years old when he was arrested for allegedly stealing a backpack. When his family could not pay bail, he was sent to Rikers Island, New York's largest jail. There he spent around 800 days in solitary confinement; he was beaten by guards and other inmates and tried several times to kill himself. Because his hearings were delayed, he ended up spending three years on Rikers, all the while claiming his innocence. His case was dismissed in 2013 and he was released. But the damage had been done, and he eventually killed himself. His tale, not an unusual one, provoked a campaign to close the "torture island", as inmates call it, altogether. Bill de Blasio, New York's mayor, agrees. On March 31st he vowed to begin a ten-year process to shut it.

Three-quarters of the roughly 9,400 people held in New York City's jails have not been convicted of anything. Most are housed on Rikers. The place has become a warehouse for people too poor to post bail or suffering from addiction or mental-health problems (jails, unlike prisons, are locally operated and hold people serving short sentences or awaiting trial). Because of backlogs, many wait months for their day in court. Even a short stay behind bars can be very disruptive. It can mean loss of job, home and custody of children.

Conditions on the island are brutal. In 2014 Preet Bharara, New York's former federal attorney, found a systematic pattern of excessive force used by correction officers, creating a "culture of violence". Many of its antiquated buildings lack air-conditioning, and sewage regularly backs up. Rats are everywhere. Transport of prisoners to and from the isolated island costs \$31m a year, and visiting family members find it hard to get to. One former inmate said the living conditions were unfit for a human, "so I began to act inhuman". A report issued by an independent commission on April 2nd called Rikers Island "a 19th-century solution to a 21st-century problem".

The good news is that New York may not need it. The city continues to cut crime; it has just had its safest first quarter on record. This means that fewer people are going to jail. The city's daily jail population fell from more than 20,000 in 1991 to about 10,000 last year. To reduce it further, alternative sentencing and more bail reform will be needed to divert those accused of lesser crimes. And change will not happen overnight. "It took us 30 years to get into

this mess," says a reformer, "so it's going to take a while for us to get out of it."

New York is not alone. Most of the 720,000 people sitting in the country's 3,000 jails are awaiting trial. Nearly half a million of the detained cannot afford to post bail. Some states and municipalities are starting to change tactics. New Jersey's Hudson County has seen a 25% drop in its jail population since bail reform was implemented on January 1st. The new state law allows nearly all non-violent defendants to be released without monetary bail pending trial. In February Maryland's highest court ruled that people can't be held in jail because they can't afford bail. In November New Mexico voters passed a constitutional amendment prohibiting judges from jailing people because they can't afford bail. District attorneys, judges and police in places such as Philadelphia and Spokane are working on alternatives to detention, using pre-trial risk assessments, supervised monitoring and citations instead of arrests. "It's not just [Rikers] closure that's exciting, it's all the other stuff that goes with it," says Cherise Fanno Burdeen of the Pretrial Justice Institute.

The announcement was a risky move for Mr de Blasio, who is running for re-election this year. Closing Rikers and building new facilities will cost more than \$10bn, and the city's jail system is already expensive: taxpayers will pay \$2.4bn in 2018 to support it. The commission reckons, however, that the closure will save New York City \$1.3bn a year.

The commission recommended that Rikers should be replaced with smaller jails near the city's courthouses. But Mr de Blasio has had a hard enough time opening homeless shelters around the city. Convincing New Yorkers that a jail in their neighbourhood is a good thing might be even trickier. ■



Seemed like a good idea at the time

Scandal in Alabama

And other parts

MONTGOMERY

A besotted governor heaps disgrace on an already beleaguered state

SHORTLY before Robert Bentley resigned as Alabama's governor on April 10th, the television crews assembled outside the state capitol were joined by a group of visiting schoolchildren. Wisely their teachers hurried them along. "Cherchez la femme," one passing tourist commented to another, astutely. For a year the governor had denied having an affair, despite the emergence of grubbily incriminating evidence, vowing to stay in his post. But after being booked into the Montgomery county jail, then pleading guilty to two campaign-finance misdemeanours, Mr Bentley returned to the capitol to announce that he had indeed quit.

He hadn't seemed the type: either to combust in disgrace, or to become governor in the first place. A dermatologist and—before his fall—a deacon of the First Baptist church in Tuscaloosa, Mr Bentley was almost 60 when he was first elected as a state representative in 2002. He did not appear destined for bigger things. But his grandfatherly demeanour and family values shtick, plus a crowded Republican field, helped him to the governorship in 2010; his devoted wife Dianne baked cookies for the campaign team. It was during that race that his life became entangled with that of Rebekah Mason, a married woman almost 30 years his junior whom he is said to have encountered in the Sunday-school class he taught. She worked as his press secretary, then in his administration and on his landslide re-election campaign in 2014.

After the release last year of tapes in which, among other endearments, Mr Bentley rhapsodised about touching Ms Mason's breasts, he insisted that they had not had a sexual relationship. The tapes, it has emerged, were recorded by Ms Bentley, who after 50 years of marriage divorced him in 2015. Their release set off an effort to impeach the governor—which, despite the state's colourful political history, would have been a first. As part of that process, on April 7th the state House Judiciary Committee published a report by its special counsel, Jack Sharman. At a hearing on the morning of the resignation, Mr Sharman argued that although the racy details of the case were reminiscent of Bill Clinton's, the governor's bid to "advance his personal interests over those of the state", and his "increasingly desperate conduct", more closely resembled Richard Nixon's.

To facilitate his relationship with Ms Mason, alleged Mr Sharman, and then to



Farewell to the Luv Guv

conceal it, Mr Bentley misused state resources and personnel. Learning of the recordings before they became public, he is said to have become obsessed with tracking them down, deploying security officials to hunt for them and intimidate other staff members. He allegedly schemed to punish his wife's assistant, Heather Hannah, whom he held responsible for the tapes, and smeared, then fired the state's top lawman, once a close friend.

The testimony that supported those accusations was excruciating. "Ray Charles could see what was going on," one former aide said of the relationship. The governor's children reportedly thought he might be suffering from dementia. He accidentally sent his wife a text message that said, "I love you Rebekah". Ms Bentley was able to read other messages on an iPad that, unbeknown to the governor, was synchronised with his phone. "Poor Robert. Poor Rebekah," he texted Ms Mason on one occasion. "Bless our hearts," she replied. "And other parts." Poor Ms Bentley.

Dramatic as the hearing was, in the end it was moot. On April 5th the state ethics commission had said that its own, separate investigation had found "probable cause" to believe Mr Bentley broke the law, mostly in relation to campaign-finance violations that it unearthed during its inquiry. That and Mr Sharman's findings turned the state's Republican leaders against him.

Meanwhile Mr Bentley's lawyers were evidently hammering out a deal under which he pled guilty to the misdemeanours but will be spared further prosecution. Along with a suspended jail term, probation, community service and \$7,000 in fines, he was required to resign immediately.

Mr Bentley omitted to mention that detail in the sanctimonious statement he made in the old state house chamber, beneath a plaque commemorating Alabama's secession in 1861. He had "not always made the right choices," he said euphemistically. "He probably got off very, very easy," said Ed Henry, a representative who filed the articles of impeachment.

God's armour

In the oddly festive mood that upheavals can induce, the throng of journalists and politicians trooped across the capitol's hallway to the old Senate chamber, where Kay Ivey, the lieutenant-governor, was hastily sworn in as Mr Bentley's successor. A pastor asked God to "clothe her with spiritual armour". She will need it. She is only the second female governor of a state reluctant to return women to high office. (The first was Lurleen Wallace, who in 1966 stood as a surrogate for her segregationist husband George and died after 16 months in the role.) Moreover she takes over at what, even by Alabama's standards, is an excruciatingly embarrassing moment.

Mr Bentley's demise means the state has lost the leaders of all three branches of government in a matter of months. Last year Michael Hubbard was ousted as Speaker of the House after his conviction on ethics charges (he is appealing). Roy Moore was suspended as chief justice in a rumpus over his recalcitrant opposition to gay marriage. The reshuffle does not end there. After Jeff Sessions joined Donald Trump's cabinet, it fell to Mr Bentley to nominate his successor in the Senate. He chose Luther Strange, the state's attorney-general—whose office was investigating Mr Bentley. Three of Alabama's past six governors have now faced criminal charges.

Still, tawdry as it has been, the Bentley saga has its heroes, and its morals. According to her testimony, Mr Bentley told Ms Hannah, his wife's assistant, that "people fall at my throne" and she had better "watch it". She was undaunted. Confidants whom he allegedly tried to enlist to do his dirty work seem ultimately to have attempted to restrain him.

The danger of alienating friends is one of the lessons of a debacle in which Mr Bentley, now 74 and not thought independently wealthy, has forfeited not just his wife, job and reputation but his retirement benefits. The others are familiar, too. Yet again the cover-up proved more damaging than the original peccadillo. Finally, as one Montgomery insider glumly summarises, "There is no fool like an old fool." ■

Lexington | Trump v Trumpism

What the feud between the president's son-in-law and his chief ideologue reveals



PROXIMITY to power does not make Washington, DC, a kindly place. Like medieval peasants watching knights joust, the yokels and churls of the political village—lobbyists, consultants or (hold your nose) journalists—may nod and gawp at the mighty, but their hope is to see one grandee thwack another into the mud.

These are, therefore, heady times in the nation's capital. Two powerful men, Stephen Bannon, chief strategist to President Donald Trump, and Jared Kushner, a senior adviser, have been jousting for weeks, exchanging sword-swipes and lance-blows via leaks and briefings in the press. Still more blissfully for spectators, Mr Kushner is the president's son-in-law: the boyish, dashing heir to a family of property tycoons and Democratic donors, and husband to Mr Trump's daughter and trusted counsellor, Ivanka. His rival, Mr Bannon, is older and angrier: a grizzled champion of America First nationalism.

This White House tourney is usually presented as a clash of partisan ideology or as a human melodrama. Some complaints from the Kushner camp certainly ring with dynastic alarm. The ultimate argument against Mr Bannon, one unnamed source told the *Washington Post*, is that his hardline, fire-up-the-faithful brand of politics "isn't making 'Dad' look good". For their part, Bannonites inside government and their cheerleaders in the conservative media like to paint Mr Kushner as a closet liberal, undercutting Mr Trump's historic populist victory. Their ire also takes in Ivanka, as well as Gary Cohn, the president's national economics adviser, and Dina Powell, a deputy national security adviser, both of them veterans of Goldman Sachs, a bank (to complicate matters, Mr Bannon also once worked for Goldman Sachs, but more recently earned notoriety as the rumpled, combative boss of Breitbart, a hard-right news outlet).

When briefing against the Kushner faction, the Bannon camp uses such slurs as "the Democrats", "the New Yorkers" or "the globalists". Mr Kushner and his elegantly tailored friends are charged with being squeamish about immigration, too eager to see America play global policeman in Syria and peacemaker in the Middle East, and willing to give a hearing to Democratic experts on such subjects as health policy or climate change. Bannonites, Democrats and pundits have mocked Mr Kushner for the range of his responsibilities. The president's son-in-law is

charged with overseeing everything from Middle East peace to relations with Canada, Mexico and China, and reorganising the federal government using lessons from business.

But to cast these fights as a clash between left and right, or even as palace intrigues, is to miss the whole story. The semi-public combat between Mr Bannon and Mr Kushner rests on an argument about something much larger: namely, the purpose of Mr Trump's presidency itself.

For Mr Bannon, the point of winning the 2016 election was to advance a cause, which history may in time call Trumpism. A former naval officer from a blue-collar family in Virginia, he spent years studying theories of how societies collapse. He has made several lurid, doomy films alleging that working families have been sold out by rootless, corrupt elites, who stood by and profited as immigrants flooded in. Other works lamented the collapse of Judaeo-Christian values in the American heartland. Mr Bannon saw before many others on the hard right that Mr Trump might not be a conventional conservative, but still "intuitively" grasped the power of economic populism. On joining the government as the president's ideologue-in-chief, Mr Bannon pasted specific promises made in Trump campaign speeches on the walls of his West Wing office. Those promises cover everything from border security to global trade and an assault on regulations and the federal agencies that write them, through what Mr Bannon calls the "deconstruction of the administrative state". Addressing conservatives in February, the strategist assured them that, whenever establishment types try to lure Mr Trump away from that radical agenda, "He's like: 'No, I promised the American people this, and this is the plan we're going to execute on'."

During the election Mr Bannon bonded with Mr Kushner in their shared contempt for professional campaign consultants. To hear Mr Kushner describe it, the Trump campaign resembled a disruptive startup, full of tech whizzes with "nontraditional" backgrounds outside politics. Addressing New York business bosses in December, Mr Kushner explained how the campaign exposed him to the anger of Americans who feel ignored by their government. He realised that he lived in a "bubble" of elite opinions about such subjects as immigration or the environment.

"I like Steve, but..."

However, Mr Kushner differs in at least one important way from Mr Bannon. He acts as if the last election was a victory for a man called Trump, not a movement called Trumpism. Shortly after the election Mr Kushner told *Forbes* magazine that his father-in-law transcends party labels, with policies offering "a blend of what works, and eliminating what doesn't work."

Both men entered the White House rooting for Mr Trump to prove critics wrong. But if Mr Trump prospers by breaking every campaign promise, Mr Bannon's nationalist cause will have been betrayed. The strategist has survived until now by telling Mr Trump he can help him keep those pledges, shoring up his most loyal bases of support. Yet over time, history suggests that seeking to bind Mr Trump with his own words is a losing gambit.

The logic of Mr Kushner's family first pragmatism is simpler: Americans will thank Mr Trump if his policies improve their lives. For now both men offer the president possible paths to success. At some point their visions will prove incompatible—hence recent rumours, fuelled by Mr Trump, that Mr Bannon may be sacked. The prize being fought over is the president's legacy. That is a contest not everyone can survive. ■



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Bello is away

Honduras

A double helping of Hernández?

TEGUCIGALPA

The president's bid for a second term alarms democrats

IN THE early hours of June 28th 2009 a unit of the Honduran army stormed the house of the president, Manuel Zelaya, disarmed his guard and spirited him onto a plane bound for Costa Rica. The army sent tanks onto the streets, silenced radio and television stations and cut off electricity and water to parts of Tegucigalpa, the capital. A fake letter of resignation from Mr Zelaya was read out to Honduras's congress, which approved his ousting. It was Latin America's last real coup.

As a general election approaches in November, those events are uppermost in Hondurans' minds. That is partly because Mr Zelaya has not gone away; his wife, Xiomara Castro, is a presidential candidate. More important, the current president, Juan Orlando Hernández, is breaking a taboo which Mr Zelaya was thrown out of office to protect: he is running for re-election. That, plus Mr Hernández's authoritarian style, has made the main election issue the fate of democracy itself.

The authors of the constitution, adopted in 1982, wanted to prevent would-be strongmen from entrenching themselves in power. Unambiguously, the document declares that anyone who has exercised "executive power" may not be president. An office-holder who merely advocates changing that provision "shall immediately" be dismissed. The white-hatted Mr Zelaya, whose soft spot for Venezuelan socialism terrified the Honduran elite,

planned to hold a non-binding referendum on whether to convene a constituent assembly to change the constitution. Many thought he would use it to hang on to power indefinitely. That triggered his removal.

Mr Hernández, whose Machiavellian talents would impress even the Florentine philosopher, did nothing so clumsy. He is a beneficiary of a suit brought by a former president, Rafael Callejas, who argued that the term limit violated his human rights. In April 2015 the supreme court ruled in the ex-president's favour, suspending the constitutional ban on re-election. Mr Callejas is not running, but Mr Hernández is.

He is a paradox. Credited with strengthening what had threatened to become a

failed state, he is also reviled for stunting its development. He governs a country that serves as a conduit for much of the cocaine that enters the United States, and where police and politicians are enmeshed with drug-trafficking gangs. The son of Porfirio Lobo, Mr Hernández's predecessor, has pleaded guilty to cocaine trafficking. More than 60% of Hondurans are poor. In 2013, the year before Mr Hernández took office, Honduras was still the most murderous country on earth. Its public finances were a mess: the budget deficit was 7.9% of GDP (see chart). Some 600,000 Hondurans, about 7% of the population, have moved to the United States.

Mr Hernández, who was schooled in a military academy, brought a thwack of authority. At his inauguration ceremony he dramatically dispatched the army to take the field against criminals. "The party has ended," he declared. The murder rate has fallen since the army took up positions in the country's most violent *barrios*, helped by crime-prevention programmes financed by the United States. Mr Hernández has disrupted some drug-trafficking networks and shipped dozens of suspected drug lords to the United States for trial, earning the gratitude of both the Obama and Trump administrations.

He steadied the government's finances by raising the sales tax and cutting the wage bill. The poor are spared, Mr Hernández's allies insist. Many benefit from *Vida Mejor* (Better Life), a programme that provides roofs, water filters and other goodies. Teachers have been disciplined: schoolchildren now spend 225 days a year in the classroom. With help from McKinsey, a consultancy, the government has hatched a plan to develop such industries as tourism, textiles and call centres.

This record has bred more suspicion than goodwill. That is partly because Mr ▶▶



▶ Hernández seems bent on controlling the institutions he purports to be strengthening. “We’re paying for security with the coin of freedom,” says Raúl Pineda, a political analyst who supports Mr Hernández’s National Party.

The doubts begin with the president’s signature policy of sending the army to fight crime. Military units deter some violence, but after a drop the murder rate has stabilised at a high level. Most people still

think insecurity is the biggest problem. The government plans to replace soldiers with a reformed police force, but that will take years. In the meantime, Mr Hernández is spreading the military mindset through his administration. He has deployed officers in all branches of government to serve as his “eyes and ears”, says Mr Pineda.

The judiciary and the electoral commission are subservient to the president, he says. In a ranking of judicial systems by the

World Justice Project, a pressure group, Honduras comes 92nd out of 113 countries on its measure of constraints on government powers. During Mr Lobo’s presidency the social-security system was defrauded of \$300m; a small amount of money from firms linked to the scandal helped finance Mr Hernández’s campaign (without his knowledge, he says). That revelation triggered weekly torchlit protests and demands for his resignation in 2015.

He sought to lower the temperature by inviting in an anti-corruption mission, MACCIH, under the auspices of the Organisation of American States. It has big ambitions: to help prosecutors investigate corruption, spur a cleanup of party financing and encourage judicial reform. A new investigation and prosecution unit specialising in corruption is to begin work next month. MACCIH helped win long jail sentences for the former head of the social-security institute. “We never had such a sentence before for corruption,” says its Peruvian chief, Juan Jiménez.

But the group is encountering as much resistance as collaboration. It has clashed with congress over the implementation of the party-financing law and with the president and congress over the naming of magistrates to the government’s spending watchdog. MACCIH is being subjected to a “black campaign”, says Mr Jiménez.

Now the trial of Mr Lobo’s son in New York threatens to damage Mr Hernández’s crime-fighting image. In March a courtroom heard a former member of Los Cachiros, a drug-trafficking gang, testify that he had met Mr Hernández’s brother, Tony. The purpose was to persuade the government to pay its debt to a company used by the gang to launder money. Tony Hernández denies the claim.

The president’s re-election bid caps the list of grievances against him. He favours limiting presidents to two four-year terms, which is the practice in the United States. The opposition, which deems the entire project to be illegitimate, refuses to write that provision into law. If Mr Hernández wins the election, “it would validate the break with the constitution,” says Edmundo Orellana, a former defence minister and foreign minister.

Although nearly two-thirds of Hondurans oppose re-election, Mr Hernández may well prevail. The coup fractured the country’s two-party system, in which the National Party took turns in power with the Liberals, whose ideology and programme differed little. The toppling of Mr Zelaya, a Liberal, split that party, with some factions backing the coup. Mr Zelaya’s supporters broke away to form Libre, which is putting up Ms Castro.

She shares the anti-Hernández field with two more contenders: Salvador Nasralla, a flamboyant sports broadcaster, who is the nominee of the Anti-Corruption

Canada

Blurring borders

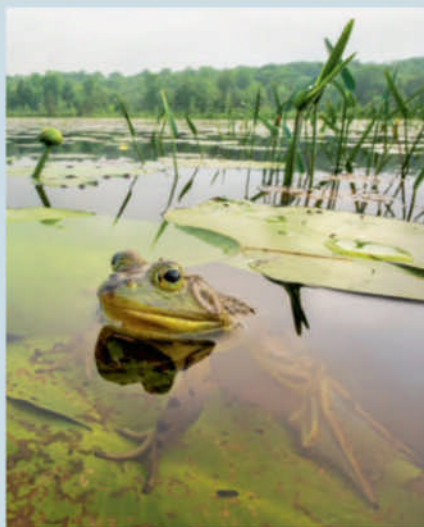
OTTAWA

The country frees trade with itself

DOING business across Canada is not for the impatient. Its ten provinces and three territories see themselves as quasi-countries. They set standards and write laws with little regard for what their neighbours are doing. In Ontario petrol must be at least 5% ethanol; Manitoba insists on an 8.5% blend. Each province has its own ideas of how much grain dust people can be exposed to, and what sort of packages coffee creamer should come in. Ontario requires that toilets at construction sites be equipped with “open-front” seats; Alberta is toilet-seat neutral. If you buy booze in one province you had better drink it there. New Brunswick is pursuing a resident all the way to the Supreme Court for refusing to pay a fine of C\$292.50 (\$220) when he was caught bringing in beer and wine he had purchased in Quebec. Trade among provinces is less free than it is among the 28 members of the European Union.

So politicians from the regions and federal government were in a self-congratulatory mood after they signed a “Canadian Free-Trade Agreement” on April 7th. Brad Duguid, Ontario’s economy minister, who hosted the gathering, pronounced the deal “a major leap forward”. The Canadian Federation of Independent Business presented each of the ministers with its Golden Scissors Award for cutting red tape.

The main change on July 1st, when the accord takes effect, will be that firms can bid more easily for contracts with governments outside their home provinces. The provinces had little choice. A free-trade pact between Canada and the European Union is to take effect by mid-year. Without a change, European firms would have had more freedom to compete for provincial contracts than Canadian ones. The last big agreement to liberalise internal trade came in 1994, when the North American Free-Trade Agreement took effect. “We don’t do anything unless we’re forced to,” sighs a former federal



But is it locally spawned?

trade minister.

Other barriers will fall more slowly, if at all. The agreement includes a “negative list”, meaning that only sectors explicitly mentioned can be protected from inter-provincial competition. (Before, provinces did not have to say which sectors they were shielding.) But the negative list is long, filling 136 of the deal’s 329 pages. It includes the provincial liquor monopolies, the production of dairy, poultry and eggs and the processing of timber. It does not bring uniformity to the provinces’ proliferation of rules, either.

The politicians promised to set up working groups to trim the list and reconcile regulations. There are plans to harmonise rules on selling recreational cannabis, which the federal government intends to legalise. Weed may thus cross boundaries more freely than booze, at least for a while. Some oddities may never go away. To register a standardbred horse in Quebec you must live in the province for 183 days. Ontario will still restrict licences to sell bullfrogs; Manitoban bullfrog-breeders are out of luck.

tion Party, and Luis Zelaya (no relation to Manuel), the Liberals' candidate. Mr Zelaya, a soft-spoken university professor with no political experience, is running as much against the traditional system as against Mr Hernández. His Liberal Party is "the same" as the others, he confesses. He offers a programme of "social liberalism", which includes such goals as fairer taxes, freedom of expression and education for all. But "no economic model works if you don't have institutionality," he says.

His hopes of winning a one-round election may depend on unity within the opposition, which has not developed yet. Libre and the Anti-Corruption Party seem to be close to uniting behind Mr Nasralla. If Mr Zelaya were to join, he might head the coalition. But he says he will not accept a deal based on the customary sharing out of top jobs among party loyalists. Mr Zelaya thinks he can win anyway, as disenchanted voters unite behind him. But it would be unwise to bet against the crafty Mr Hernández winning one more four-year term—at least. ■

Chile

Going nowhere

SANTIAGO

The capital's public-transport system is sputtering

TRANSANTIAGO, the Chilean capital's public-transport system, had its tenth birthday in February, but no one celebrated. Launched with much fanfare, the scheme was supposed to integrate bus and metro lines and speed up traffic. Smog-spewing yellow buses disappeared. Smart cards replaced cash.

But Transantiago is sputtering. Fare evasion is rampant, journeys are getting slower and the state has spent billions of dollars to prop up private bus operators. Passengers sometimes wait ages at stops scrawled with graffiti with no inkling of when the next bus will arrive. Espacio Público, a think-tank, calls Transantiago Chile's worst public-policy project since the country returned to democracy in 1990.

Despite all that, Transantiago has brought some improvements. The number of fatal accidents has dropped sharply, as has pollution from exhaust fumes. The system's 20,000 employees are now on formal contracts and have better working conditions than before. Because bus drivers no longer handle cash, the number of robberies has fallen. Compared with transport in many other Latin American cities, Santiago's works pretty well.

But it would be hard to persuade most commuters of that. The problems start

with design. Planners laid some bus lanes directly over metro lines, so the two forms of transport compete rather than complementing each other. The city has hired too few inspectors to catch fare-dodgers and motorists who stray into bus lanes (though cameras are catching some of the errant cars). Sometimes buses are so crowded that even honest passengers have trouble reaching the card-swiper.

Increasingly, passengers are less inclined to pay. Despite the subsidies, fares have risen by 40% since 2010, far faster than most prices. Bus journeys have slowed by 8% since 2012. For some, fare-dodging is a form of protest. Guillermo Muñoz, the metropolitan area's director of public transport, admits that in some parts of the capital the service is "very bad". Last month Chile's transport minister resigned, in part to take responsibility for Transantiago's failings.

Espacio Público says one reason for the high subsidies is that too few companies operate the buses. The system began with 16 operators but dropouts and mergers have shrunk the number to seven. The largest firms operate 1,200 buses apiece. This makes them "too big to fail", says Clemente Pérez of Espacio Público. Hence the subsidies to keep money-losing companies afloat. No company should have more than 10% of the market, Mr Pérez thinks.

The city will have a chance to correct that next year, when contracts to operate bus lines are to expire. It is likely to encourage smaller and newer companies to enter the market. That might release money for improvements. The new transport minister, Paola Tapia, has created a task-force to help reduce fare-dodging and promised more money for inspectors. With luck, Transantiago could become a service that commuters are happy to pay for. ■



Not going round fast enough

Brazilian letters

Bard of Belíndia

SÃO PAULO

An economist becomes immortal

BRAZILIANS who remember the hyperinflationary 1980s cheered the news on April 7th that prices rose by just 4.57% in the year to March. Inflation has not come that close to the central bank's target of 4.5% in seven years. In a fitting coincidence, on the same day one of the architects of the Real Plan, which tamed inflation in 1994, donned the gold-and-green livery of the "immortals", as members of the Brazilian Academy of Letters are known.

Edmar Bacha is just the third economist to join the august group, whose 40 lifetime appointments are reserved for towering intellectuals and the finest wordsmiths. His election last November (by members of the academy) was one of the most contentious in its 120-year history. It may also be a sign of the times.

Besides wrestling with inflation, Mr Bacha was head of the statistics office and the state development bank. He later became an investment banker. He has a way with words. In "Fable for technocrats", an essay published in 1974, he described Brazil as "Belíndia", a tiny, rich Belgium surrounded by a vast, poor India. In "End of inflation in the kingdom of Lizarb"—where "everything is back to front"—he skewered the belief that rising prices cause fiscal deficits.

Some doubt that Mr Bacha merits immortalisation. Novelists and poets on the academy argued that most of his dozen books are dry treatises. His liberal economics is anathema to humanists enamoured of Karl Marx.

Still, he beat Eros Grau, a former supreme court justice (who has written erotic fiction). The unusually close vote (of 18 to 15) exposed a rift between the academy's "culture wing" and its clutch of public servants, including two former presidents. In November a contest between a political scientist and a philosopher-poet ended in an unprecedented tie, forcing a new election with fresh candidates. João Almino, a writer and diplomat, got the open seat.

Mr Bacha's elevation may be a sign that economic liberalism is regaining ground. In March street protesters called for privatisation and deregulation, among other things. The government of Michel Temer may prove to be one of the most liberal that Brazil has ever had. The academy is also becoming harder-headed. Some immortals were reportedly keen to elect a former banker to oversee its investments.



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Aadhaar

Digital dawn

SARGASAN

A biometric identification system is helping to recast the relationship between the Indian state and its citizens

IT TAKES a little over 90 seconds. At the government-subsidised ration shop in Sargasan, a village in Gujarat, Chandana Prajapati places her thumb on a fingerprint scanner. A list of the staples she and her family are entitled to this month appears on the shopkeeper's computer: 10kg of rice, 25kg of wheat, some cooking oil, salt and sugar. The 55-year-old housewife has no cash nor credit card, but no matter. By tapping in an identifying number and presenting her thumb one more time, Mrs Prajapati authorises a payment of 271 rupees (\$4.20) straight from her bank account. It is technical wizardry worthy of Stockholm or New York; yet outside buffaloes graze, a pot of water is coming to the boil on a pile of firewood and children scamper between mud-brick houses.

Like most Indians, Mrs Prajapati would have struggled to identify herself to the authorities a few years ago, let alone to a far-away bank. But 99% of adults are now enrolled in Aadhaar, a scheme which has amassed the fingerprints and iris scans of over 1.1bn people since 2010. With her authorisation, any government body or private business can check whether her fingerprints or irises match those recorded against her unique 12-digit identifying number in its database. When it comes to identification, India has unexpectedly leapfrogged every country with the possible exception of Estonia, a tiddler with a

penchant for innovation.

Being visible to the state is assumed in rich countries, if only because the taxman insists on it. But India had no equivalent of a Social Security number, and less than half of all births are registered. Only a small minority are required to pay income taxes. Plenty of those entitled to government services, meanwhile, have not received them, because they have not been identified as eligible or because middlemen have stolen their share. At the same time, the benefits rolls are filled with fake beneficiaries, created by those seeking to palm undeserved rations of fertiliser, food or some other subsidised good.

Ghosts v the machine

Linking ration cards to an Aadhaar number, and thus to the biometric data tied to it, means a single person cannot have more than one and ghosts can have none. The original pitch to politicians—the scheme was adopted by the previous government, but has been embraced by Narendra Modi, the prime minister—was that Aadhaar would help make welfare more efficient. The potential gains are huge. One official estimate suggests that “leakage” in subsidy payments meant that only 27% of the money ended up in the right hands: not so much a leaky bucket as a sieve.

Over 400,000 ghost children were struck off school rolls in just three states

after schools were required to match their pupils to Aadhaar numbers to keep receiving state funds. By weeding out false claims, authorities say they have saved \$8bn in two-and-a-half years; the annual central-government budget for subsidies is about \$40bn. That may be an exaggeration, and critics say there are other ways to improve the administration of subsidies. But the savings clearly outstrip the roughly \$1bn cost of deploying Aadhaar.

Changing the mechanics of how a benefit is received is often just as important as the benefit itself. Development experts like the fact that, at least in theory, a villager can gain access to a subsidy in a distant city. This removes a big barrier to internal migration. A project to purge electoral lists found 800,000 fictitious voters in Punjab, a state of 30m. The authorities suspect that 30% of driving licences are fake, many of them duplicates to help drivers evade bans—a ruse that would be impossible if all licences were linked to Aadhaar.

Indeed, the improvements in accuracy and efficiency are so enormous that the government now wants to use Aadhaar more broadly than originally advertised. Recent edicts propose to make it compulsory for everything from booking train tickets to owning a mobile phone. If implemented, these new uses would put paid to the notion that enrolling in Aadhaar is voluntary, which was the promise of its backers—led by Nandan Nilekani, an IT grandee who used to chair the agency that set up Aadhaar. This in a country with no overt privacy laws, let alone a tradition of handling sensitive data competently (many ministries' websites contain spreadsheets teeming with Indians' personal data).

But Aadhaar is a poor way to build up an Orwellian panopticon, Mr Nilekani argues, given the wealth of information al- ▶▶

ready available from telephone records, GPS data, bank statements and the like. A bigger problem may be the impracticalities of the system. Unlike reading an ID card, checking someone's identity through Aadhaar requires an internet connection and, often, electricity. Ration-shop owners in out-of-the-way places are known to march their customers to the top of a hill, roof or tree—wherever a phone signal can be found—to check their identity. Even then, samples seem to show that roughly a third of authentications come back negative, an extraordinarily high failure rate for

a technology that people rely on for necessities. The chafed fingers of manual labourers often cause problems, for example.

Those high failure rates are just teething troubles linked to Aadhaar's many new uses, says Ajay Bhushan Pandey, the head of the agency overseeing the scheme. Devices that scan irises (which offer more reliable readings) are becoming cheaper and should become the norm, he says. Already the Aadhaar database is being tapped 20m times a day, 20 times the rate of a year and a half ago. That thrills cheerleaders as much as it alarms critics. ■

does: following the recommendations of a National Ice Task Force, it allocated A\$300m to reduce demand and help addicts last year. Over half that amount is going to local medical practices, which provide support to addicts. Yet critics complain that co-ordination is lacking. In the 1990s doctors, schools and police worked closely together against heroin, says Matt Noffs of the Ted Noffs Foundation. "We don't see that now."

Like most European countries, Australia spends most of its counter-narcotics budget on enforcement. Yet consumers are more likely to be arrested than dealers, and police put more effort into seizing drugs than into unravelling the rings that smuggle them, Mr Coyne argues. Huge increases in arrests and seizures have had no lasting effect on the supply or price of ice. "Policing on its own won't solve the problem," laments Mick Palmer, a former federal police commissioner. "It's like sticking your finger in a bucket of water."

Unfortunately, politicians find it increasingly hard to peddle "soft" responses to a drug considered the cause of much violence. In a recent election in Western Australia, both big parties pledged longer sentences for offenders, ignoring the fact that jails in the state were already overcrowded. Blunt policing has not worked, but it sells well. ■

A prison for foreigners in South Korea

Why the jailbirds sing

CHEONAN

Poor migrants are pampered behind bars, but scorned elsewhere

THE government of South Korea describes Cheonan prison, south of Seoul, as "the world's first specialised foreigner correctional facility". It must also be one of the most humane, with its gallery of softly lit art and its designated smile zones (for guards and inmates alike). There are sing-alongs to Korean pop music, language classes over hot tea and snacks, and a library stocked with over 5,000 foreign books. Foreign lawbreakers are usually sent to the prison, which opened in 2010 (and also houses 700 South Koreans, in a separate wing). Yet the inmates embarking on its "Good Morning Korea" programme of cultural education typically serve short sentences before being deported.

Cheonan is the only prison in the country to offer *halal* food, as well as 30 minutes a day of TV programming in Chinese, English and Arabic (over two-thirds of the inmates are Chinese; Americans make up the second-largest group). Its wardens say they also hope the 600-odd prisoners, ▶▶

Methamphetamines in Australia

Ice storm

SYDNEY

The authorities are flailing in the face of a drug epidemic

RARELY does a politician admit that his child is an addict. When Bob Hawke, a former prime minister, did so more than 30 years ago, many parents could identify with him: Australia was sliding towards a nasty heroin problem. Use of the opioid, which became popular during the Vietnam war, rose fourfold during the 1990s. By the end of the decade, almost 150,000 Aussies were shooting up regularly. As overdoses and blood-borne virus transmissions increased, wonks in Canberra devised a "Tough on Drugs" policy, which was more sensitive than it sounds. In addition to pursuing traffickers to curb supply, the government pumped money into education and treatment for addicts. Heroin use dropped by three-quarters.

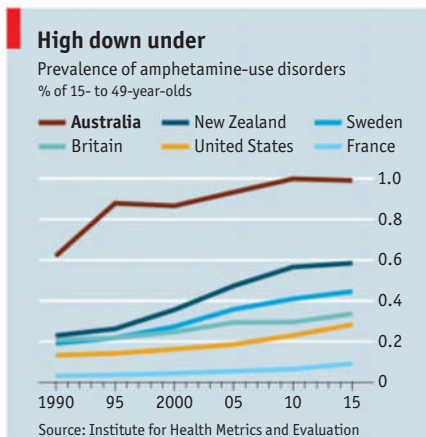
It has been replaced by methamphetamine, a stimulant which was dished out to pilots in the second world war. Over a quarter of a million Australians are thought to be using it. That constitutes the highest rate of addiction in the world (see chart). Researchers disagree about wheth-

er that figure is rising. Existing users are certainly consuming more of its strongest, crystalline form, known locally as "ice". The share of meth-users on crystal rather than pills, powder or paste doubled to 50% between 2010 and 2013. In the state of Queensland, scientists testing sewage found a three- to fivefold increase in meth residue between 2009 and 2015, which might reflect rising purity.

One jittery teenager at a rehab clinic in Sydney run by the Ted Noffs Foundation, a charity, attributes its popularity to accessibility. "It is so easy to get it's not even funny," he says. The small-time dealers he buys from make it at home. Most ice comes from China, however, where a thriving pharmaceutical industry underpins its production, according to John Coyne, a former intelligence official. Organised drug rings are attracted to Australia, where the street value of ice is over six times that in China. Huge trade flows between the two countries make it relatively easy to import the drug and repatriate the profits.

Compared with other narcotics, or even with legal intoxicants, ice is cheap. By one count, Australia is the world's second-most expensive country in which to drink, smoke and get high. Yet for around A\$40 (\$30), a hit of ice can last over half a day. "You feel like Superman," the young addict says. This comes at a cost: ice can cause users to become paranoid, aggressive and even psychotic. It is now the most commonly used drug among those entering prison. Meth-related hospital admissions have quadrupled since 2010.

Politicians know there is a problem, but have failed to respond as once they did. When heroin was rife, the government prioritised treatment and attempts to deter use through education. Theoretically it still



▶ from 35 countries, can serve as “ambassadors for Korea” when they return home, armed with *taekwondo* philosophy and K-pop anthems. Some ex-convicts have left with business plans to set up as tour operators to the country.

Cheonan is in part a reflection of South Korea’s growing acceptance of outsiders. More than 2m foreigners live in the country—a relatively small proportion of its population of 50m, but a huge increase compared with only a few years ago. The number of foreigners working in South Korea has risen more than thirtyfold since 2000, to over 600,000 last year. Of these, 221,000 were in the country on an employment-permit system that has, since 2004, allowed unskilled workers from 15 Asian countries to fill yearly quotas for dirty or dangerous low-paid jobs. They toil at tasks shunned by newly rich South Koreans, such as oil-drum cleaning or pig farming, in industries including agriculture, fisheries and construction.

The thoughtful treatment foreigners receive in prison is harder to find outside it. Migrant workers, mainly from South-East Asia, are becoming a new underclass. In a government survey of female migrants in agriculture, two-thirds lived in makeshift housing such as container boxes or greenhouses (employers often withhold part of their wage in return for accommodation); over three-quarters were given fewer than two days off a month. In January two Cambodians in their 20s were reported to have died from cold and exhaustion.

Another recent survey, by Amnesty International, suggests that four-fifths of migrant farm labourers are not paid for overtime, despite typically working 50 hours a month longer than their contracts require. Though all workers must sit a basic Korean-language test in their home countries to qualify for the visa, hardly any are equipped for the rural dialects they hear. Abuse from employers is common. Lawyers such as Go Jieun, part of a group that represents migrant workers free of charge, encourage them to record unfair treatment

Executions in Vietnam

Deathly silence

HANOI

As the world retreats from capital punishment, Vietnam doubles down

IT IS hard to know how many people governments execute, as the most bloodthirsty regimes do not make the data public. Amnesty International, a pressure group, documented 1,032 executions in 2016, but believes the true number is much higher. The good news is that that figure represented a 37% drop from the previous year. Two countries, Benin and Nauru, abolished capital punishment, and others are moving towards abolition. In all, 141 countries have got rid of the death penalty in law or in practice.

At least ten Asian countries resorted to capital punishment last year, however. China is believed to be the most frequent executioner, though the number of people killed, and for which crimes, remain closely guarded secrets. The Philippines looks poised to reintroduce capital punishment—and in practice the police administer it frequently, by shooting drug suspects without the nicety of a trial.

Vietnam also shrouds capital punishment in secrecy. For years it was believed to execute just a few people a year. But a report from its Ministry of Public Security, published in the local media in February, said that 429 prisoners were executed between August 8th 2013 and June 30th 2016. That would make Vietnam the world’s third-most-prolific executioner, after China and Iran (see chart).

Vietnam has also continued sentenc-

on their phones.

Udaya Rai, a Nepali who heads South Korea’s migrant workers’ union, says little effort is made to protect migrants from exploitation or violence. Changing jobs requires employers’ permission. Police have been known to turn away migrants “with

A terrible tally

Minimum estimated number of executions
Top seven countries, August 2013–June 2016



ing people to death at a rapid clip—63 in 2016 alone, according to Amnesty’s count, which it believes is incomplete. Most of these were for drug offences.

Just two years ago a different course seemed likely. Vietnam abolished capital punishment for several crimes, including drug possession, producing or trading counterfeit food, and corruption—provided the accused returned 75% or more of the amount stolen. Even so, at least 681 people remain on death row. And while other countries hand out far more death sentences than they carry out, in Vietnam the gap seems to be alarmingly small.

blood running down their faces”, he claims, telling them to resolve problems with their employers directly. Many are told that if they report abuse they may not receive their wages. Those who leave work to do so are sometimes reported by their employers for absconding, which can land them in one of the country’s three immigration detention centres, where they can be held without a warrant.

Mr Rai says the biggest problem is that South Koreans still view the employment of migrants as a form of charity, rather than as a boon for the economy. It took the migrant workers’ union a decade to win official status, eventually conferred by the supreme court in 2015. The union represents illegal migrants too, who make up over one-tenth of foreigners in South Korea. Many of them have overstayed their visas while trying to claim unpaid wages.

A warden at Cheonan says he hopes delinquents will leave the prison with “a more positive view of South Korean society”. Some migrant workers may need a stint behind bars to see it. ■



Bullying in Japan

All against one

YOKOHAMA

Why being picked on in a Japanese school is especially traumatic

FIVE months after the tsunami that led to his family's evacuation from Fukushima, the boy enrolled at a new school in Yokohama. His new classmates were pitiless. They called him "germ boy". They stole his things. They punched and kicked him and threw him down the stairs; they took him to a "study" room and beat him some more. He was eight years old.

The abuse went on for nearly three years before the bullies added extortion. In 2014 they told the boy to hand over any compensation his family may have received after their evacuation. His parents were in fact not eligible for any recompense, but relatives had lent them ¥1.5m (\$13,000). They kept it in cash at home, fearful that they would again lose access to bank accounts. The boy gave all the money to his classmates. After the cash ran out he stopped going to school altogether.

The boy, now 13, is one of hundreds of evacuees to have been bullied at school. And they are part of a broader problem. Bullying may or may not be more common in Japanese schools than elsewhere, but it is unusually intense when it happens. In 1986 a boy killed himself after classmates, egged on by the teacher, topped months of mental torture with a mock funeral. Since then, thousands of articles and hundreds of books have been written on the subject. Yet there is no sign that the bullies are laying off. In 2015 nine bullied pupils killed themselves, according to government figures. Suicide is the biggest cause of death for Japanese aged 10 to 19, and the first day of school the most common date for it.

According to Mitsuru Taki of the Ministry of Education, bullying in other countries tends to involve two or three pupils picking on another. In Japan, in contrast, most cases involve a big portion of a class inflicting insistent psychological (and occasionally physical) torment on a single victim. "Bullies in Japan are not rotten apples," he says. "It is a group phenomenon."

There are many reasons for this idiosyncratic form of bullying. "A characteristic of Japan is that you should not stand out," argues the head teacher of a secondary school in Tokyo. "Pupils have to lead a collective life when they are at school," adds Koju Matsubayashi, an official in the anti-bullying department at the ministry. Erika, an 18-year-old who left her school in Tokyo after being bullied, agrees. "I was told by teachers to adapt or quit, so I quit."

The way Japanese schools are organ-

ised adds to the pressure to conform. Children learn in a "homeroom": teachers of different subjects come to them. School activities, such as cleaning, eating lunch and studying, are organised in groups. Pupils must often adhere to exact rules about their uniforms, hairstyles and grooming. Individuals who do not *kuuki wo yomu* (roughly translated as "read the vibes") can be shunned by other members of the class.

The Programme for International Student Assessment (PISA), a triennial test run by the OECD, a club mostly of rich countries, suggests that Japanese students are among the top performers academically. They also have among the lowest truancy rates. But they say they enjoy school less than nearly everyone else. Shoko Yoneyama of the University of Adelaide argues that Japanese schools are "dysfunctional communities".

Backing the bad guys

Teachers rarely help. They are renowned for their pedagogical prowess, especially in maths. But most are not trained to spot bullying. There are few incentives to notice or deal with it, notes Kanae Doi of Human Rights Watch (HRW). Teachers who do not achieve harmony, she says, are seen as poor performers. One survey suggests that around 12% of teachers have taken part in bullying. A quarter of high schools allow corporal punishment.

Since the 1980s various task-forces have tried to curb bullying. But the local school boards that interpret the national curriculum and hire teachers have neglected the problem. In the case of the boy from Fu-

kushima, the school board in Yokohama for months tried to blame him for what had happened, suggesting he had handed over his family's savings voluntarily, before changing its mind after much public criticism.

An anti-bullying law passed in 2013 requires schools to report cases of bullying. It has led to a sharp rise in the number of known cases, from a few thousand a year to 224,450 in 2015. Yet there are suspiciously wide disparities between regions. In 2015 Kyoto prefecture reported 90.6 cases per 1,000 pupils; Saga prefecture, in southern Japan, recorded just 3.5. Mr Taki reckons that even Kyoto underestimates the scale of the abuse.

The law has prodded teachers to report bullying but it has done little to change how they deal with the problem. Bullies are rarely punished: in 2014 there were 188,057 reported cases and just two suspensions. The law also assumes that conformity is the way to stop bullying. It says teachers should "cultivate recognition... among students that they are part of a group". But some pupils are simply more likely to be victims and need protection-like evacuees.

Or gay pupils. A report last year by HRW concluded that bullying of gay children in Japanese schools was "nearly ubiquitous". It cited a survey by Yasuharu Hidaka of Takarazuka University that found that 44% of gay teenage boys were bullied. One told HRW that teachers said his sexuality broke the harmony of the school. Separate research by Mr Hidaka suggests that roughly one Japanese teacher in three thinks homosexuality is a mental illness.

The government has said it will review its anti-bullying policies. But laws alone will not curb it. That requires policymakers and teachers to recognise that too much conformity plays a part. In November the 13-year-old from Fukushima issued a message for evacuees enduring similar ordeals. "It is painful," he said through his parents, "but please do not choose to die." ■

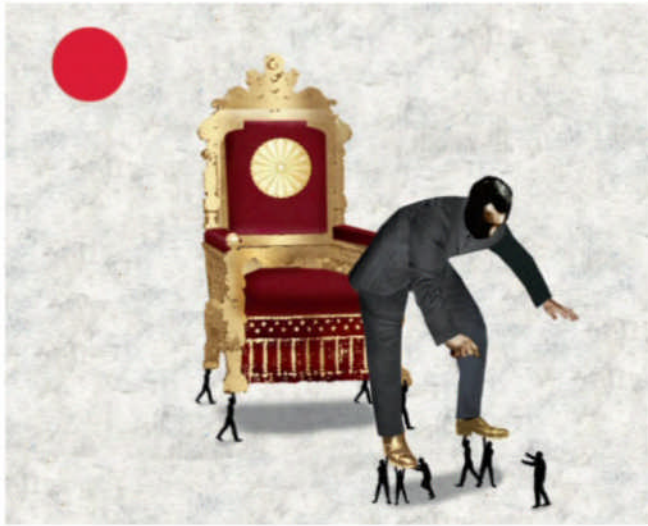


Not as blissful as it looks

Banyan | Trouble at the top

TOKYO

Japan's ultranationalists exalt the emperor, but he has no time for them



THE Imperial Rescript on Education was issued on behalf of Emperor Meiji in October 1890. In 315 flowery characters, it urged his subjects to cultivate loyalty, filial piety and, above all, a readiness to dedicate their lives to the survival of the imperial house. Certified copies of the rescript were housed in small shrines to the imperial family in every school. Children committed the rescript to memory. It was a founding document for the notion of *kokutai*, a mystical state-forming bond between the divine emperor and his subjects. It was therefore the beginning of a road to indoctrination in which Japanese carried out orders in the name of the emperor—a road that led to militarism, total war and, ultimately, shattering defeat. It is no wonder, then, that *kokutai*, as a word, now jars as much as *Lebensraum* does in Germany. As for the imperial rescript, in 1948, three years after Japan's surrender, the Diet revoked it.

So what was the cabinet of Shinzo Abe, the current prime minister, doing in early April by allowing the use of the rescript in schools? The cabinet's chief secretary, Yoshihide Suga, coyly noted that the government was hardly suggesting it should be the "sole foundation" of children's education, as if critics of the policy were the fundamentalists. Nor, he said soothingly, was the government actively promoting its use in classrooms: that was up to teachers, and they should not contravene the constitution.

Yet the move comes on the heels of a furore over Moritomo Gakuen, an ultranationalist group running a kindergarten. Videos show its infants bowing before photographs of the current emperor, Akihito, and his wife; singing martial songs; calling on grown-ups to protect disputed territories claimed by China, South Korea and Russia; and chanting anti-Chinese and anti-South Korean slogans. In Japan this is mainly a scandal because of the involvement of the prime minister's wife, Akie Abe, who agreed to be honorary head of a primary school that Moritomo Gakuen is building in Osaka. She resigned from the post in late February, after it emerged that the school had acquired land from the local government at a heavily discounted price—the subject of an ongoing investigation.

Kazutoshi Hando, a historian who was born in the early 1930s, can still recite the rescript by heart. It has good parts, he says: who can object to filial piety, getting along with your siblings or being

close to your friends? But it also implies that good subjects must be prepared to die for the emperor. That runs entirely counter to the liberal constitution the American occupiers imposed on Japan in 1947. It denies the emperor's divinity, describing the monarch as merely the symbol of the nation. Sovereignty is declared to reside firmly with the people. Mr Hando scorns those who back a revival of the rescript but fail to mention the implication that the emperor should return to power.

Japan's right-wingers and ultranationalists are a mixed bunch. On the streets of central Tokyo, thugs sweat at the wheels of "sound trucks" flying imperial flags and blaring out songs from the days of conquest. At Tokyo's Yasukuni shrine, which deifies Japan's war dead, fantasists strut about in the uniform of kamikaze pilots. Elsewhere, mousy self-taught "historians" sit in shabby cubby holes filled with papers "proving" all the wrongs and the lies committed against Japan, while revisionist commentators fulminate in cable-television studios with wobbly sets.

One thing they all have in common is reverence for the emperor's unbroken lineage—although believing him a descendant of the sun goddess requires flexible thinking. Perhaps that is why historical revisionism comes easily to these groups. They deny that Japan committed atrocities during the second world war, such as massacring civilians or forcing women into prostitution.

There are opportunists in these movements, but perhaps most believe what they say. As Mr Hando says, "We in Japan have a habit of thinking that if something should not have happened, then it didn't happen." Two rabid revisionists sit in Mr Abe's cabinet: the defence minister, Tomomi Inada, and Sanae Takaichi, the minister for internal affairs. Nippon Kaigi, a revisionist group dedicated to rewriting the pacifist constitution and restoring the emperor to a more central role, has 38,000 fee-paying members, including three-quarters of Mr Abe's cabinet.

Another thing the outfits have in common is a belief that a culture of guilt about the war and all those apologies to neighbours over wartime aggression have emasculated today's Japanese. Tadae Takubo, Nippon Kaigi's chairman, says its aim in pushing for "moral education" in schools and for a glossier interpretation of the war in textbooks is to "correct the pendulum" after seven decades of "brainwashing" by left-wing teachers, who object even to compulsory singing of the national anthem.

The ultranationalists have made progress. The defence of the rescript by Mr Suga, no extremist himself, is a sop. Yet they have a grave problem: the very emperor they claim to revere. Akihito, who is 83, has spent his life reflecting on the tragedy of the war that his father, Hirohito, condoned or even encouraged. He has spent much of his time as emperor visiting battlefields, mourning the dead on all sides, not just Japan's.

Chrysanthemum groan

His actions are a living rebuke to the nationalists. Leaders of Nippon Kaigi visibly twitch with consternation on learning that the emperor invites the likes of Mr Hando in for chats—they never manage to talk to him. Now the emperor is asking the Japanese people for permission to abdicate, since old age is making it hard to carry out his duties. That too offends the nationalists, since abdication supposedly breaks with over two millennia of immutable tradition. The emperor, says Yoichi Funabashi, one of Japan's best-known liberal intellectuals, is immensely popular and commands respect: "He is in effect invincible." The ultranationalists, deep down, know that they are not. ■



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Education in the countryside

A class apart

JIAOBA

Many rural students now attend boarding schools. They are often worse off for it

FRIDAY is a good day for eight-year-old Yang Zongtao. He will see his mother and baby sister after spending the week boarding at Jiaoba Central Primary School in Guizhou, a southern province and one of China's poorest. He misses his mother "a bit", he says stoically. But the walk from his home takes an hour, too long to undertake alone each day. So, like millions of pupils in China's countryside, he remains at school all week (some stay longer). There are rural children who start boarding as early as the age of three.

Educating rural people has long been a challenge. In the 1990s almost every village had a primary school or "teaching point", where children aged between six and ten often attended class in a single room. But school enrolments began to fall because of plummeting birth rates and migration to cities. Local governments responded by closing underused village schools and pooling resources in larger ones such as Jiaoba's. In 2001 it became national policy to merge schools this way. Between 2000 and 2015 nearly three-quarters of all rural primary schools, more than 300,000 of them, were shut.

Because journeys to school are now longer on average—and are often costly, exhausting or dangerous (or a combination of these qualities)—many children now have no choice but to board. By 2010, the latest year for which data are available,

around 10m primary schoolchildren in rural China were doing so—about 12% of students in that age group. Half of all secondary-school students in the countryside now board, too.

There are two main types of boarding school in China. Some are privately run fee-paying ones for children of the urban elite. Pupils often attend such schools close to where they live (many parents believe that education is helped by separation from the distractions of family life). Far more common are rural schools such as Jiaoba Primary (pictured). These are state-run and government-funded. The idea behind the rural ones is that pupils will benefit from not having to commute, take part in household chores or toil in fields. Such schools are also supposed to offer better academic support for students than they can get at home: many older people in the countryside have little formal education. Another proclaimed benefit is that the schools can ensure poor students eat well and have their health properly monitored.

But many rural schools are ill equipped for these tasks. In Guizhou, government spending per person on education in rural as well as urban areas is less than half the amount in Beijing, reckons Unicef, the UN agency for children. At Jiaoba's primary school, where more than 100 children board (about one-tenth of the total), the head teacher admits that facilities are

"poor". He says that if a family can avoid sending a child to board, it will. The bare concrete walls of the eight-bed rooms are filthy; their windows have no curtains. Toothbrushes stand in lines of mugs on small tables, but there is nowhere to store other belongings—not that many of the children have personal possessions. There is no space in them to do homework. The dormitories are unheated, though it is extremely cold even in spring.

Yet Jiaoba has better facilities than many other such schools, where children often have to share beds, and toilet blocks are far from dormitories. The government pays 1,000 yuan (\$145) a year towards the cost of each child's lodging, breakfast and supper at Jiaoba Primary (there is also a four-yuan subsidy per child per day for lunch). But elsewhere many parents have to foot the bill. Many schools do not even provide three meals a day, according to Stanford University's Rural Education Action Programme. The fare often lacks much nutritional value, too.

Not much food for thought

Children in the Chinese countryside tend not to be as healthy as their urban counterparts. But those at rural boarding schools are even less robust. They are more likely to have intestinal worms and to be anaemic (which affects both academic accomplishment and health). Far more are unusually short for their age than non-boarders—a sign of poor nutrition. A study in 2009 in the northern province of Shaanxi found that rural children who boarded were on average 3cm shorter than those who did not. Many of the boarders may have been undernourished earlier in their lives. But their rate of stunting increased with age, suggesting that school was aggravating the problem. ▶▶

▶ Teaching quality and facilities are sometimes better at the merged schools, but staff turnover is often high. The large size of classes can make teaching more difficult: at Jiaoba some of them have 75 children. Academically, boarders perform even worse than their peers who live at home. Last year a study of boarders in five provinces found they did less well than day pupils in tests of their language ability, memory and speed at problem-solving (there was little difference, however, in their abilities in maths). Students who begin their primary education in old-style village classrooms tend to do better than those who start in larger schools farther away, according to some findings.

Boarders often suffer from a lack of supervision and emotional support. At Jiaoba, two elderly women stay in the dormitory building overnight. But teachers there admit that some students are “withdrawn”. Children who live at their schools are more prone to anxiety, depression and other mental-health problems. They are also vulnerable to sexual and other forms of abuse: a spate of such incidents has been reported at rural boarding schools in recent years; far more may go undetected.

Since the merger policy was adopted, drop-out rates may have risen. In 2012 the National Audit Office found that the number of students who quit had more than doubled between 2006 and 2011 in 1,155 primary schools it investigated. That was a rare admission by a government body. The official drop-out rate for all primary schoolchildren in China was 0.2% in 2015, but researchers at Shaanxi Normal University reported a rate 20 times higher than that in a survey of 15,000 children aged 9 to 11 in the countryside.

In recent decades China has seen rapid improvements in educational standards. The average number of years a Chinese child spends at school has doubled since 1980. The share of the labour force with any kind of higher education increased from 1.1% in 1980 to 12.5% in 2015. But these statistics often obscure how far rural children are left behind academically. Less than 10% of them go to senior high school, compared with 70% of children in cities.

The government acknowledges that its efforts to concentrate resources in a smaller number of rural schools have not solved the problem, and have sometimes resulted in students having to live in poor conditions without adequate safeguards. In 2012 it ordered local authorities to stop “blindly” closing schools before ensuring that centralised ones are up to standard. But local governments have little incentive to spend more money, since any student who does well academically is certain to leave the countryside. Rural children will form the backbone of China’s future workforce. By failing them, the government is failing the country as a whole. ■

Education in Hong Kong

Testing times

HONG KONG

Carrie Lam’s education policies will not defuse political tensions in schools

THE leader of Hong Kong, Leung Chun-ying, will not be widely missed when he steps down at the end of June, especially by the young. His five-year term has been dogged throughout by student-led protests. In 2012 thousands of high-school pupils demonstrated against what they saw as an effort to teach them to love the Chinese Communist Party (“national education”, as the government called it). Leaders of the campaign were back on the streets again two years later demanding full democracy. Their “Umbrella Movement” was the biggest act of civil disobedience in the territory’s history and spawned new groups demanding “self-determination” for Hong Kong.

No wonder, then, that Carrie Lam, who was chosen in March to succeed Mr Leung, is trying to win over the territory’s youth. To be successful, she cannot be seen as another Mr Leung. That will be tricky. In her previous role as Hong Kong’s top civil servant, she had to implement his policies—and, by extension, those of the party in Beijing. Mrs Lam is widely remembered for her obduracy in a televised debate with student leaders during the Umbrella unrest (protesters watching her are pictured). As chief executive, Mrs Lam will still have no freedom to propose political reform unless China wants it. At a meeting in Beijing on April 11th with the president, Xi Jinping, she at least had the gumption to tell him (or so she later said) that “Hong Kong citizens passionately hope for more democracy.” China does not.

Instead of dwelling on politics, Mrs Lam is trying to show concern for students’

welfare. Schools in Hong Kong produce admirable results. But academic pressures on pupils are enormous. Last year Mr Leung’s government commissioned a report on whether academic demands were to blame for a spate of student suicides. Many Hong Kongers were outraged by its finding that the suicides were not directly related to the education system.

Unlike Mr Leung, who supported rigorous testing of students even at a very young age, Mrs Lam talks of a need to “reduce pressure” on them. She has taken aim at a particularly controversial scheme, supported by Mr Leung, for assessing the performance of primary schools. It involves testing pupils but not telling them their scores: the results are only used to grade the schools. It has resulted in heavy pressure on students. Last year, amid an outcry from parents, the government suspended one form of such tests. But it said it would introduce a new scheme this year that many parents fear will be little different. Mrs Lam wants the testing to be scrapped altogether. Mr Leung has curtly advised her that she cannot abolish it until his term ends.

During her campaign to become chief executive, Mrs Lam promised to increase the annual budget for education by HK\$5bn (\$643m), or nearly 7%, noting that government spending on this was below the average in wealthy economies. She is widely expected to replace the unpopular education secretary, Eddie Ng.

But Mrs Lam’s reforms will do little to ease older students’ political frustrations, including their resentment of the Communist Party’s insistence on “patriotism”. Last month the main advisory body to the parliament in Beijing urged its members from Hong Kong to visit schools in the territory to talk about “national conditions” (or the party’s achievements, as many in the territory interpret that phrase to mean). It said this would help to curb pro-independence sentiment in Hong Kong. More likely is that students will grumble even louder. ■



The old Carrie Lam



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Shia militias

Who runs Iraq?

BAGHDAD

America and Iran are jostling for influence in Mesopotamia

TO UNDERSTAND how mightily Iran once dominated Iraq, head to Ctesiphon, Persia's old capital, just south of Baghdad. A millennium and a half old, its ruined palace still features the world's largest unsupported brick arch. Until Arab armies seized it at the dawn of Islam, the city was twice the size of imperial Rome and the centre of a Sassanid empire that stretched from Egypt to the Hindu Kush.

Few Iraqis seem eager to remember that history today. The Persian ruins lie behind rusting barbed wire, as if ties with Iran, past and present, were an embarrassment. Officially, Iran has only 95 military advisers in the country, compared with America's force of some 5,800 soldiers, several vast military bases and control of the skies. (In reality, an adviser to the prime minister confides, Iran's forces outnumber America's at least five to one.)

Iran's hidden hand is everywhere. One UN official recounts how, after visiting a province near the Iranian border, she was surprised to be told that General Qassim Suleimani, the shadowy commander of the Quds Force, or foreign legion of Iran's Revolutionary Guard Corps, had been there at the same time. "The Americans are more powerful," says Hashim al-Hashemi, an Iraqi security analyst in Baghdad, "but the Iranians are more dangerous. They

have penetrated every organ of state."

Their involvement in Iraq has been decades in the making. After Iran's Islamic revolution in 1979, its ayatollahs recruited Shia exiles whom Saddam Hussein had expelled, and in the 1980s sent them into battle against Iraq. When America toppled Saddam Hussein in 2003, these Iran-leaning exiles headed back to Baghdad, filling the vacuum left by Saddam's Baath party, which the Americans had banned.

America's withdrawal in 2011 and Islamic State's routing of Iraq's army three years later, seizing more than a third of the country, provided more opportunities. As the Sunni jihadists surged south, Shia militias declared a *hashad*, or "popular mobilisation", drafting in tens of thousands of volunteers. With the help of arms from General Suleimani, they staved off the fall of Baghdad. Then, to "defend" the country, they seized effective control of much of what remained of it.

The acquisitions continue. In March Asaib Ahl al-Haq, one of the largest militias, moved into the riverside palace of Sajjida, Saddam Hussein's wife, in Adhamiya, a staunchly Sunni neighbourhood of Baghdad. Much of the rest of the capital is already divided up between 100 or so other militias. Unlike most Iraqi Shias, who profess allegiance to Grand Ayatollah Ali Sis-

tani, in the city of Najaf, many of the militia leaders say they follow Ayatollah Ali Khamenei, Iran's Supreme Leader, instead. Their men are prone to patrolling Baghdad's streets as religious police, much like Iran's hated *basijis*. Their influence lay behind a countrywide alcohol ban last year. Several of the militias have political representatives in parliament, and for elections in 2018 may band together to form a decisive Iran-leaning bloc. Hadi al-Amari, the leader of Badr, the largest of the Shia armed groups (it claims 20,000 men), still gives orders in Persian, and is a friend of General Suleimani. He too follows Mr Khamenei, though he says that his men are free to choose.

Iraqis first, then Shias?

The practical benefits of adherence to Iran are, however, being tempered with a degree of Iraqi (and Arab) nationalism. Iraq, so Mr Amari says, is too multi-religious to adopt Iran's system of Shia clerical rule. Other armed groups vow more emphatically to prevent Iran from launching a bid for control of Najaf when Mr Sistani dies. Having Americans around helps reduce dependence on their over-mighty neighbour. When America sent its forces back to Iraq to help with the fight against IS in 2014, most militias welcomed them.

For the moment, too, the *hashad* brigades have complied with orders to hang back in the operation to retake Mosul in favour of special forces trained by and operating with American, not Iranian, advisers. They let Haider al-Abadi, Iraq's prime minister and a man who leans much less towards Iran than his predecessor did, take the credit for battlefield gains. And in return for salaries and formal recognition of ►►

▶ the *hashad* as part of the armed forces, their commanders say they will abide by government orders. They have taken down the billboards of Iran's ayatollahs which loomed over Baghdad's squares when popular mobilisation was launched.

As they have pushed north beyond Shia heartlands, they have grown more inclusive, incorporating tens of thousands of Sunnis, Christians and Yazidis into the *hashad*. They have stood by as Mr Abadi, with American cajoling, adopted a more Arab, less Shia-revivalist, foreign policy. Resisting Iranian pressure for visa-free access to Iraq in November, officials turned back Najaf-bound pilgrims without permits, and welcomed the first-ever Saudi plane bringing Saudi Shias to the city. In February the Saudi foreign minister visited Baghdad for the first time in 27 years, and an Iraqi delegation has gone to Riyadh to negotiate restoring cross-border trade.

Yet beyond the tactical alliance over Mosul, all sides are wondering how long the rapprochement will hold. Having rebuilt four big bases, America shows no sign of leaving Iraq; Mr Abadi's men speak of "a multi-year presence". On his return from a trip to Washington in March he unveiled plans for demobilising half the 100,000-plus *hashad*, and integrating what remains directly under army command. Concerned, Iran has sent a new ambassador to Baghdad, who happens to be a senior adviser to General Suleimani. Iranian propaganda videos are circulating, threatening renewed attacks on American bases. Some militias are again proclaiming anti-Americanism. "America's occupation is accepted by the government, not the people," says Qasim Musleh, who commands the Ali Akbar brigades based in the shrine city of Karbala. He sees Iran, not America, as Iraq's ultimate guarantor of stability. Iraq, like Syria, is a theatre where Mr Trump badly needs a clear policy. ■

Cannabis laws

Puff, puff, prison

CAIRO

Some governments are rethinking their harsh cannabis laws

“WHEN we think about our future, our dreams, we have nothing,” says a young man in Sidi Bouzid. Life in the Tunisian town that launched the Arab spring has barely changed since the country's old dictator, Zine el-Abidine Ben Ali, was ousted in 2011. Unemployment is even higher nationally than before the uprising. Young people are worst-off, which helps explain why an alarming number join jihadist groups. The frustration drives others, including this young man, to use *zatla*, the local name for cannabis.

Using cannabis in Tunisia, though, is risky. Under the country's "Law 52", anyone caught using or in possession of the drug receives a minimum sentence of one year in prison. Repeat offenders get up to five years. Judges have no discretion to consider the circumstances or to recommend other punishments. The young man says most of his friends have been locked up for getting high.

So it goes in much of the Middle East and north Africa, where the law often lumps pot in with harder drugs. In many countries possession of a single joint can lead to jail. But some governments are acknowledging the harmful effects of their policies and thinking about reform.

The region's harsh laws date back to the 18th century, when a French army officer wrote that "the mass of [Egypt's] male population is in a perpetual state of stupor!" Napoleon banned hashish in Egypt. More recent authoritarians have used drug laws

as a way to keep young people in line (or in jail). Clerics provide cover, citing objections to intoxicants in the Koran.

Despite the perpetual crackdown, cannabis is still widely used. Official statistics are murky, but tokers and dealers are easy to find in most countries. Part of the reason is that cannabis is produced nearby. Morocco is the world's top supplier. Lebanon is another big producer. Cannabis from South Asia also passes through on its way to Europe.

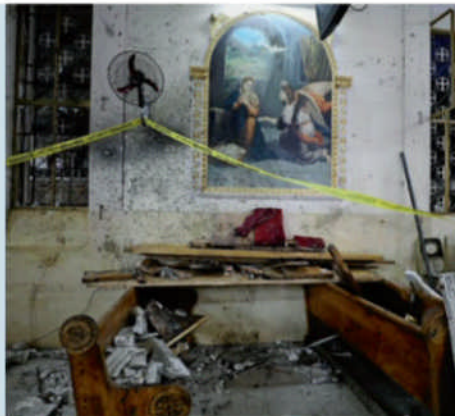
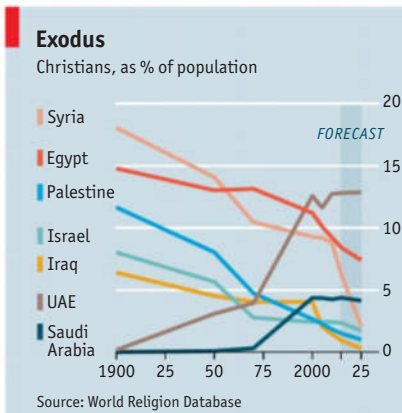
The combination of heavy use and harsh laws has resulted in overcrowded prisons. In Tunisia, for example, drug offenders make up about 28% of the prison population. Most are in for using cannabis. Upon release, their criminal record makes it nearly impossible to get a job.

Tunisia is now rethinking its policies. A draft law would abolish prison terms for first- and second-time offenders caught with cannabis for personal use. Judges could impose alternative punishments on repeat offenders; more emphasis would be placed on treatment. The measure is vague and, say critics, could lead to more abuse. Anyway, it is stalled in parliament. But in March the national security council moved to keep some offenders out of jail.

Elsewhere in the region there has been at least some movement towards decriminalisation. The cabinet in Israel, already a leader in medical-marijuana research, has approved a plan that would impose nothing more than a fine on those caught with small amounts of cannabis. Several other countries have harsh laws, but often look the other way. Iran, which shares a porous border with Afghanistan, has executed hundreds of drug dealers. But it largely ignores the growing popularity of pot.

The Moroccan authorities look at the issue from the other direction. Though the government bans the production of cannabis, its growth is tolerated in the Rif, a northern region that supplies Europe. "Travel around in some areas and you see the plants all over the place," says Tom Blickman of the Transnational Institute, a research group. Ironically, a draft law that would legalise cannabis production countrywide for medical and industrial uses has worried the region's growers. They fear that rich landowners or the government, which would collect the entire crop, could push them out of business.

Growers in the Rif may not like the proposal (which is also stalled), but the status quo is hardly better. Cannabis has not enriched them, as most of the profits go to traffickers—and corrupt officials. Nearly 50,000 growers have arrest warrants hanging over their heads, says Mr Blickman. Many pay bribes to avoid arrest. In other countries that tolerate cannabis, there is always the fear of a crackdown. Officials are not known for being fair. That is yet another reason why people turn to drugs. ■



The agony of Palm Sunday

Islamic State claimed responsibility for two bomb attacks on Christian churches outside Cairo and in Alexandria, in which at least 44 people died. Such persecution is one reason why Christian populations across much of the Middle East continue to decline sharply

Iran

Taking aim at the president

As Iran's presidential election looms, hardliners crack down

APPLICATIONS for the ticklish job of president of Iran opened this week, with more than 100 hopefuls vying to replace the incumbent, Hassan Rohani, a relative moderate, at the election on May 19th. The religious conservatives who loom so large in Iran are hoping they can unite around a single candidate, overcoming the divisions that doomed their prospects in 2013 and allowed Mr Rohani to win.

Their preferred man is Ebrahim Raeisi, the newly appointed head of one of Iran's most important and best-endowed shrines, Imam Reza in Mashhad. In addition to income from the shrine's holdings, which include car factories, he is a protégé of the Supreme Leader, Ayatollah Ali Khamenei. But to Mr Raeisi's probable consternation, on April 12th a divisive ultra-conservative former president, Mahmoud Ahmadinejad, also entered the race, despite orders from Mr Khamenei not to stand. This makes it more likely that the hardliners will again see their vote split.

Still, the anti-Iranian rhetoric of Donald Trump, America's president, is a big bonus for the anti-reformists, should they come together. After a nuclear deal between Iran and six major powers was concluded in 2015, Mr Rohani's re-election had seemed assured. But the promised fruits from the lifting of UN sanctions (in return for Iran curbing its nuclear programme) have been slow to arrive. Far from encouraging investment in Iran, America has tightened some sanctions, and continues to prevent Iran from trading in dollars.

With the army, Revolutionary Guards, judiciary and state television in their hands, as well as the power to approve candidates (which the Guardians Council they dominate has yet to do for the coming election), Mr Khamenei's hardliners already wield huge power. They are now targeting social media, where pro-Rohani reformists have until now mostly operated freely. Last month masked goons arrested 12 administrators of popular social-media news channels.

But the hardliners' task is proving daunting. First in their sights is a phone app, Telegram, that enables encrypted messaging between users, and also offers uncensored news channels. It claims 20m Iranian users and thousands of Persian-language channels, some claiming over a million subscribers. Last year it helped the reformists get out the vote in parliamentary elections. Confounding the hardliners'

efforts to disqualify well-known reformist candidates, voters went to the polls armed with "lists of hope" of the lesser-knowns on their phones, and unseated the staunchest conservatives, some of Mr Khamenei's relatives among them. No sooner had Mr Raeisi's candidacy been announced than they began tarnishing his squeaky-clean image with claims that, as a 28-year-old prosecutor, he had sentenced hundreds of leftist political prisoners to death.

Under a more reactionary government, censors might have banned Telegram. Mahmoud Ahmadinejad, the hardline former president, simply switched off the mobile network when protesters contested

his 2009 re-election, and restricted internet bandwidth to such an extent that it took hours to access a page. Facebook and Twitter were banned. But Mr Rohani's government has made censorship harder. It has boosted bandwidth a hundredfold, compared with 2009. And it has expanded mobile coverage from 39% to 99% of Iran, including to 27,000 villages which the hardliners hitherto considered strongholds. So Mr Rohani continues to get his message out. Recent signs of mild economic improvement may have given his continued support for Western engagement a boost, too. The hardliners will not have the campaign all their own way. ■



South Africa

Highway, interrupted

CAPE TOWN

A road to nowhere may finally reach an end

BETWEEN the ocean and the mountain, there's the unfinished highway. It is an odd-looking landmark in a beautiful city: sections of elevated road left suspended in mid-air when construction stopped in the 1970s. Four decades later, the hulking slabs of concrete still end in precipitous drops. A glossy brochure of Cape Town film locations proclaims the cut-off highway "truly special", with "great city views". It makes an edgy backdrop for TV commercials and fashion shoots, and looms over an episode of the science-fiction series "Black Mirror".

This may soon come to an end. The unfinished highway could become part of a plan to help overcome a legacy of apartheid—while also easing traffic jams.

Like other South African cities, Cape

Town remains largely segregated, despite the advent of democracy in 1994. Under apartheid, black and mixed-race people were forced to live in the worst areas, far away from the whites and from work. Today they are free to live where they choose, but mostly cannot afford to live in the old "white" areas. Space in Cape Town's downtown core and seaboard is limited, and homes are expensive. So the poor have to travel long distances on increasingly clogged roads. Brett Herron, a city councillor on the mayoral committee for transport, says that hard-up households in Cape Town spend on average 40% of their income on transport.

There are various tales as to why the highway was never finished. Mr Herron ►►

▶ says the city was simply waiting for future traffic volumes to require it. That time came long ago; but now the city says it cannot afford it. Instead, it is turning to private developers. To sweeten the deal, the city will give the winning developer six hectares of prime land alongside the road. The unfinished highway can be completed, knocked down or turned into something else entirely—a park, perhaps. But proposals must help reduce congestion, while incorporating cheap housing.

Three-dimensional models of six designs—featuring urban gardens, cycle lanes and a promenade—went on display last month for public comment. The city wants construction to begin within the next few years. This is the first of five big projects being undertaken to improve public housing and transport. Patricia de Lille, Cape Town's mayor, thinks finishing the highway is what people will remember her for. Film-makers may have to find a new apocalyptic location. ■

than 460 (the number of public universities meanwhile doubled to 200). But they often find themselves tied up in red tape. Gossy Ukanwoke tried to establish Nigeria's first online-only university in 2012, but was forced by the government to acquire a campus. Beni American University has 450 executive-education students on-site, and has taught 8,200 online in the past two years. But it has struggled to attract investment to finish the facilities it needs before it can teach undergraduates.

Many of these new institutions churn out cheaply taught business degrees. But some others are giving the better public institutions a run for their money. Kenya's Daystar University is renowned for its communications courses (it also offers what it claims to be "the world's first smartphone-based degree programme for teachers"). Strathmore, another private Nairobi university, focuses on specific areas, including intellectual-property law, disaster management and how to start a business.

And some public institutions are upping their game. Internships are now mandatory at Uganda's public universities. The University of Nairobi's Fab Lab, part of a global initiative that provides access to machinery and online courses in how to use it, has spawned a number of startups. Open-source hardware has helped, says Kamau Gachigi, who runs the lab. He cites AB3D, which makes 3D printers based on free designs posted online by Adrian Bowyer, formerly of the University of Bath in Britain. Open-source software and websites such as Sci-Hub that make pricey academic journals free to read (albeit illegally in most jurisdictions), also help cash-strapped universities improve teaching and research. But even these welcome developments will not go far if African universities continue to admit more students than they can cope with.

Africa needs more well-educated young people. But many of its young graduates have gained little more from their time at university than raised expectations. Swelling classes and stale courses mean they are generally ill-prepared for the few graduate jobs on offer. Young sub-Saharan Africans with degrees are three times as likely to be unemployed as their primary-school-educated peers, who are mostly absorbed by the informal sector.

Donors willing to fund universities in Africa, rather than scholarships for African students to attend European and American universities, might improve local institutions—and help pay for expansion. The World Bank is planning to spend \$290m by 2019 on 22 "centres of excellence" in areas such as climate change and poultry science, in seven west and central African countries. Other donors and African governments would do well to follow, and tie funding to teaching and research quality, rather than to student numbers. ■

Universities in Africa

More can be less

KAMPALA

Over-recruitment is a continent-wide problem

MAKERERE UNIVERSITY'S position, on a hilltop commanding a panoramic view of Kampala, is fitting for a place some call the "Harvard of Africa". By many measures, it is the continent's best college outside South Africa. But it was closed for two months from November by Uganda's autocratic president, Yoweri Museveni, after a strike by lecturers over unpaid bonuses sparked student protests.

Founded by the British to train local colonial administrators, Makerere has a reputation for educating the powerful. Tanzania's founding president, Julius Nyerere, studied there. So did Kenya's third leader, Mwai Kibaki, and the Democratic Republic of Congo's current head of state, Joseph Kabila. The university went through a rough period between 1971 and 1979, when it felt compelled to make Idi Amin, a barely literate despot, its chancellor. Amin awarded himself a doctorate of law, despite neither studying much nor believing in the rule of law. But those dark days are past. Makerere's researchers are now some of Africa's most prolific, creating everything from low-cost sanitary pads to an electric car. Nonetheless the institution's problems—too many students and too little money—are all too common across the continent.

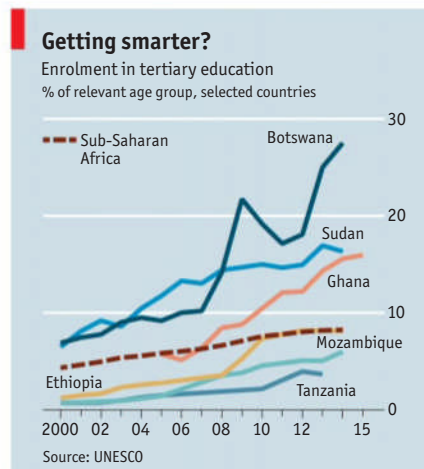
Makerere has more than doubled enrolment to nearly 40,000 in the past two decades. As government scholarships, most of them allocated by merit rather than need, have become scarcer, and strike-happy lecturers have demanded ever-higher wages (even though academics at public universities are some of Uganda's best-paid workers), the university has tried to close the funding gap by admitting more fee-payers. But in real terms it spends almost a quarter less now than in 2007, even though the number of students has risen by 12% over the same period.

Similar pressures are felt across sub-Sa-

haran Africa, especially in the poorer countries. (South Africa's university system is more advanced but faces other difficulties, including demands by militant students that fees be abolished altogether.) A World Bank study of 23 poorer African states found that enrolments at public and private universities had quadrupled between 1991 and 2006, while public spending on them rose by just 73%.

Opening new public institutions to meet growing demand has not been problem-free, either. In 2000 Ethiopia had two public universities; by 2015 it had 29. "These are not universities, they're shells," says Paul O'Keefe, a researcher who has interviewed many Ethiopian academics, and heard stories of overcrowded classrooms, lecturers who have nothing more than undergraduate degrees themselves and government spies on campus.

In those countries where higher education was liberalised after the cold war, private universities and colleges, often religious, have sprung up. Between 1990 and 2007 their number soared from 24 to more





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France's four-way election

A presidency up for grabs

CHATEAUDUN

What looked like a race between two favourites has been thrown wide open

PERCHED on a river bend in an unfashionable expanse of central France, Châteaudun is in many ways a typical French town. It boasts a 15th-century chateau, an unemployment rate of 10%, a fine main square shaded by plane trees and a Turkish kebab restaurant. This town of 13,000 inhabitants also happens to have a record of voting in line with the rest of the country. In 2007 locals backed the winner, Nicolas Sarkozy, on the right. In 2012 they voted for the victor, François Hollande, on the left. Today, as the first round of this year's presidential election approaches on April 23rd, voters once again seem to reflect the national mood.

"I'm perplexed," says Bertrand, a pensioner shopping on the main square, who voted for Mr Sarkozy in 2012 but has yet to make up his mind this time. He thinks François Fillon, the centre-right candidate who is under investigation for abuse of the parliamentary payroll, may be "competent" but has behaved "disgracefully". Bertrand's wife Geneviève, a retired librarian carrying geraniums from the market, voted for Mr Hollande last time. But she dismisses the Socialist candidate, Benoît Hamon, as "Utopian". She says she is tempted to vote for Jean-Luc Mélenchon, a 65-year-old Communist-backed firebrand, who vows to bring about a "citizens' revolution", take France out of NATO and impose a top income-tax rate of 100%.

Candidates who promise to overturn the system have captured the imagination. Didier Renard, a retired construction worker, declares unabashedly that he will vote for Marine Le Pen, the candidate for the anti-immigrant National Front: "She's the only one who will help people like us." In a town that lost a big electronics factory a few years back, disillusion is marked. Nobody respects any of the candidates, says a woman running a fruit-and-vegetable stall: "People are totally fed up." So much so, grows a man with tattoos enjoying a morning beer at a terrace café, that he refuses to vote. Alain Venot, Châteaudun's

centre-right mayor, who was first elected back in 1983, says that he usually has a good sense of how his town will vote, but not this time: "This is the most uncertain presidential election I have ever known."

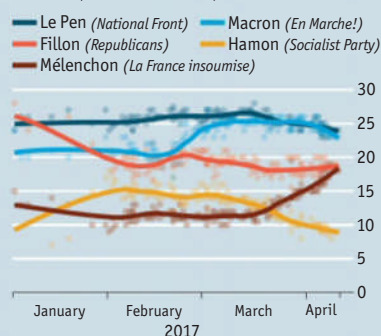
This urge to back an insurgent matches national trends. In a matter of weeks, Mr Mélenchon, who has a big YouTube following and attracts voters to some rallies to watch his hologram beamed in live, has surged in some polls from fifth place to third, overtaking Mr Fillon. He trails only a few points behind Ms Le Pen and Emmanuel Macron, a pro-European liberal who founded his En Marche! party just a year ago. If these polls are right, candidates from non-traditional parties are set to capture the top three places. Guillaume Kasbarian, the En Marche! representative for the area around Châteaudun, says there is an edge for the candidate who sounds the most *dégagiste*—that is, the most eager to throw the bums out.

Two elements make predicting the results especially precarious. One is turnout, which averages about 80% for presidential votes. Polls suggest that it might drop to as low as two-thirds this year, which could further damage traditional candidates and help Ms Le Pen. Equally unusual, only 60% of voters say they are sure of their choice, a figure that is highest among Ms Le Pen's voters (76%) and low among those who back Mr Macron (55%). This not only hints at the fragility of Mr Macron's vote. It also leaves a big chunk of volatile voters close to voting day, possibly ready to vote tactically depending on the final polls. Last-minute deciders, says Edouard Lecerf, of Kantar TNS-Sofres, a pollster, used to reflect the national averages; this time, they may not.

Until recently, the odds were clearly on a run-off between Ms Le Pen and Mr Macron. A former Socialist economy minister

Anybody's race

France, presidential election polling
First round, selected candidates, %



Sources: National polls; *The Economist*

▶ under Mr Hollande, Mr Macron has reinvented himself as an insurrectionary leader, promising to break down old divisions between left and right and inject new life into politics. Indeed, at the Châteaudun weekend market, En Marche! was the only party out campaigning. Sophie Zeugin, an entrepreneur and volunteer, toted red, white and blue balloons and a basket of leaflets. Locals called the 39-year-old candidate “*sympa*” (nice). But one worried that he might be “an opportunist”. Another, testifying to the depth of a nation’s indecision, said she was hesitating between the campaign’s polar opposites: Mr Macron and Ms Le Pen.

It may yet be that Mr Macron keeps his lead and makes it into the run-off. There, in all likelihood, he would meet—and beat—Ms Le Pen. But this election has begun to look like a four-horse race. No scenario can be ruled out, says Jérôme Fourquet of Ifop, a pollster. This includes the possibility that Mr Fillon makes a come-

back, thanks to disillusioned voters who claim they will not vote for him but could change their minds on polling day. Or even what Mr Fourquet calls the “craziest” possibility: that Mr Mélenchon squeaks into the run-off. In 2002 Jean-Marie Le Pen, Ms Le Pen’s father, made it to the second round with just a half-point lead over the third-place candidate.

The French have sprung electoral surprises before. They voted against a draft European constitution in 2005. In recent presidential primaries, on the right and the left, they kicked out the favourites, eliminating a former president (Nicolas Sarkozy) and two former prime ministers (Alain Juppé and Manuel Valls). This time, three-quarters of voters could be about to back a candidate who hails from neither of the two political groupings that have run France for the past 60 years. This has already been the most unorthodox French election ever, but even more improbable twists may be yet to come. ■



We have so much in common

France stories are “almost certainly automated”, so frequent are their posts. Whether they are French or Russian is unclear. Testimonies by former employees tell of a “troll factory” in St Petersburg that churns out anti-Western stories, comments, “likes” and shareable media.

A graver level of political intervention involves cyber-spying. In 2015 Fancy Bear, a Russian cyber-espionage group, broke into computers at the Bundestag in Berlin. They went on to target America’s Democratic Party, releasing hacked e-mails that damaged Hillary Clinton, the most anti-Kremlin candidate in the presidential race. In France that candidate is Mr Macron, and recently his campaign has also suffered hacks. “They said it clearly comes from Russia,” says a staffer, recalling a debriefing with French intelligence services. Stefan Meister, a Russia expert at the German Council on Foreign Relations, reckons targets should expect any embarrassing files to appear on WikiLeaks, a whistleblowing website that likes to embarrass the enemies of Vladimir Putin, Russia’s president.

Other Russian measures involve old-fashioned ideological patronage. Last summer Vladimir Yakunin, an ally of Mr Putin, launched a pro-Russian think-tank in Berlin. Moscow supports *Zem a Vek*, a magazine that peddles conspiracy theories in Slovakia. The Kremlin-linked First Czech Russian Bank lent €9m (\$9.5m) to the National Front of Marine Le Pen (pictured). Rumours of Russian cash for nationalist ▶▶

Russian meddling in Europe

Shadow puppets

BERLIN AND PARIS

Fears of Russian interference loom over elections in France and Germany

IN AN influential article in 2013, Valery Gerasimov, chief of the Russian general staff, described a new doctrine (often termed “hybrid warfare”) involving “information conflict” alongside diplomacy and military force to achieve geopolitical aims. To Americans, the Russian-sponsored hacking and distribution of fake news during last year’s presidential election were a shocking example of this strategy. Yet there is little new about it. The Kremlin has been using spooks and shills to sway Western politics since the days of the Soviet Union. The difference now is that the rise of social media and of populist politics, on both the right and the left, have provided new tools and allies to work with. With France and Germany facing elections this year, Europe expects to be the next target of what the KGB used to call “active measures”.

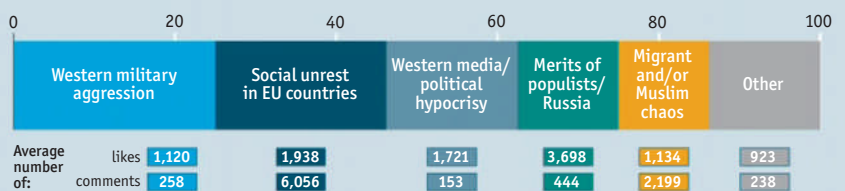
Russia has been trying to shape European politics for years, most visibly through old-fashioned propaganda. Two Kremlin-funded news organisations, Russia Today (RT) and Sputnik, launched French and German versions in 2014 and 2015. These pump out gloom about Europe, cheer about Russia and boosterism for pro-Russian populist parties. They sometimes lie. RT whipped up false tales about a Russian-German teenager, “Lisa”, supposedly raped by migrants in Berlin, in the hope of provoking anger among Germans of Rus-

sian origin at Angela Merkel’s refugee policies. Other reports insinuate or exaggerate. Sputnik has stirred rumours about the sexuality of Emmanuel Macron, a pro-NATO, pro-European Union candidate for the French presidency. It broadcasts rallies by PEGIDA, an anti-Islam movement, live and without commentary; the pro-EU “Pulse of Europe” marches receive no such publicity.

On their own, RT and Sputnik have very limited reach in Europe. When their stories catch on, it is often because they are amplified online by networks of conspiracy-minded activists, Russian trolls and “botnets” (clusters of fake, automated social-media accounts). Ben Nimmo, an authority on online disinformation, says many of the Twitter accounts that most keenly share RT Français and Sputnik

Share-agenda

Main themes of the 80 most-shared stories* on RT’s and Sputnik’s French and German Facebook pages
As % of total, January 1st-April 11th 2017



Sources: Facebook; *The Economist*

*20 most-shared posts on each Facebook page out of the latest 5,000

European elections

It's not the economy, stupid

Voters no longer seem to care much about growth

PUNDITS and political scientists don't always agree. When it comes to predicting electoral outcomes, though, both tribes assume that the economy is the most reliable oracle. Numerous studies have found a strong correlation between GDP growth and voting behaviour. Whether or not those in power are responsible for the economy, it has been responsible for whether or not they get re-elected.

A study by Ruth Dassonneville, now at the University of Montreal, and Michael Lewis-Beck of the University of Iowa makes the relationship clear. They examined economic performance and elections in 31 European countries from 1952 to 2013. After controlling for other factors, such as the number of parties in

an election, a 1% increase in GDP was associated with an increase of nearly three-quarters of a percentage point in support for the incumbent government.

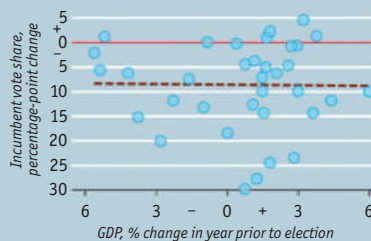
But things are changing. Fewer voters now identify with particular parties, making elections more volatile. Since 2008, incumbent governments have lost on average seven percentage points of support between elections, up from three points in the 1980s.

You might think that more voters shopping around between parties would increase the importance of objective measures such as economic performance. Instead, the opposite has occurred. Updating data provided by Ms Dassonneville and Mr Lewis-Beck, *The Economist* has carried out a cross-country analysis of post-war elections in Western Europe. Although there was a correlation between GDP growth and voter behaviour before the financial crisis, we could find none since then (see chart).

Voters have become deeply hostile towards governing parties, who now lose support regardless of how well the economy is faring. Incumbent governments have lost votes between elections in 29 out of 35 elections since 2008. Seven years after the start of the euro crisis, European economies are at last recovering. But if governments think more money in voters' pockets will keep them in power, they are in for a nasty surprise.

It's not about the money

Western European elections, 2008–March 2017

Sources: Ruth Dassonneville and Michael Lewis-Beck; ParlGov; IMF; *The Economist*

parties in Italy, Greece and Hungary are more tenuous. But Ms Le Pen, Matteo Salvini of Italy's Northern League and Frauke Petry of Germany's Alternative for Germany (AfD) have received profile-boosting invitations to Moscow. All are Eurosceptics who want to lift sanctions on Russia.

The Kremlin's objectives are clear. In France it wants a congenial president—Ms Le Pen or François Fillon, the centre-right candidate. In Germany it wants Angela Merkel gone, a strong AfD in the Bundestag and a government led by the Social Democrats, who are traditionally friendlier to Moscow. Either outcome might help loosen European sanctions and boost Russian economic interests, such as the proposed Nord Stream 2 gas pipeline. They would also serve Mr Putin's goal of sowing division in the EU and NATO.

"Active measures" are often ineffective. A recent claim promoted by Russian websites that Mrs Merkel had deliberately invited Islamic State into Germany got nowhere. Mr Macron brushed off the

rumours about his private life. A Swedish version of Sputnik folded because of meagre interest. After the Lisa case, Germany made fighting disinformation a priority: on April 5th it published a draft law obliging publishers to nix such stories speedily.

Elsewhere, too, Europeans are pushing back. There is no evidence that Russians have hacked Western voting machines, but ballots in the Dutch election in March were hand-counted, just in case. In February authorities quickly smacked down fake allegations of rape by German soldiers in Lithuania. *Le Monde*, a French newspaper, and Germany's Green Party are among several institutions to have launched fact-checking initiatives.

So Europeans should be wary, but not paranoid. Still, Americans have been fact-checking for longer than Europeans, and have hardly defeated fake news. If "information conflict" helps Russia-friendly candidates win elections, it will be because Europe's bitter politics and anarchic media environment have prepared the ground. ■

Russian shenanigans in Sweden

The putative Mr Putilov

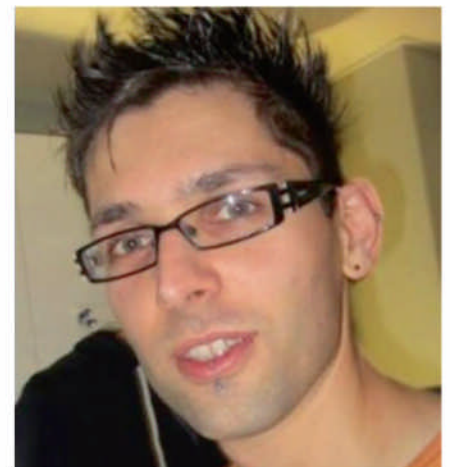
STOCKHOLM

Blogger, provocateur, "expert", scammer

CHARGES of Russian interference in European politics tend to be shrouded in mystery. Take the case of Egor Putilov (pictured), also known as Alexander Fridback, Tobias Lagerfeldt and Aleksandr Yarovenko. On June 8th 2016, Sveriges Radio, the Swedish public radio station, interviewed Mr Putilov, who identified himself as a former employee of the national migration agency. He stated that asylum-seekers as old as 40 were claiming to be children, and that the agency was letting them in. In a country divided over refugee policy, the allegation seemed explosive.

Two hours later, Sveriges Radio deleted the interview. Mr Putilov was an unreliable source: he had taken a journalism course at the broadcaster some months earlier, and had been reported to the police for failing to return his temporary press card. Then in August, *Aftonbladet*, a daily, reported that someone calling himself Egor Putilov had used the pen name Tobias Lagerfeldt to write an opinion piece that it had published, calling for a more open refugee policy. Moreover, it found, the so-called Mr Putilov was in fact Alexander Fridback, an employee of the ultranationalist Sweden Democrats party.

This is where things get really confusing. Mr Fridback immigrated to Sweden from Russia in 2007, apparently under the name Aleksandr Yarovenko. In 2011 he changed his family name to Fridback, supposedly because Swedes found Yarovenko hard to pronounce. He opened a travel business, mainly for Russian clients, and began blogging in Russian (under the name Egor Putilov) about trips to far-flung ▶▶



Seemed like a trustworthy chap

lands such as Mali and Syria. He was reportedly arrested in Syria in early 2012. On his return, he began writing freelance articles for the Swedish press and took a job for nine months as a clerk at the immigration agency, the basis of his later claim to know how it treats refugees (though he said he had worked there for three years).

In 2015 Mr Fridback wrote an opinion piece in *Aftonbladet* alleging that Islamic State could use the migrant crisis to infiltrate Sweden. Within hours, his article was picked up by Sputnik, the Russian state-controlled news agency. Later that year he offered his services (as Egor Putilov) to Sweden's internal-security agency, which was starting a department to combat influ-

ence operations by IS and Russia. Most damningly, Sveriges Radio discovered that in 2014 Mr Fridback had bought a house in Sweden at a below-market price from a Russian criminal who was, at the time, in prison in Russia. Two months later he sold the house at a profit of about \$700,000.

No one was sure what it all meant, and Mr Fridback denies any shady connections or wrongdoing. But because of his exposure to Russia, security experts termed Mr Fridback a security risk, the government demanded explanations, and he ultimately left his job with the Sweden Democrats. It remains unclear whether he was an independent flim-flam artist or an agent acting on behalf of Russia—or a bit of both. ■

asylum-seekers fleeing war and persecution. It is hard to tell the two groups apart, but more than 40% of applicants for asylum in Italy are judged to deserve some form of humanitarian protection.

The task is complicated by Libya's messy civil war. The UN, America and Italy have sponsored a Tripoli-based Government of National Accord (GNA). But its authority is challenged by Khalifa Haftar, the commander of a self-styled Libyan National Army (LNA). He enjoys the backing of a rival administration in the east, and—more important—that of Moscow.

On April 2nd the Italian government announced a parallel effort to interrupt the flow of migrants, enlisting the help of dozens of rival desert tribes to secure Libya's southern frontier, which is 5,000km (3,100 miles) long. The Saharan borders have until now been a playground for smugglers of drugs, arms and people. The interior ministry said 60 tribal leaders had signed up to a 12-point deal, hammered out in several days of secret talks in Rome.

Few details have been released of the agreement, which reportedly pledges investment in the area to create legitimate jobs for young people, and opens the way for "unified patrolling of the borders with Algeria, Niger and Chad". Yet it remains uncertain who will do the patrolling. Nor is it clear how much common purpose can be found among the tribes. The Toubou peoples on Libya's border with Chad, for example, have a history of conflict with neighbouring Arab tribes which are also supposedly backing the deal. But the area is crucial to reducing the number of migrants travelling across the Sahara. That voyage is every bit as risky as the one migrants are making across the Mediterranean. As the numbers make clear, the risk of death is not enough to stop them. ■

Migrants in the Mediterranean

Merciless sea

ROME

The number of boats and the risk of death keep rising

THE 16-year-old Gambian who was discovered by a Spanish naval ship as he clung to a fuel tank in open seas will doubtless be haunted by his experience for the rest of his days. But he was also exceptionally fortunate—the only survivor, by his account, among more than 140 people who left the Libyan port of Sabratha on a large rubber dinghy on March 26th or 27th. It began taking on water a few hours later, he told UN officials from his hospital bed on the Italian island of Lampedusa.

Details of sinkings in the central Mediterranean are often sketchy and sometimes unconfirmed. The Libyan Red Crescent said no bodies had been found from the disaster the young Gambian reported. But it is clear from figures kept by international organisations that both the risks of setting out from Libya and the numbers reaching Europe are growing.

According to the International Organisation for Migration, 24,513 people had landed in Italy this year by April 2nd. That was an increase of about 30% compared with the first three months of last year. Yet UNHCR, the UN refugee agency, calculates that the death rate per 100 arrivals climbed from 1.8 in 2015 to 3.4 in the first three months of 2017. One in 30 migrants in the central Mediterranean now dies en route.

Carlotta Sami, UNHCR's spokeswoman in Italy, lists several reasons why. The smugglers are not just sending the migrants to sea in dinghies, or rigid inflatable boats (RIBs), which were never intended for long-distance sea voyages, but in RIBs of progressively poorer quality. They are increasingly reluctant to supply their customers with satellite telephones to make

contact with rescue services and report their positions. And, since last summer, they have taken to dispatching several vessels at a time. That makes it harder for NGOs and the ships of Operation Sophia, a European naval force operating off the Libyan coast, to rescue them all.

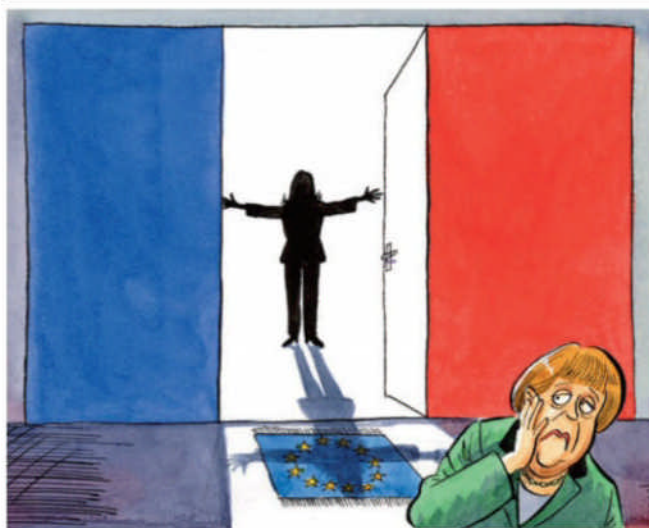
Plans have been proposed to block the traffickers' routes, which might deter migrants from assuming the appalling risks. The EU is training about 90 members of the Libyan coastguard, and Italy will soon return ten of the Libyans' boats that were seized in 2011. Blocking the dinghies would stop not only economic migrants but also



One of the lucky ones

Charlemagne | Dark horizon

Europe should think about what to do if Marine Le Pen wins



AS USUAL, the president's first foreign trip is to the chancellery in Berlin. But the meeting with Angela Merkel does not go well. The two women instantly begin squabbling. Accused of breaking Europe's rules on borders, Mrs Merkel fires back that her visitor has not done her homework: Germany has always acted lawfully. Fine, growls *la présidente*: if Mrs Merkel wants a war, she will get one. On her return to Paris the president orders the European Union flag removed from official buildings. Soon afterwards she calls, and wins, a referendum on France's exit from the euro. The streets stir, stockmarkets swoon and Europe reels.

This cheerful tale, as depicted in "La Présidente" by François Durpaire and Farid Boudjellal, a graphic novel that imagines Marine Le Pen's first months as president of France, is not one the rest of Europe wants to hear. The continent's mood is just starting to brighten. Economies are picking up, and the Islamophobes lost in the Dutch election. Brexit, Europeans think, will be a disaster only for the British. True, the looming cloud in France is hard to ignore: the first round of France's presidential election is on April 23rd, with a run-off two weeks later, and Ms Le Pen leads most first-round opinion polls. But few seem to have thought seriously about the prospect of her winning, and many dismiss the idea.

Confident Eurosaur

They have half a point. Ms Le Pen is unlikely to become president; France's two-round system inoculates against extremist parties like her National Front. Polls find her losing the run-off by wide margins against all potential challengers. But like the meteor that wiped out Tyrannosaurus Rex, her victory would be a low-probability, high-impact event. Ms Le Pen aims to withdraw France from the euro, the EU's passport-free Schengen area, and possibly the EU itself. The EU can cope with small troublemakers like Hungary or Greece. But to lose a large founding member would throw its future into question. Betting markets rate her chances between 20-25%; the Eurasia Group, a consultancy, puts them at nearly 40%. These are not numbers that should let Europe sleep easy.

What should Europe expect from a Le Pen presidency? Markets would quail at her desire to quit the euro, which she describes as a "knife in the ribs" of the French economy for denying its exporters the benefits of competitive devaluation. One inves-

tor predicts that a Le Pen victory would see French and Italian spreads over German government bonds rise by 2% and the euro slump below parity with the dollar. (Something similar might be expected in the less likely event of a victory for Jean-Luc Mélenchon, a hard-left candidate making a late surge.)

The mechanism for leaving the euro, says Ludovic de Danne, Ms Le Pen's Europe adviser, would be a referendum on exiting the EU altogether. But that faces constitutional barriers, as Ms Le Pen cannot win a majority in legislative elections in June. Moreover, the polarising effect of her election may not leave her much political wriggle-room. French voters have little appetite for a collapse in the value of their assets, or the chaos of capital controls *à la grecque* that a promised "Frexit" would bring. With markets roiling, French banks under pressure and protesters filling the streets, Ms Le Pen might prefer to park the issue. There are signs of this already; her rhetoric on the euro has cooled in recent weeks.

Tackling migration and security might look more tempting. Unlike Frexit, tightening borders, limiting immigration and cracking down on foreign "posted" workers are popular propositions. Last year 71% of French voters told IFOP, a pollster, that they wanted to scrap Schengen. But that would create as many problems as it solves. Alain Lamassoure, a French former Europe minister, notes that there are around 1,500 border crossings between France and Belgium alone; it is ludicrous to expect them all to be policed. Full withdrawal from Schengen might also mean losing access to EU police databases, which would be an odd way for Ms Le Pen to provide the security she has promised voters.

She might therefore simply tighten existing controls, stepping up checks at airports, railway stations and land crossings. Ms Le Pen would also target foreign-owned firms employing cheap workers from eastern Europe. (Rare is the French politician who declines to pick on Polish plumbers or Romanian labourers.) Taxpayer-funded positions would, says Mr de Danne, be subject to "national preference": ie, French jobs for French workers. Much of this breaches EU rules, but so what? If Brussels wants to pick a fight, Ms Le Pen would be delighted to oblige.

Ms Le Pen's approach to the EU may be to denude it of authority by endlessly probing its tolerance. Her promises—income- and corporate-tax cuts, a lower retirement age, more welfare spending—will shatter the euro-zone's budget-deficit limits. She promises a tax on imports, and monetary financing of state spending by the central bank. The European Commission, which has long tolerated mild French profligacy, would be faced with an acute dilemma. If it allows France to flout the rules, the glue that holds the EU together melts; why should other countries stick by their commitments? If it cracks down, it feeds Ms Le Pen's narrative that Brussels is thwarting the sovereign will of French voters.

Germany would be left even further adrift. The Franco-German alliance, as Mrs Merkel reminds Ms Le Pen in "La Présidente", has always driven the EU forwards. But no German chancellor could do business with Ms Le Pen. In real life, her first sally abroad would be not to Berlin but to a summit in Brussels, where she would seek to renegotiate France's EU membership. It hardly matters if that goes nowhere, for Ms Le Pen's victory alone would deprive the EU of the oxygen of French support. At best, this would leave it at a standstill. More likely, it would atrophy into a loose club propped up by hollow institutions unable to help governments find solutions to common problems, from trade to migration to climate change. That, more than anything, is why the prospect of *la présidente* should keep Europeans up at night. ■

Also in this section

50 Bagehot: In search of a foreign policy

Immigration

A portrait of Migrantland

REDDITCH

Immigration is good for the economy. So why are the places with the biggest influxes doing so badly?

“THE Golden Cross Welcomes you to Redditch!” The greeting, on the wall of a pub outside the town’s railway station, is valiant. But the dingy wire fence and mossy concrete beneath it let down the enthusiasm of the sign’s welcome. Redditch is struggling. In recent years, wages have fallen. It has also seen a rapid rise in the number of migrants, in particular those from eastern Europe. Perhaps linking these two phenomena, the people of Redditch voted 62:38 to leave the European Union in the referendum last June.

Immigration is a boon for Britain. The 9m-odd foreign-born people living there bring with them skills and attitudes that make the country more productive. Younger and better educated than natives, immigrants pay more in tax than they use in the way of public services. For some institutions they are indispensable: perhaps 30% of doctors in Britain are non-British.

Even so, Britain is unenthusiastic about immigration. Surveys find that roughly half of people would like it reduced “a lot” and fewer than 5% want it to go up. Many politicians interpret the vote for Brexit as a plea to reduce the number of new arrivals. Although the government has recently hinted that net migration may not fall by much after Britain leaves the EU, a group called Leave Means Leave, backed by two-dozen MPs, is calling for it to be slashed to a sixth of its current level.

To understand this antipathy to immigration, we examined the ten local authorities that saw the largest proportional increase in foreign-born folk in the ten years from 2005 to 2015 (we excluded Northern Ireland, because of differences in its data). Whereas big cities such as London have the greatest share of immigrants among their populations, the places that have experienced the sharpest rises are mostly smaller towns, which until recently had seen little immigration (see map).

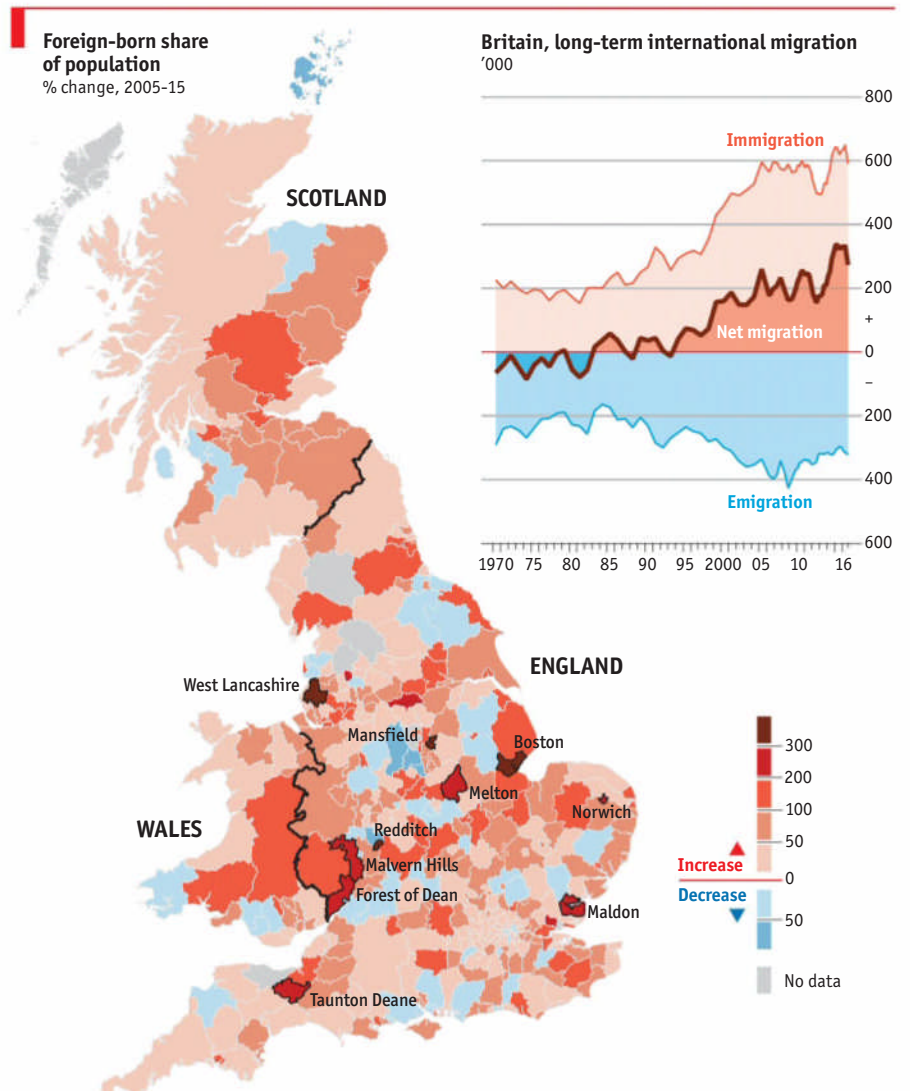
Top of the list is Boston, in Lincolnshire, where in 2005-15 the number of foreign-born residents rose from about 1,000 to 16,000. In 2005 immigrants were about one in 50 of the local population. They are now one in four. All ten areas we looked at saw at least a doubling in the share of the population that was born outside Britain.

These ten areas—call them Migrantland—voted about 60:40 in favour of leav-

ing the EU, compared with 52:48 across Britain. Boston went for Brexit by 76:24, the highest margin of any local authority. And whereas it has often been noted that there was no link between the size of a place’s migrant population and local enthusiasm for Brexit (consider London, both cosmopolitan and heavily for Remain), we found some link between the increase in the number of migrants and the likelihood to vote Leave (see chart overleaf). London boroughs such as Hackney and Newham have welcomed large numbers of foreign-

ers for centuries. People in those places have got used to newcomers, suggests Tony Travers of the London School of Economics. “But when your local population of migrants goes from 10% to 15% in a decade, that’s where you get the bite.”

Jacqui Smith, a former MP for Redditch and Labour home secretary in 2007-09, sees his point. “I know there’s racism in London, but people have largely become used to diverse communities...The transitional impact in Redditch is much greater,” she says. Redditch has in recent years ac- ▶▶



Source: ONS



Putting down roots

►quired a couple of Polish supermarkets. Those who are well-off, mobile and confident find those sorts of developments interesting—“You think, ‘I’ll be able to get some Polish sausage’,” says Ms Smith. But those who lack housing or work worry about what such changes represent. The staff at an employment agency in Redditch attest to such fears. Most of the workers they place in jobs are from eastern Europe. “They’re brilliant, we love them,” smiles one member of staff. But when locals come looking for work and see how many foreign names are on the agency’s register, there is some resentment, she says.

The wrong place at the wrong time

It is tempting to conclude that such attitudes are motivated by prejudice. Yet a closer look at the economy and public services in Migrantland makes clear that its residents have plenty to be angry about—even if the migrants are not the culprits.

Places where living is cheap and jobs plentiful are attractive to newcomers. In 2005 the average house in Migrantland cost around £140,000 (then \$255,000), compared with more than £150,000 across Britain. Unemployment was lower than average. Low-skill jobs blossomed. Migrantland seems to be more dependent on agriculture than the rest of the country. The big change in Boston, says Paul Gleeson, a local Labour councillor, is that previously-seasonal work, such as fruit- and veg-picking, has become permanent as technology and new crop varieties have lengthened the agricultural season. This means the people doing that work now live there permanently, too. Manufacturing centres are nearby: food processing, for instance, is a big employer in Boston and Mansfield.

Given the nature of the jobs on offer, it is unsurprising that the new arrivals are often young and not particularly well educated or Anglophone. We estimate that whereas over 40% of the Poles living in

London have a higher-education qualification, only about a quarter do in the East Midlands, where three of our ten areas are. One in 20 people in Boston cannot speak English well or at all, according to the 2011 census. Small wonder that integration is hard. Many landlords do not allow tenants to drink or smoke inside, so people sit out on benches, having a drink and a cigarette. “Because they’re young, not because they’re foreign, they might not put their tins in the bin,” says Mr Gleeson.

What’s more, the places that have seen the greatest surges in migration have become poorer. In 2005-15 real wages in Migrantland fell by a tenth, much faster than the decline in the rest of Britain. On an “index of multiple deprivation”, a government measure that takes into account factors such as income, health and education, the area appears to have become relatively poorer over the past decade.

Are the newcomers to blame? Immigration may have heightened competition for some jobs, pushing pay down. But the effect is small. A House of Lords report in 2008 suggested that every 1% increase in

the ratio of immigrants to natives in the working-age population leads to a 0.5% fall in wages for the lowest 10% of earners (and a similar rise for the top 10%). Since Migrantland relies on low-paid work, it probably suffered more than most.

But more powerful factors are at play. Because the area is disproportionately dependent on manufacturing, it has suffered from the industry’s decline. And since 2010 Conservative-led governments have slashed the number of civil servants, in a bid to right the public finances. The axe has fallen hard on the administrative jobs that are prevalent in unglamorous parts of the country. Migrantland’s public-sector jobs have disappeared 50% faster than those in Britain as a whole. In the Forest of Dean they have dropped by over a third. Meanwhile, cuts to working-age benefits have sucked away spending power.

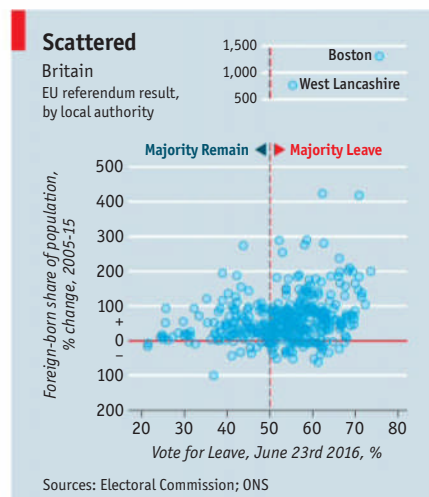
Even before austerity, it had long been the case that poor places had the most threadbare public services. Medical staff, for instance, prefer to live in prosperous areas. Our analysis suggests that Migrantland is relatively deprived of general practitioners. Doctors for the East Midlands are trained in Nottingham and Leicester, but fewer people want to study there than in London, for instance. After training there, half go elsewhere. In 2014 there were 12 places for trainee doctors in Boston; only four were filled.

Follow the money

What can be done? In places where public spending has not yet caught up with a rapidly enlarged population, the government could target extra funding in the short term. The previous Labour government ran a “migration impacts fund”, introduced by Ms Smith. She acknowledges that the amounts involved were small (the budget was just £35m per year) but argues that the point was to reassure people that the government understood fears that immigration can make things tough for a time. The current government has launched a similar initiative, though it is no better funded.

And although Britons dislike immigration, they do not feel the same resentment towards immigrants themselves. Once they have been placed in jobs alongside each other, locals and migrants tend to rub along, says the Redditch recruitment agency. A music festival was recently held in the town to raise money for children’s hospital wards in Poland. Local Poles took part in the Holocaust commemoration this year, says Bill Hartnett, leader of the council.

All that may be encouraging, but it does not provide a way to improve conditions in the left-behind places to which migrants have rushed. To many people, Brexit will appear to be just such a policy. They have been told a story that leaving the EU will make things better in their area, says Mr Gleeson. “It won’t.” ■



Sources: Electoral Commission; ONS

Bagehot | Time to learn some new tricks

Britain lacks a foreign policy but has dismantled the department that would create one



BORIS JOHNSON'S most important week as foreign secretary started off badly and got worse. The Kremlin branded him America's poodle for cancelling a trip to Russia at the last minute, supposedly under orders from America's secretary of state, Rex Tillerson. Mr Johnson struck back by briefing the British press that, on the contrary, he was a decider and a doer, who, having "spoken to all the power players", was demanding that Western nations draw up "very punitive sanctions" against the Syrian regime and its enablers. He then presented his plans for sanctions at the G7 meeting in Lucca, Italy, only to be given the cold shoulder. The final G7 communiqué didn't mention sanctions at all.

Mr Johnson was right to cancel his trip to Russia, which would have been the first by a British foreign secretary for five years. It is important that the West speak to Russia with one voice after the chemical attack in Syria, and that voice needs to be America's. But he was wrong to react to a childish gibe by boasting about plans for sanctions without first clearing them with his G7 counterparts. His half-cocked diplomacy left Britain humiliated and the G7 divided. The problem with the foreign secretary is not that he is a poodle: poodles tend to be dependable and loyal. The problem is that he's a disorganised narcissist.

Mr Johnson was an odd choice for Britain's chief diplomat. He made his career as a journalist entertaining *Daily Telegraph* readers with stories about horrible foreigners, particularly "Brussels bureaucrats" and their alleged obsession with the curvature of bananas. He was put into his current job because he can exercise influence in England's Tory heartlands, not the world's chancelleries. Mr Johnson's real job is to sell the eventual Brexit settlement to Tory MPs and their foot soldiers in the shires.

Yet the foreign secretary is in some ways an embodiment of what is wrong with Britain's foreign policy: shambolic, distracted and driven by domestic considerations. The Foreign and Commonwealth Office is a shadow of its former glory when it administered a quarter of the world's population from its magnificent palace next to Downing Street. Mr Johnson's arrival was accompanied by a brutal dismemberment of the Foreign Office's portfolio, with two of Mr Johnson's fellow Brexiters, Liam Fox and David Davis, put in charge of two new departments, for international trade and for exiting the EU. Mr Davis's department,

in particular, has sucked talent from the Foreign Office as bright people compete to be at the heart of decision-making.

Margaret Thatcher loathed the Foreign Office because she thought it was full of upper-class eunuchs who believed in managing decline at home and sucking up to foreigners abroad. Tony Blair disliked it because he believed that it was full of stuffy imperialists who didn't "get" multicultural Britain. The department has lost a succession of turf wars that have left it a hollow shell. Downing Street has annexed the most high-profile pieces of foreign policy—Mr Blair exercised almost total control over his ill-starred Iraq policy and the wider "war on terrorism". The Treasury has ground its next-door neighbour by a twin process of starving it of funds and stealing some of its plum jobs. Britain's previous ambassador to the EU, Sir Ivan Rogers, was a Treasury man who had never worked for the Foreign Office. The Department for International Development (DfID), which was created only in 1997, has grown into a monster that overshadows its aristocratic stepbrother. DfID is rolling in money because a legally mandated formula allocates it 0.7% of national income; meanwhile the Foreign Office must downsize or sell off its embassies.

Its sidelining is a mistake for all sorts of reasons. Prime ministers tend to see foreign policy through the prism of domestic policy: David Cameron saw it through the prism of ridding the Tories of their image as a "nasty party"; Theresa May sees it through the prism of the Home Office and the problem of controlling migration. Prime ministers are also foreign-policy tourists, focusing on the big powers and set-piece events but ignoring the hard slog of cultivating relations with foreign leaders of every description, minor as well as great. DfID does valuable work providing aid and developing long-term good will. But professional diplomats have a unique ability to shape the fate of nations in turbulent times: think of Robin Renwick's role, as ambassador to South Africa, in helping to persuade Nelson Mandela that his country's future lay with free markets rather than state planning.

A dog's breakfast

The biggest problem is that Britain now finds itself without a foreign policy. For decades its strategy has consisted of acting as a bridge between Europe and the United States while cultivating its global connections as a former imperial power. But last June 52% of British voters decided to blow up half the bridge, rendering the whole edifice rather pointless. Today Britain's foreign policy consists of keeping as close as possible to a highly volatile American president while at the same time negotiating a divorce from the EU. In the short term this requires the ability to perform ideological somersaults at the bidding of America, while grinning through the divorce proceedings. Mr Johnson is well suited to both activities. In the longer term it involves rethinking Britain's international role and reinforcing its relations across the world. That requires a revitalised and self-confident Foreign Office.

There are a few signs of a revival. The Foreign Office has replaced Sir Ivan as ambassador to the EU with one of its own, Sir Tim Barrow. Some ambitious young diplomats are excited by the chance to reinvent Britain's foreign policy for a new world. The foreign secretary should be thinking about more important things than silly gibes about poodles. If he wants to confound his critics, and earn a place in the history books rather than just the headlines, he needs to play for bigger stakes: reviving a great institution that has been needlessly traduced and giving it the space to build a new foreign policy from the rubble of Brexit. ■



Disposing of nuclear waste

To the next ice age and beyond

OLKILUOTO

Finland shows the way with a project expected to span 100,000 years

A STEEP 5km ramp corkscrews down from the mouth of a tunnel (pictured above) into the bowels of the Earth. At the bottom, a yellow rig is drilling boreholes into the rock face, preparing it for blasting. The air is chilly, but within a few years, it may feel more like a Finnish sauna. Buried in holes in the floor will be copper canisters, 5.2 metres long, containing the remains of some of the world's most radioactive nuclear waste. When the drilling is finished, in a century or so, 3,250 canisters each containing half a tonne of spent fuel will be buried in up to 70km of tunnels. Then the entire area will be sealed to make it safe for posterity.

The hundred-year timescale already means this is a megaproject. But that is just the beginning. The radioactive isotopes of plutonium used in nuclear-power plants must be stored for tens of thousands of years before they are safe. Finland aims to isolate its stockpile in the Onkalo repository, a burial chamber beneath the small forested island of Olkiluoto, home to one of its two nuclear-power plants, for at least 100,000 years.

In geological terms, that is a heartbeat; Finland's bedrock is 1.9bn years old. But in

human terms, 4,000 generations are almost inconceivable. As Mika Pohjonen, the managing director of Posiva, the utility-owned Finnish company overseeing the project, says, no one knows whether humans, creatures (or machines) will rule the Earth above by then—let alone whether they will be able to read today's safety manuals. A hundred thousand years ago, Finland was under an ice sheet and *Homo sapiens* had not yet reached Europe.

Posiva has commissioned studies on the possibility that in the intervening millennia the area could be inundated by rising seas caused by global warming, or buried beneath a few kilometres of ice once more. Scientists have studied Greenland as an analogue to ice-capped Finland. The firm's assurance to future generations is that if, in tens of thousands of years, a future Finn digs a 400-metre-deep well and draws water contaminated with 21st-century nuclear waste, it will be safe to drink.

But Posiva's immediate priority is to create disposal caverns far enough from rock fissures and groundwater that Finland's nuclear authorities allow it to start moving the canisters to their tomb in the early 2020s. "This is drilling with silk

gloves on," Mr Pohjonen says, as the machine pounds the rock with a deafening roar. "It has to be done gently."

Nuclear authorities around the world are watching with interest because in the past two years Finland has become the first country to license and start building a final repository for highly radioactive waste fuel from nuclear reactors. Experts at the International Atomic Energy Agency (IAEA), a global body, say other countries, such as Sweden and France, are close behind. In America, Donald Trump's administration has included a budget request for \$120m to restart construction of a high-level waste repository at Yucca Mountain in Nevada, chosen in 1987 but stalled since 2010.

Delayed gratification

The disposal of nuclear fuel is among the most intractable of infrastructure projects. And there are already 266,000 tonnes of it in storage around the world, about 70,000 tonnes more than there were a decade ago. As Markku Lehtonen, a Finnish academic at the University of Sussex, puts it, the costs are high; the benefits are about avoiding harm rather than adding value; and evaluation is not about assessing risk, but about dealing with "uncertainty, ambiguity and ignorance" over a protracted timescale. Not everyone is convinced that permanent disposal is urgent, either. Some argue that semi-cooled fuel could be kept in cement dry-storage casks, as much is in America, for generations until technologies are developed to handle it. A blue-ribbon commission in America in 2012 mentioned the benefits of keeping spent fuel in storage for ►►

▶ a longer time in order to keep the options open. But it also said that final storage was essential.

For all the countries committed to burial, Finland represents an overdue step in the right direction. It offers two lessons. The first is to find a relatively stable geological area, and reliable storage technology. The second is to build a broad consensus that the waste can be handled and disposed of responsibly. Like other Nordic success stories, it will be hard to replicate. “Finland has a kind of unique institutional context: a high trust in experts and representative democracy,” says Matti Kojo, of Finland’s Tampere University. “You cannot just copy a model from Finland.”

Under solid ground

The geological part, though the timespan is greatest, is probably the least tricky. Finland began the search for a site in 1983, shortly after it began generating nuclear power, and chose Olkiluoto after reviewing 100 areas. It has mapped faults and fissures in the bedrock, and sited the repository in a seismic “quiet zone”. It says it will avoid burying canisters close to potential pressure points, to minimise the danger that rock movements would crush or tear the canisters and cause radioactive leakage. Finland’s Radiation and Nuclear Safety Authority (STUK) called Posiva’s analysis of the bedrock and groundwater “state of the art”.

Ismo Aaltonen, Posiva’s chief geologist, says that earthquakes cannot be ruled out, especially if the bedrock shifts upwards in the melting period after a future ice age. Olkiluoto is still rising as it rebounds from the pressure of the last one, which ended more than 10,000 years ago. Close to the repository’s entrance, he points to scratchmarks on the rocks—“footprints of the last ice age” left by the retreating ice cap. But whether in crystalline granite, as in Finland and Sweden, or clay, as in France, or volcanic rock, as in Yucca Mountain, nuclear experts are confident that deep geological disposal can be safe. “There is a great deal of evidence that we can find many sites in the world with adequate geological properties for the required safety,” says Stefan Mayer, a waste-disposal expert at the IAEA.

Technology is the next hurdle. As well as 400-500 metres of bedrock between the canisters and the surface, there will be several man-made layers: steel, copper, water-absorbent bentonite clay around the canisters, and bentonite plugs sealing the caverns and, eventually, the access tunnel.

A model in the visitor’s centre, with moving parts that replicate all this in miniature, makes the whole set-up look safer than Fort Knox. Posiva says it has modelled copper deposits in ancient rocks to assess the likelihood of corrosion. STUK, however, says it will need more study on the potential for the copper to deteriorate.

Some academics, including Mr Kojo, are worried that the Finnish media have underplayed concerns about copper corrosion, compared with other countries with similar “multi-barrier” protection systems.

The trickiest challenge, though, is to build broader societal consent. Finland appears to have succeeded by starting early and sticking to its timetable. The decision to find a site and start disposing of nuclear waste in the 2020s was taken 40 years ago. In 1994 its parliament banned the import and export of spent nuclear fuel, which increased the pressure to find a home-grown solution. Few other countries have demonstrated the same determination. The good news is that, because waste needs to be cooled in tanks for 30-50 years before being disposed of, emerging nuclear powerhouses such as China have time to prepare.

Finns’ trust in their nuclear industry has remained high, despite accidents elsewhere, such as those at Chernobyl in 1986 and Fukushima in 2011. Finland’s four nuclear reactors operate at among the world’s highest utilisation rates, and supply 26% of its electricity. Its two nuclear utilities, TVO and Fortum, which co-own Posiva, are themselves part of an electricity system in which Finnish industries and many municipalities have a stake, bolstering public support. The Onkalo repository is situated next door to TVO’s two working Olkiluoto reactors, which means people nearby are—in the phrase of academics—“nuclearised”, that is, convinced of the benefits of nuclear power. Surveys suggest positive attitudes to nuclear power nationally exceed negative ones.

Finns’ trust in government as a whole is high. Vesa Lakaniemi, the mayor of the 9,300-strong municipality of Eurajoki in

which Olkiluoto lies (who once did a summer job at TVO), says it did not take much to persuade locals to support the site. Income from the nuclear industry gives them slightly lower taxes, good public services and a restored mansion for the elderly. They trust the waste will be handled safely and transparently. “It’s Finnish design. Finnish rock is solid rock. Regulation is strict everywhere in the world but Finnish people do these things very well,” he says.

Faith in the future

Some academics worry that Finland is taking waste disposal too much on faith. Any mishap could erode trust in an instant, as happened in Japan, another “high-trust” society, after the Fukushima disaster. TVO admits that negative attitudes towards nuclear power have risen as the construction of its third reactor at Olkiluoto has been plagued by delays, cost overruns and squabbles with the French-German contractors. The experience has shown that STUK tolerates no shortcuts, but some fear that its relationship with Posiva sometimes appears too close. Sweden and France have moved towards licensing repositories with far more criticism from NGOs and the media, suggesting more robust engagement.

Other countries, including America and France, follow principles of reversibility or retrievability, meaning they can reverse the disposal process while it is under way or retrieve waste after burial, if technologies and social attitudes change. Finland’s model is more closed; it would take a huge amount of digging to recover the waste once it has been sealed. But analysts say there is no single correct approach. Britain, for instance, has done things by the book but still failed to find a place for a repository.

Finally, there is the matter of cost. Finland’s nuclear-waste kitty, collected from the utilities, currently stands at €2.5bn (\$2.7bn). By the time it is closed, the price is expected to be €3.5bn. That is reassuringly modest for a 100-year project, partly reflecting the fact that Finland’s nuclear industry, even when the planned total of five reactors are up and running, is relatively small. Other countries have higher costs, and less discipline. Yucca Mountain, for instance, was once estimated to cost \$96bn to complete. In 2012 America had \$27bn in its disposal fund, collected from ratepayers, none of which has gone towards nuclear-waste management.

It may be hard to replicate Finland’s exact model, but its sense of responsibility is seen as an inspiration. When visiting the Finnish repository, authorities from elsewhere, be they American, Chinese, Australian, Japanese or British, learn that safeguarding the future is not just a question of seismology, technology, sociology and cash. It is also an ethical one. ■



Out of sight, not out of mind



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Car mergers

Wheels in motion

Carmakers will need to get bigger to compete for the future of mobility

CARS are getting bigger. Motorists worldwide have for years been abandoning four-door saloons in favour of bulkier SUVs. Carmakers have become bigger, too. Four car firms now make around 10m vehicles a year in order to reap economies of scale, particularly in the mass-market bit of the business where profit margins can be painfully thin.

Many executives also believe that size is the only protection against the technological upheaval sweeping the industry. But bulking up fast is easier said than done. Lots of different constituents have to be won over. And most car bosses are still reticent about taking the plunge on mergers because many have been catastrophes. Daimler's acquisition of Chrysler in 1998, for example, was a notable disaster. The list of past crashes is lengthy. Indeed, one recent deal—General Motors' sale of Opel, its European arm, to France's PSA Group for €1.3bn (\$1.4bn)—seems to go directly against the imperative to bulk up.

In fact, that deal has had the effect of spurring more talk of consolidation. Speculation centred at first on a possible mega-merger between GM and Fiat Chrysler Automobiles (FCA), itself the result of a deal in 2014 (FCA's chairman, John Elkann, sits on the board of *The Economist's* parent company). The Italian-owned firm, which makes just under 5m vehicles a year, is run by Sergio Marchionne, who has been eyeing a merger with GM for years. With the

American firm now discarding a loss-making European business, the theory goes, it could replace it with a profitable one—Fiat—and crunch together the two firms' successful operations in America.

Mary Barra, GM's boss, has repeatedly rejected Mr Marchionne's overtures; selling Opel is unlikely to have changed her mind. Some observers unkindly suggest that GM is in any case unable to handle three tasks at once, and that its aim in ridding itself of Opel was to concentrate on improving its operations in America and in China. Moreover, a lot of the synergies from a deal depended on combining Fiat and Opel in Europe.

The rumour mill has since moved to

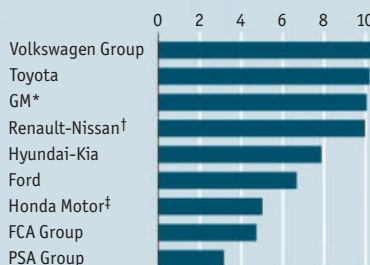
Volkswagen. The German firm has long cast a covetous eye over bits of FCA. At an annual industry shindig in Geneva in March that coincided with the final sale of Opel, Mr Marchionne said he had "no doubt that at the relevant time Volkswagen may show up and have a chat". He also suggested that PSA Group's acquisition of the GM unit, which puts the French firm in second place in Europe, adds to the pressure on vw, the market leader, to bulk up further. vw's campaign to conquer America, where its diesel-emissions scandal has undermined its weak position, would be strengthened with FCA in tow. FCA's Ram trucks are hugely profitable in America and the Jeep brand is resurgent worldwide. The unrealised potential of Maserati and Alfa Romeo, alluring bywords for Italian style, is also attractive.

A deal would, however, bring little benefit in Europe, where vw already has a big slice of the market and plenty of small cars on offer. With Seat, a Spanish division, struggling and its own brand said to be loss-making in the region, vw could well do without the trouble of integrating Fiat. FCA is also the only big car company that is lumbered with lots of debt (of just under €5bn), making it a less tempting target.

Matthias Müller, vw's chief executive, has not ruled out talks with FCA, and has indicated that the German group is more open to a merger than it used to be. But FCA is not the only option. An acquisition of Ford (which just suffered the humiliation of being overtaken in market capitalisation by Tesla, an electric-car firm founded in 2003) might also fit vw's plans. Still, if vw is intent on leading the next round of industry consolidation, it will need to put "dieselgate" behind it. Though the German firm has paid \$22bn in fines and compensation, the issue of who knew what and when is still unresolved. ▶▶

Start your engines

World's largest car manufacturers
By sales, 2016, m



Sources: Company reports; Bloomberg

*Includes Opel
†Includes Mitsubishi Motors
‡Estimate, year ending March 2017

Whatever combination of firms might bring it about, the goal of creating a group that produces nearly 15m vehicles a year makes sense. Mr Marchionne's oft-stated view is that the industry's duplicated investment in kit such as near-identical engines and gear boxes is a waste of resources, and that much of the money would be better returned to shareholders. Other car bosses reckon the money should go on the technologies that will transform the industry: mobility services such as ride-sharing, electrification of the drivetrain and autonomous vehicles. Scale would allow car firms to spread the cost over more vehicles.

One argument against full-scale mergers has been that loose alliances, such as that between Renault, a French car manufacturer, and Japan's Nissan, can do the job by helping to pool development costs. The Renault-Nissan alliance has succeeded. After taking a controlling stake in Mitsubishi, a smaller Japanese carmaker, last year, the firm makes nearly 10m cars a year.

An alliance works well for components and for individual platforms, the basic structure underpinning a car, where the aim is clear and specifications can be agreed on. An engine that might cost \$1bn to develop, for example, can be easily split two or more ways. Yet alliances work far less well for broader technologies such as connectivity and autonomous vehicles. It is harder to specify a common goal for a product that could find its way into every vehicle the companies make. And it makes less sense to share futuristic technologies that may prove to be the differentiating factor for buyers of cars in the future.

The arrival of new competitors such as Tesla, and deep-pocketed tech giants intent on disrupting the transport industry such as Google, Apple and Uber, make dealmaking an even more pressing need. "Everyone agrees on the rationale for big mergers, even if execution of deals has been extremely difficult up to now," says an adviser to the industry.

If car mega-mergers are to go ahead, however, and stand a better chance of success than past attempts, two conditions apply. First, the big stakeholders—governments, families and unions—will need to be convinced. Many carmakers, such as BMW, Fiat, Ford, Toyota, VW and others, have ties to families, which in some cases have blocking shareholdings. VW's unions or France's government, which has stakes in Renault and PSA, would oppose deals that could result in big domestic job losses.

Second, transactions will need to do more than simply chase volume. A welcome new trend in the industry is to put greater emphasis on profitability. One of GM's reasons for getting rid of Opel was to concentrate on profits rather than solely on how many cars it turns out, a decision that Tim Urquhart of IHS Markit, a research

firm, calls "groundbreaking and brave".

A mega-merger would take similar courage, and car bosses tend to be conservative and risk-averse. But after over 100 years of selling cars powered by internal-combustion engines, the industry faces the huge wrench of adapting to a future of electrification and self-driving cars. Software and electronics are displacing mechanical parts as the most important components of a car. A business focused on selling objects will have to start offering ever more transport services. If carmakers do not take the plunge, an alternative is that one of the technology giants with big ambitions in mobility could try to buy, say, Ford, Tesla or PSA Group. For cash-rich firms like Apple or Google, the cost of such an acquisition would be pocket change. ■

Women in tech

Bits and bias

SAN FRANCISCO

Allegations that Google underpays women inflame a controversial debate

GOOGLE has made a fortune by helping people dig up whatever information they seek. But in a court hearing on April 7th, America's Department of Labour (DOL) accused the company behind the profitable search engine of burying the fact that it pays its female employees less than their male counterparts. The accusation of lower compensation for women forms part of a lawsuit by the DOL, which has asked Google to turn over detailed information on pay. The department has not released data to back its assertion, and Google denies the allegation.

Whatever the outcome in court, the government's recriminations risk marring Google's image. Just three days earlier it had taken to Twitter to boast that it had "closed the gender pay gap globally". That claim is now under suspicion. It is true that at Google's parent company, Alphabet,

several women hold high positions, including Ruth Porat, the chief financial officer, and Susan Wojcicki, who runs YouTube, an online-video business. But the important question is not only whether a few women get promoted but also how those in the middle and lower ranks fare.

What figures there are paint a depressing picture about the status of women in technology. According to a one-off survey in 2015 called "Elephant in the Valley", two-thirds of women in Silicon Valley feel excluded from key networking events, and three-fifths have experienced unwanted sexual advances. More than a quarter of American women in engineering, technology and science feel "stalled" in their careers, and a third say they are likely to quit their jobs within a year, according to the Centre for Talent Innovation, a think-tank.

The marginalisation of women in tech became a prominent subject in 2015 during a sex-discrimination lawsuit brought by Ellen Pao, who had worked at a venture-capital firm, Kleiner Perkins (she lost the case). It has been back in the headlines since Susan Fowler, a former engineer at Uber, a ride-hailing firm, wrote a blog post in February saying that male supervisors had failed to promote women and that human resources had not taken complaints of sexism and harassment seriously. Uber has hired Eric Holder, America's former attorney-general, to lead an investigation into the company's handling of sexual harassment and workplace culture. The results are expected in the coming weeks.

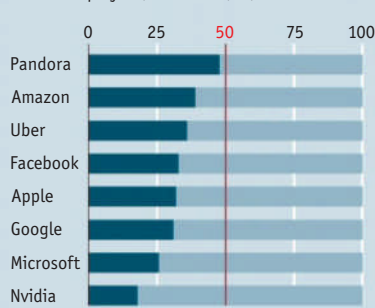
Some firms, including Uber, are now publishing annual reports describing the composition of their workforce, after they were criticised for not hiring more women and ethnic minorities. Well under half of tech companies' employees are female (see chart). Despite attempts to hire more women, they have not shifted their female-staff shares by more than a few percentage points.

Educational choices are part of the problem. In 2013, the most recent year for which data are available, only around 18% of computer-science graduates were women, half the proportion in 1985. Some suspect there is a "negative" network effect, and that the small share of women in the field discourages others from choosing it as a course of study.

Retention is also difficult. A study in 2014 that tracked women in jobs related to science, technology, engineering and mathematics (STEM) found that half of women had left their professions after 12 years. By comparison, only a fifth of women who work in non-STEM fields leave within 30 years. Female entrepreneurs find it more difficult to secure funding from venture capitalists than their male counterparts do. Elizabeth Holmes, the founder of Theranos, a blood-testing firm which has run into trouble, attracted a lot of hype ►►

Unwritten code

Female employees, worldwide, %, latest available



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largely because she was so unusual. And female venture capitalists, who are more likely to fund startups run by women, are the rarest unicorns of all in Silicon Valley.

Transparency about the composition of firms' staff may help with hiring more women. But another place where transparency can make a big difference is pay. The secretive nature of compensation at tech firms, with employees being discouraged from telling their peers anything about their equity grants or cash bonuses, means that women do not know when they are being underpaid, says Pamela Sayad, a San Francisco-based lawyer who specialises in workplace discrimination.

Some companies that have unearthed disparities, including Salesforce, a software firm, and Cisco, a networking company, have pledged millions of dollars to fill wage gaps. But absent disclosure, it can still be hard to see the pay differences in the first place. For years tech executives have talked up the importance of transparency and the power of data for decision-making. They should do a better job of practising what they preach. ■

HNA Group

A Buddhist tycoon

SHANGHAI

China's HNA Group is on a global shopping spree

NOW it is a conglomerate with more than \$100bn-worth of assets around the world. But HNA Group started life as a small local airline. Chen Feng, the Chinese company's founder, led a coalition including private investors and the government of Hainan, a southern province, to launch Hainan Airlines in 1993.

Despite some help from the local government, the upstart firm was an outsider then. The central government chose three big state-run airlines to receive favoured landing slots, lavish subsidies and other advantages. The scrappy Mr Chen was undeterred. With \$25m in early funding from George Soros, an American billionaire, he carved out a profitable niche.

Since then, HNA has grown quickly, mainly through acquisitions. It reported revenues of 600bn yuan (\$90bn) last year. In 2016 it acquired a 25% stake in America's Hilton Worldwide for \$6.5bn and paid \$10bn for the aircraft-leasing division of CIT Group, a New York-based financial firm. This week it bid nearly \$1bn for Singapore's CWT, a logistics company.

Most deals have been in industries adjacent to its core business, such as travel, tourism and logistics. But some recent purchases have raised eyebrows for being



Chen keeps spending

more distant. It spent \$6bn last year on Ingram Micro, an information-technology outfit based in California. Money has also gone into Deutsche Bank. It is rumoured to be bidding for *Forbes*, an American magazine. Some people suspect that these deals chime with China's industrial policy more than HNA's own corporate logic.

Yet HNA is not a classic state-owned enterprise. The Hainan government retains a big stake in it, but HNA has traits that distinguish it from state-owned enterprises, which tend to be sclerotic and run by bureaucratic grey men.

It has adopted professional management practices. Mr Chen has trained his employees in Six Sigma, a management method popularised by Jack Welch, a former boss of General Electric, to eliminate waste; and in a financial methodology that scrutinises investments for economic value added. Hainan Airlines is considered the best Chinese airline. Mr Chen, a Buddhist scholar, has also imprinted traditional Chinese philosophies onto the company's culture. When it takes over a firm he leads new executives in a recitation of HNA's core values, which include "love and devotion". HNA typically does not fire the top brass at firms it acquires, nor does it force big lay-offs.

Mr Chen certainly seems skilful at managing the Chinese authorities. HNA is presenting this week's bid for CWT as part of President Xi Jinping's "One Belt, One Road" geopolitical strategy, for example. It is clever to play the political card given that the state is tightening control of outbound investment, which could hamper the company's style, notes a Chinese business expert. A clampdown on foreign deals by Chinese regulators, who are worried about capital outflows, has led to the cancellation of dozens of announced acquisitions by Chinese firms.

But HNA is having no trouble getting the money and approval to do lots of big

deals—it has spent over \$40bn on acquisitions in the past three years. Indeed, Mr Chen appears to have the advantages of a state firm, including cheap access to capital, without the disadvantages, such as officials telling him how to run his company, says a seasoned China hand. In this, he reckons, HNA is becoming "a lot like Huawei", a telecoms-equipment firm. Mr Chen should be flattered by the comparison to one of the country's most successful multinationals. But he should also recall that a backlash against Huawei's perceived closeness to China's leadership led to its blacklisting by America's government. ■

Algorithmic retailing

Automatic for the people

HAMBURG

How Otto, a German e-commerce firm, uses artificial intelligence

A GLIMPSE into the future of retailing is available in a smallish office in Hamburg. From there, Otto, a German e-commerce merchant, is using artificial intelligence (AI) to improve its activities. The firm is already deploying the technology to make decisions at a scale, speed and accuracy that surpass the capabilities of its human employees.

Big data and "machine learning" have been used in retailing for years, notably by Amazon, an e-commerce giant. The idea is to collect and analyse quantities of information to understand consumer tastes, recommend products to people and personalise websites for customers. Otto's work stands out because it is already automating business decisions that go beyond customer management. The most important is trying to lower returns of products, which cost ►►

▶ the firm millions of euros a year.

Its conventional data analysis showed that customers were less likely to return merchandise if it arrived within two days. Anything longer spelled trouble: a customer might spot the product in a shop for one euro less and buy it, forcing Otto to forgo the sale and eat the shipping costs.

But customers also dislike multiple shipments; they prefer to receive everything at once. Since Otto sells merchandise from other brands, and does not stock those goods itself, it is hard to avoid one of the two evils: shipping delays until all the orders are ready for fulfilment, or lots of boxes arriving at different times.

The typical solution would be slightly better forecasting by humans of what customers are going to buy so that a few goods could be ordered ahead of time. Otto went further and created a system using the technology of Blue Yonder, a startup in which it holds a stake. A deep-learning algorithm, which was originally designed for particle-physics experiments at the CERN laboratory in Geneva, does the heavy lifting. It analyses around 3bn past transactions and 200 variables (such as past sales, searches on Otto's site and weather information) to predict what customers will buy a week before they order.

The AI system has proved so reliable—it predicts with 90% accuracy what will be sold within 30 days—that Otto allows it automatically to purchase around 200,000 items a month from third-party brands with no human intervention. It would be impossible for a person to scrutinise the variety of products, colours and sizes that the machine orders. Online retailing is a natural place for machine-learning technology, notes Nathan Benaich, an investor in AI.

Overall, the surplus stock that Otto must hold has declined by a fifth. The new AI system has reduced product returns by more than 2m items a year. Customers get their items sooner, which improves retention over time, and the technology also benefits the environment, because fewer packages get dispatched to begin with, or sent back.

The initiative suggests that an important role of AI in business may be simply to make existing processes work better. Otto did not fire anyone as a result of its new algorithmic approach: it hired more, instead. In many cases AI will not affect a firm's overall headcount, but will perform tasks at a level of productivity that people could not achieve. Otto's experience also underlines that ordinary companies can use AI, not just giants such as Amazon and Google, notes Dave Selinger, a retailing-technology expert and former data scientist at Amazon. The degree to which the company has yielded control to an algorithm, he says, is extremely unusual. But it may not be long before others catch up. ■



United Airlines Air rage

Top tip: don't refuse to cede your plane seat to an off-duty airline employee

UNITED AIRLINES urges travellers to “Fly the Friendly Skies”. The company makes no promises about its customer service before take-off. When, on April 9th, a traveller in Chicago refused to give up his seat on an overcrowded flight to Louisville, Kentucky, police yanked him into the aisle and dragged him by his hands along the floor, bleeding after he cut his head on an armrest. Horrified fellow passengers took videos on their phones and posted them to social media.

The company's initial response was possibly the worst bit of crisis-PR in history, noted one media commentator. As videos of the bloodied man quickly went viral, Oscar Munoz, the carrier's boss, woodenly apologised for having to “re-accommodate” customers. In an internal letter to staff, Mr Munoz said crew had “no choice” in their action and blamed the flyer for not co-operating.

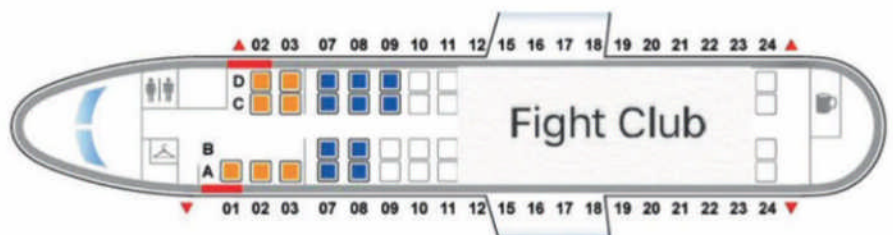
Overbooking, which is common at many carriers, was not the problem. Rather, it was late-arriving, off-duty airline employees who needed seats at the last moment. The usual way of persuading paying passengers not to fly—offering lots of cash—

did not work. Such bargains are best struck before boarding the plane. United, however, let passengers take their seats as it offered up to \$1,000 to catch a later flight. When not enough travellers were tempted, rather than raising the price further, the crew selected four travellers for disembarkation. The man in question, a doctor aged 69 called David Dao, said he had patients to see the next day and refused to go.

As the scene looped on the world's news channels and Twitter feeds (one user, @Reflog_18, suggested the cabin layout for United below), Mr Munoz was derided for his apparent antipathy towards passengers. Before the man's identity was known, his airline became the top-trending topic on Weibo, a Chinese microblog, as rumours swirled (erroneously) that the passenger had been singled out because he was Chinese. Amid calls for a boycott, United's share price fell by nearly 4% on April 11th before recovering. That day Mr Munoz issued a fresh apology that was different in tone, saying of the forcibly removed customer that “no one should ever be mistreated this way”. He promised a review of company practices, including its partnerships with law enforcement.

Investors are watching to see how quickly the social-media frenzy will subside. Many praise the way that Mr Munoz has run the company since his appointment in 2015. He has focused on costs and delivered pre-tax profit of \$3.8bn in 2016, down by 9.5% on the previous year though ahead of analysts' expectations. But Mr Munoz had promised to tackle the airline's reputation for bad customer service. Here, he has hardly been a success. United has fallen to 68th place in the influential SKYTRAX airline ranking, one place ahead of Copa Airlines, Panama's flag carrier.

And scandal seems to follow the firm. In March it was accused of sexism for barring three girls wearing leggings from a flight: a ten-year-old had to put on a dress and the other two teenagers were left at the gate. They had not complied with dress codes for friends and family of employees. Such incidents highlight the gap between the stories firms tell about themselves and what consumers see. Not long before United put Mr Munoz's initial statement about the bloodied passenger on Facebook, it had posted a picture of a company dog nuzzling a boy, part of a programme to make travel less stressful. Travellers will be telling a story about United for some time. It won't be the one about the puppies. ■



Cloud computing and telecoms

Telecomulonimbus

Turning networks into software will trigger a storm in the telecoms world

IN THE computing clouds, startups can set up new servers or acquire data storage with only a credit card and a few clicks of a mouse. Now imagine a world in which they could as quickly weave their own wireless network, perhaps to give users of a fleet of self-driving cars more bandwidth or to connect wireless sensors.

As improbable as it sounds, this is the logical endpoint of a development that is picking up speed in the telecoms world. Networks are becoming as flexible as computing clouds: they are being turned into software and can be dialled up and down as needed. Such “cloudification”, as it is known, will probably create as much upheaval in the telecoms industry as it has done in information technology (IT).

IT and telecoms differ in important respects. One is largely unregulated, the other overseen closely by government. Computing capacity is theoretically unlimited, unlike radio spectrum, which is hard to use efficiently. And telecoms networks are more deeply linked to the physical world. “You cannot turn radio towers into software,” says Bengt Nordstrom of Northstream, a consultancy.

The data centres of big cloud-computing providers are packed with thousands of cheap servers, powered by standard processors. Telecoms networks, by contrast, are a collection of hundreds of different types of computers with specialised chips, each in charge of a different function, from text messaging to controlling antennae. It takes months, if not years, to set up a new service, let alone a new network.

But powerful forces are pushing for change. On the technical side, the current way of building networks will hit a wall as traffic continues to grow rapidly. The next generation of wireless technologies, called 5G, requires more flexible networks. Yet the most important factor behind cloudification is economic, says Stéphane Téral of IHS Markit, a market-research firm. Mobile operators badly need to cut costs, as the smartphone boom ends in many places and prices of mobile-service plans fall. The shift was evident at the Mobile World Congress in Barcelona in February. Equipment-makers’ booths were plastered with diagrams depicting new technologies called NFV and SDN, which stand for “network-functions virtualisation” and “software-defined networks”. They turn specialised telecoms gear into software in a process called “virtualisation”.

Many networks have already been virtualised at their “core”, the central high-capacity gear. But this is also starting to happen at the edges of networks—the antennae of a mobile network. These usually plug directly into nearby computers that control the radio signal. But some operators, such as SK Telecom in South Korea, have begun consolidating these “baseband units” in a central data centre. Alex Choi, SK Telecom’s chief technology officer, wants “radio” to become the fourth component of cloud computing, after computing, storage and networking.

Spin me up, AT&T

The carrier that has pushed cloudification furthest is AT&T, America’s largest operator. By the end of 2017 it wants to have more than half of its network virtualised. In areas where it has already upgraded its systems, it can now add to the network simply by downloading a piece of software. “Instead of sending a technician, we can just spin up a virtual machine,” says Andre Fuetsch, AT&T’s chief technology officer.

Even more surprising for a firm with a reputation for caution, AT&T has released the program that manages the newly virtualised parts of its network as open-source software: the underlying recipe is now available free. If widely adopted, it will allow network operators to use cheaper off-the-shelf gear—much as the rise of Linux, an open-source operating system, led to the commoditisation of hardware in data centres a decade ago.

If equipment-makers are worried about all this, they are not letting it show. Many parts of a network will not get virtu-

alised, argues Marcus Weldon, chief technology officer of Nokia. And there will always be a need for specialised hardware, such as processors able to handle data packets at ever faster speeds. Still, Nokia and other telecoms-gear-makers will have to adapt. They will make less money from hardware and related maintenance services, which currently form a big chunk of their revenues. At the same time, they will have to beef up their software business.

Cloudification may also create an opening for newcomers. Both Affirmed Networks and Mavenir, two American firms, for instance, are developing software to run networks on off-the-shelf servers. Affirmed already claims 50 customers. Mavenir wants to work with underdog operators “to bring the incumbents down”, says Pardeep Kohli, its chief executive. If the history of cloud computing is any guide, the telecoms world may also see the rise of new players in the mould of Amazon Web Services (AWS), the e-commerce giant’s fast-growing cloud-computing arm.

According to John Delaney of IDC, a research firm, the big barrier to cloudification is likely to be spectrum, which newcomers will still have to buy. But a clever entrepreneur may find ways to combine assets—unlicensed spectrum, fibre networks, computing power—to provide cheap mobile connectivity. Startups such as FreedomPop and Republic Wireless already offer “Wi-Fi first” mobile services, which send calls and data via Wi-Fi hotspots, using the mobile network as backup.

As the case of AWS shows, a potential Amazon Telecoms Services does not have to spring from the telecoms world. Amazon itself is a candidate. But carmakers, operators of power grids and internet giants such as Facebook could have a go: they are huge consumers of connectivity and have built networks. Facebook, for instance, is behind the Telecom Infra Project, another effort to open the network infrastructure. However things shake out, expect the telecoms world to become much more fluid in the coming years, just like IT before it. ■



Schumpeter | Crony capitalism

Bright minds in Chicago worry about the state of competition in America



ONE sign that monopolies are a problem in America is that the University of Chicago has just held a summit on the threat that they may pose to the world's biggest economy. Until recently, convening a conference supporting antitrust concerns in the Windy City was like holding a symposium on sobriety in New Orleans. In the 1970s economists from the "Chicago school" argued that big firms were not a threat to growth and prosperity. Their views went mainstream, which led courts and regulators to adopt a relaxed attitude towards antitrust laws for decades.

But the mood is changing. There is an emerging consensus among economists that competition in the economy has weakened significantly. That is bad news: it means that incumbent firms may not need to innovate as much, and that inequality may increase if companies can hoard profits and spend less on investment and wages. It may yet be premature to talk about a new Chicago school, but investors and bosses should pay attention to the intellectual shift, which may change American business.

The fear that big firms might come to dominate the economy and political life has its roots in the era of the robber barons of the 19th century. In 1911 the government broke up Standard Oil; until the 1960s regulators policed mergers with a big stick. But by the 1970s the economy was sputtering, and America Inc was losing ground to Japanese and European industry. Free-market scholars at the Chicago school argued that the pendulum had swung too far towards the state and antitrust action.

They felt that regulators were intervening arbitrarily. Richard Posner, an academic who later became a judge, damningly wrote that they relied on "eclectic forays into sociology", not hard analysis. Firms were being prevented from getting big enough to create economies of scale that could benefit consumers, argued backers of free markets. Well-run companies that naturally gained market share were being penalised for success.

Over time the Chicago school's ideas became so influential that the courts and the two antitrust regulators, the Department of Justice (DOJ) and the Federal Trade Commission (FTC), adopted a far more favourable approach to big business. Today Mr Posner, who is 78, jokes that he became a judge in 1981 expecting to specialise in monopoly cases, but regulators stopped bringing them to court. He remains a true believer in the laissez-faire approach.

But at Chicago (and elsewhere) a younger generation of scholars, including Luigi Zingales and Raghuram Rajan, are worried that competition is not as vigorous as it used to be.

What has changed? The facts. The pendulum has swung heavily in favour of incumbent businesses. Their profits are abnormally high relative to GDP. Those that make a high return on capital can sustain their returns for longer, suggesting that less creative destruction is taking place. The number of new, tiny firms being born is at its lowest level since the 1970s.

Two explanations are plausible. One is successive waves of mergers. When you split the economy into its 900 or so different industries, two-thirds have become more concentrated since the 1990s. Regulators may also have been captured by incumbent firms, which get cosy treatment. American companies collectively spend \$3bn a year on lobbying. In regulated industries that don't face competition from imports—health care, airlines and telecommunications—prices are at least 50% higher than in other rich countries, and returns on capital are high.

The technology industry's expansion could exacerbate the problem. An analysis by *The Economist* in 2016 suggested that about half the pool of abnormally high profits is being earned by tech firms. The big five platform companies—Alphabet, Amazon, Apple, Facebook and Microsoft—earned \$93bn last year and have high market shares, for instance in search and advertising. They are innovative but sometimes behave badly. They have bought 519 firms, often embryonic rivals, in the past decade, and may stifle them. The data they gather can lock customers into their products. They may also allow firms to exert their market power "vertically" up and down the supply chain—think of Amazon using information on what consumers buy to dominate the logistics business. Investors' sky-high valuations for the platform firms suggest they will, in aggregate, roughly triple in size.

If the summit showed that there is a consensus that competition has weakened, there was little agreement on how to respond. Pessimists abound. Many antitrust technocrats plead that they have little power: bodies like the DOJ and the FTC are not meant to run the economy, but instead to enforce a body of law through courts that have become friendlier to incumbents. Some radicals argue that the government is now so rotten that America is condemned to perpetual oligarchy and inequality. Political support for more competition is worryingly hard to find. Donald Trump has a cabinet of tycoons and likes to be chummy with bosses. The Republicans have become the party of incumbent firms, not of free markets or consumers. Too many Democrats, meanwhile, don't trust markets and want the state to smother them in red tape, which hurts new entrants.

Lessons from the old school

What is needed is a three-pronged approach. A campaign to drum up public backing for competition might prod politicians to act: it was popular anger about monopolies in the 1890s that led to crucial reforms in the early 20th century. The technocrats have more power than they admit. Antitrust laws, such as the Sherman Act of 1890, give plenty of latitude. They must be braver. Lastly, scholars should learn from the first Chicago school. Its leading lights did not seek quick victories, but won the battle of ideas over years, their views percolating into politics, the courts and public opinion. America must rediscover the virtues of competition. With luck, in a couple of decades, it will seem embarrassing that anyone had to hold a conference to debate its relevance. ■



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China's banks

A sunny spell

SHANGHAI

Faster growth makes China's debt more manageable, but fears linger

GUO SHUQING, China's new banking regulator, knows the enormity of his task. China's banking system, he observed last month, is worth more than \$33trn. So it is bigger than any other country's, and even than Europe's as a whole. And he is well aware of the pitfalls left by a decade of breakneck lending growth. But if Mr Guo is nervous, he is hiding it. "All problems and contradictions will be resolved," he says.

Of course, a Chinese official can be expected to express confidence about Chinese banks. More surprising is that a small but growing number of analysts and investors seem to concur. Chinese bank shares are up by a quarter since early last year. One investment bank, Morgan Stanley, has declared that China's lenders are "in a sweet spot". Another, Goldman Sachs, has upgraded China to "overweight"—that is, recommending that clients buy Chinese shares—and is especially positive about the banks. *Shanghai Financial News*, a local newspaper, described the new mood around these giant institutions as the "return of the king". The question is whether it will be a long, stable reign or a short-lived, turbulent one.

The clearest positive for China's banks has been an upturn in nominal economic growth. Real GDP growth (ie, accounting for inflation) is likely to be little changed in 2017 from last year's 6.7%. But nominal growth is nearly 10% in yuan terms, up

markedly over the past 12 months. Higher prices have led to stronger corporate revenues, particularly for indebted steel-producers and coalminers. This, in turn, has made it easier for them to repay loans. Chinese banks' official bad-debt ratio, climbing since 2012, held steady last year at about 1.7%. Many analysts still think the real level of toxic loans is many times that (some estimate the ratio is as high as 19%), but the bleeding has clearly slowed.

Meanwhile, banks have started to clean up their balance-sheets. In part, this has been through more write-offs of problem loans. Banks took losses on more than 500bn yuan (\$75bn) of loans last year, a record, scrubbing them from their books and

selling some to investors. With more credit going to infrastructure projects and to mortgages, which traditionally have been safe in China, loan portfolios are looking healthier. Richard Xu of Morgan Stanley reckons that high-risk credit will decline from about 6% of total credit in China today to less than 3% by 2020.

There are also signs that China's bloated state-owned banks are getting a little more efficient as they respond to competition from fintech companies. The four biggest banks, which account for nearly two-fifths of the industry's assets, cut employees in 2016 for the first time in six years. Banks have been rolling out mobile apps to handle payment and investment transactions that used to be conducted in person. Overall costs of listed banks rose by just 0.6% last year, even as assets grew by 12%.

All these good omens, however, may not mean China's banks have really turned the corner. The beautification of their books has relied on financial engineering. Over the past three years the government has approved the creation of 35 asset-management companies (ie, "bad banks"). Jason Bedford of UBS, a Swiss bank, says that these companies, which buy delinquent loans from banks, often also finance themselves through bank loans.

Debt-for-equity swaps are another form of financial engineering: instead of repaying loans, indebted companies can issue shares to third parties, which acquire the loans from banks. Yet the fine print shows that their equity functions like bonds: the companies must pay dividends and buy back shares if they miss revenue targets. Moreover, the parties holding the equity are funded in part by investment products sold off-balance-sheet by banks. The upshot is that, whether stashed in bad banks or converted into equity, the debt ►►

Unconvincing

China, selected major banks



▶ could yet bounce back into banks' hands.

The simple problem that underlies this complex restructuring activity is excessive lending growth. China's total debt-to-GDP ratio has risen from less than 150% before 2008 to more than 260% today; in other economies, such increases have often presaged severe financial stress. Aware of the dangers, the Chinese government has made reducing debt a priority. It is taking baby steps towards that goal: thanks to faster nominal growth, China's debt-to-GDP ratio will expand more slowly this year. But it will still expand. S&P Global, a rating agency, warned in March that this trajec-

tory for Chinese banks is unsustainable.

Efforts to curb borrowing are themselves emerging as a new risk. Over the past few months the central bank has raised banks' short-term borrowing costs. That has been a shot across the bows of overextended lenders, especially mid-tier banks. These have been most aggressive in funding themselves with loans from other banks, rather than doing the painstaking work of building up bigger deposit bases.

Already this tightening has led to volatility. In March the central bank made an emergency liquidity injection after small banks were reported to have missed inter-

bank debt payments, suggesting that the basic gears of the financial system were starting to get gummed up.

For many in the market, the cons in Chinese banking outweigh the pros. Bank shares have rallied since last year, but investors still price them just at about 80% of the reported value of their assets (see chart on previous page). In other words, they expect more bad news to come—if not this year, then soon enough. From his seat in the regulator's office, Mr Guo has his work cut out: not just in controlling risks, but also in persuading the wider world that it still has China's banks pegged wrong. ■

Buttonwood | Not barking yet

Why gold has not responded to geopolitical risk or reflation talk

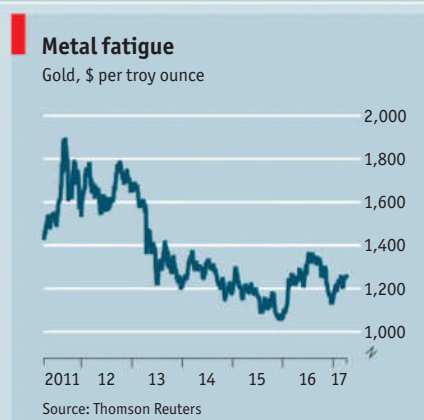
AMERICA has bombed Syria, and its relations with Russia have deteriorated. North Korea is developing a long-range nuclear missile, a development which Donald Trump has vowed to stop, unilaterally if necessary. There is talk of a "reflation trade", with tax cuts in America pepping up global growth.

All this ought to be good news for gold, the precious metal that usually gains at times of political uncertainty or rising inflation expectations. But as the chart shows, gold took a hit when Mr Trump was elected in November and is still well below its level of last July. As a watchdog, gold has failed to bark.

Bullion enjoyed a ten-year bull market from 2001 to 2011, when it peaked at \$1,898 an ounce. This long upward run was bolstered in its later stages by two developments: first, the use of quantitative easing (QE) by central banks, which gold bugs argued would inevitably lead to high inflation; and second by the euro crisis, which caused nervousness about the potential for a break-up of the single currency and about the safety of European banks. By 2013, however, euro-zone worries were fading and, despite QE, no inflation had been seen. The gold price fell sharply and has stayed in a narrow range since.

Last year was a disappointing one for jewellery demand, with an annual survey by Thomson Reuters finding that jewellery fabrication fell by 38% in India (where it was hit by a new excise duty) and by 17% in China. The Chinese central bank was also a less enthusiastic gold-purchaser than before: net central-bank buying dropped to a seven-year low.

The big change in the gold market since the turn of the millennium has been the rise of exchange-traded funds (ETFs), which have made it easy for investors to get exposure to the metal without worry-



ing about storing it or insuring it. At the peak, gold ETFs held around 2,500 tonnes of gold, according to Citigroup, worth around \$100bn at today's prices.

Gold ETFs were bought as a classic "momentum trade" by investors who try to make money by following trends. Once the price trend changed in 2013, such investors scrambled to get out of the metal. At the moment ETFs hold just 1,800 tonnes.

The problem with gold is that there is no obvious valuation measure. The metal pays no real "earnings". Although gold is seen as a hedge against inflation, it cannot be relied on to fulfil this function over the medium term; between 1980 and 2001, its price fell by more than 80% in real terms.

The general rule is that gold is seen as an alternative currency to the dollar, so when the greenback does well, bullion does badly. But this also means that gold's performance can look rather better in other, weaker currencies. Since the Brexit referendum, for example, bullion is up by 19% in sterling terms. Another factor is real interest rates. When they are high, the opportunity cost of holding gold is also high. Conversely, very low interest rates mean that

there seems little to lose by holding gold.

Those two factors explain why the "Trump trade" was initially not very good for gold. In the immediate aftermath of the election, investors hoped that tax cuts would revive the American economy; this would force the Federal Reserve to push up interest rates and that rate boost would drive the dollar higher. Neither prospect would be good for gold.

But the Trump trade has lost momentum. The president's failure to repeal Obamacare has raised doubts about the prospect of a tax-reform programme being passed by Congress. Gold has duly perked up a bit since the start of the year, and the price rose by 1.6% on April 11th. But, although inflation may be a bit higher, nothing suggests a return to the kind of double-digit rates seen in the 1970s, when gold enjoyed a spectacular price rise.

Even so, the metal has not performed as well as it might have done, given the geopolitical headlines. Perhaps this is because Mr Trump has backed away from some of his pre-election threats—on trade with China, for example. The bombing in Syria may turn out to be a one-off, and his statements on North Korea could be "full of sound and fury, signifying nothing". With the help of advisers such as Rex Tillerson, the secretary of state, and James Mattis, the defence secretary, Mr Trump may turn out to be a more conventional foreign-policy president than expected.

So buying bullion is really a bet that things will go spectacularly wrong: that events escalate in the Middle East and North Korea or that central banks lose control of monetary policy. It could happen, of course, but it helps explain why gold bugs tend to be folks with a rather gloomy attitude towards life.

The European Free Trade Association

L-EFTA behind

OSLO AND REYKJAVIK

To understand the trade-offs that Brexit Britain must make, look to EFTA

NORWAY offers much to envy. The food is tasty, public services are great and the people are impossibly good-looking. Its trade policy looks equally desirable. Though it trades heavily with the EU, Norway can also strike trade deals all over the world, either operating in concert with the three other members of the European Free Trade Association (Iceland, Liechtenstein and Switzerland) or on its own. Members of EFTA have dozens of deals, including two with China, with which the EU cannot even start negotiations.

After it leaves the EU, Britain will look much like an EFTA country: a rich economy with close links to Europe, but also seeking trade deals elsewhere. It is superficially an attractive prospect. Yet EFTA's half-in-half-out relationship with the EU hinders its trade as much as it helps.

EFTA's flexibility in trade stems from its odd relationship with the EU. Switzerland has a series of bilateral agreements, whereas Norway, Iceland and Liechtenstein are part of the single market through the European Economic Area (though with opt-outs for agriculture and fisheries). Crucially, however, all are outside the EU's customs union, an agreement which regulates tariffs charged to third countries. This allows them to strike other trade deals.

EFTA has made the most of this power. The group has 27 free-trade agreements in all corners of the world. They give its exporters access to around 900m consumers—impressive for a club which covers

just 14m people. In addition, individual states have bilateral deals. Norway struggled to do a deal with China after the Nobel peace prize was awarded in 2010 to a jailed Chinese dissident. That did not stop Iceland from striking one. (China would like access to shipping routes through the Arctic as climate change melts the ice.)

A recent paper from the European Parliament found that EFTA tends to make trade deals faster than the EU. South Korea's talks with EFTA, for instance, took half as long as those with the EU. EFTA is speedy because it can agree on a common strategy faster than the EU, which has more countries to accommodate.

Similarly, once outside the EU customs union, Britain may be able to reach faster deals. Donald Trump says he wants a trade agreement with Britain "very quickly". However, EFTA's experience offers cautionary lessons. Striking a trade deal quickly is a bonus; but what really matters is how good a deal it is. The parliament paper also notes that EFTA's agreements have been "shallow" compared with the EU's.

Analysis of the Design of Trade Agree-

ments Database, a project led by the World Trade Institute in Bern, backs up this claim. EFTA is not a big market: its partners are happy to make deals, but they are loth to spend too much time on the finer details. Nor will they make large concessions. The relatively low quality of the deals helps explain why EFTA's free-trade agreements still account for only about a tenth of its members' trade.

Britain is a much bigger market than EFTA. But it will still be in a far weaker negotiating position outside the EU than as part of the single market. Moreover, EFTA also shows that, besides offering uncertain benefits, an independent trade policy brings large costs. Being outside the EU customs union is an irritant for many firms. Goods moving from EFTA to an EU member undergo "rules of origin" checks, to ensure that the exporter is not avoiding EU tariffs. Karen Helene Ulltveit-Moe of Oslo University says that to avoid cumbersome checks many Norwegian firms simply relocate to Sweden. The idea of going it alone in international trade negotiations may be more appealing than the reality. ■

Barclays

Staley stumbles

New scandals are easy to create, old ones hard to forget

IN HIS first 17 months running Barclays, Jes Staley seemed scarcely to put a foot wrong. The American has narrowed the British lender's ambitions, to focus on retail business at home, corporate and investment banking on both sides of the Atlantic, and credit cards. He is pulling Barclays out of Africa, after a century, and has sped up its retreat from other markets. He has also poached several folk from JPMorgan Chase, where he spent 34 years and ran the investment bank.

On April 10th it emerged that Mr Staley had clumsily planted a boot out of bounds. Last June Barclays' board and an executive received anonymous letters about a "senior employee" hired earlier in 2016. These, say the bank, raised concerns "of a personal nature" about this person and Mr Staley's role in dealing with the matter "at a previous employer" (presumably JPMorgan Chase).

Mr Staley, seeing the letters as "an unfair personal attack" on the newcomer, asked Barclays' security team to find out who had written them, but was told that this should not be done. In July he inquired whether the matter was resolved—and formed the "honestly held, but mistaken" belief that he was now free to identify one of the authors. He set security on the trail again. This time they called in American law-enforcement

officials, but failed to unmask the writer.

Both boss and bank are up before the beak: regulators are examining Mr Staley's conduct and Barclays' treatment of whistle-blowers. Barclays will reprimand Mr Staley in writing and cut last year's bonus of £1.3m (\$1.6m). By how much depends on the regulators' findings.

After the financial crisis Barclays' reputation took a battering. Mr Staley and his predecessor, Antony Jenkins, have tried to repair it. But new troubles are easily born, and old ones die hard. In 2012 Barclays was fined £290m for rigging LIBOR, a key interest rate; four of its traders were later jailed. On April 10th the BBC stirred bad memories, with fresh allegations about the scandal and questioning whether the whole truth had emerged in a parliamentary inquiry. Regulators are also examining Barclays' raising of capital from Qatar in 2008.

It may not comfort Mr Staley that others had an even worse start to the week. Wells Fargo, America's third-biggest bank by assets, castigated John Stumpf, its former boss, for tolerating sales practices that led to the opening of 2m-odd ghost accounts, for which Wells was fined \$185m last year. Wells is reclaiming \$69m from Mr Stumpf and \$67m from Carrie Tolstedt, ex-head of its consumer bank. How was your Monday?



Rural finance in Myanmar

A country mile

DALA TOWNSHIP, YANGON

The struggle to rescue Myanmar's farmers from poverty and indebtedness

WHEN Myo Than was a young man, his family had 12 hectares of farmland in Dala, a rural township just across the river from Yangon, Myanmar's biggest city. His mother sold most of it after his father died. Mr Myo Than grows rice on what's left, but water shortages mean he reaps just one harvest each year. He borrows money from the Myanmar Agricultural Development Bank (MADB)—1.5m kyats (\$1,100) this year, at an annual rate of 8%—to cover planting costs. But rice is a low-return crop. To repay the bank he borrows from local moneylenders at a rate of around 4% each month. Mr Myo Than owes them \$7,300. He has given his land deeds to a moneylender as security.

Mr Myo Than's predicament is not unusual: poor crop returns and usurious loan terms have kept Myanmar's farmers trapped in poverty and debt. Around 60% of Myanmar's population are engaged in agriculture. Most are poor, and farm small plots of land using age-old manual techniques. Farmers scythe rice fields; water buffaloes pull wooden ploughs; hay-laden bullock-carts trundle down narrow roads.

Many farmers borrow to cover planting costs, buy equipment or purchase land, and repay after the harvest. Under the junta that isolated Myanmar for decades, farmers had to borrow from the MADB, which was permitted only to make small loans for rice seed, rarely for periods of longer than a year. This hampered farmers in two ways. First, the small loan size sent them to informal moneylenders. Second, it

prevented them from diversifying into higher-yield crops.

Slowly, things are improving. Aung San Suu Kyi, the country's de facto leader since last year, has made rural development a priority. The core of her support is in the rural heartlands of the country's ethnic-Burman majority; her voters are counting on her to improve their lives. New laws on microfinance have increased the range of lenders available to farmers. According to Curtis Slover of LIFT, an anti-poverty NGO, microfinance, where it is available, has overtaken private moneylenders as the main source of credit. He cautions that only around 2.5m of Myanmar's 54.7m people so far have access to microcredit. Many, however, even among the rural poor, have mobile phones. A wave of mobile-money ventures has streamed into Myanmar. The World Bank is piloting a programme that uses mobile-network data and crop-suitability mapping to arrange seasonal loans using mobile money.

But cash will remain king of the countryside for a long time, and the MADB's reach (223 branches) means it has no rivals. Getting it into shape is essential. On March 1st a loan agreement signed with the government by JICA, Japan's overseas aid agency, included ¥15.1bn (\$137m) for the MADB, for onlending and to build capacity at the bank. The priority, says Sean Turnell, an Australian economist who advises Miss Suu Kyi's government, is to figure out what the bank's financial condition really is.

That may prove a challenge. The MADB lacks real-time financial reporting and still runs on paper ledgers. Every season it must check millions of written loan-application forms against similar lists of defaults. Chasing down defaulters requires travelling to remote villages. Funds from JICA and the World Bank should help drag the bank closer to the modern era, but getting it functional and effective—to say nothing of competitive—may take a generation. ■

Mobile money in Africa

Transfer market

LUSAKA

Crowded field, different player

WITH her phone in one hand and a live chicken in the other, Brenda Deeomba comes for her money. Her husband is a builder in Lusaka, the Zambian capital, and sends his wages home through Zoono, a money-transfer company. She receives them at a roadside booth in Chongwe, a nearby town, using a PIN number sent to her phone. It is a safe way to get the money, says Ms Deeomba, above muffled squawks.

Money-transfer businesses are proliferating in Africa. But Zoono is unusual. Unlike M-PESA, the best-known, in Kenya, it is not run by a phone company. Nor is it owned by a bank. Instead, Zoono has built a business from scratch. It processed \$200m in transactions last year and bubbles with ambition: Mike Quinn, its (Canadian) chief executive, talks of reaching 1bn customers.

Zoono was founded in Zambia in 2009 by two brothers, Brad and Brett Magrath. As a startup, they were at a disadvantage, having to recruit their own agents. Zoono did so by seeing them as its core customers, giving them credit and training to set up their own franchises. Some are impressively successful. In central Lusaka, Misozi Mkandawire presides over an empire of kiosks. She started with Zoono while at college. Her profits can now reach 50,000 kwacha (\$5,200) a month. That is exceptional. Last year the average agent made \$548 in monthly commission, before costs. Globally, nearly half of mobile-money agents have not processed a transaction for a month; 97% of Zoono agents do so every day.

The right location helps. Zoono puts its lime-green booths in canny places, like markets, bus stations and even a hospital. They are often flanked by booths for Airtel and MTN, two phone companies offering similar services. Zoono is not the cheapest—the sender pays about 10% on small transactions—but competes on coverage and reliability: for example, ensuring its agents have enough float to cash large amounts.

Last year Zoono raised \$15m from investors. Its outlets now dot streets in Malawi and Mozambique, and it has plans for the Democratic Republic of Congo. Such “third-party” operators are also thriving elsewhere: Wari, in Senegal, is not just competing with phone companies, but buying one. In most places mobile giants and a few banks still dominate, but maybe not for ever.



Living on borrowed rice

Depopulation in Germany

Fading echoes

BITTERFELD-WOLFEN

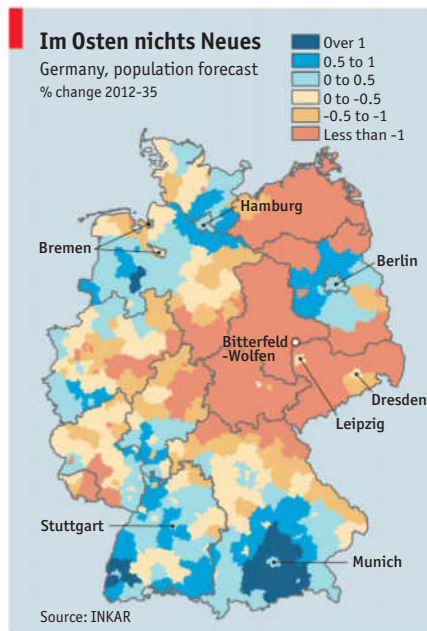
Germany is running out of people, starting in the east

WERE it not for the graffiti on abandoned buildings, Bitterfeld-Wolfen, two towns north of Leipzig joined as one in 2007, would seem devoid of young people. Pharmacies, physiotherapy surgeries and shops selling garden gnomes line the sleepy streets. In its heyday the place had a booming chemical industry. Today “the air is much cleaner and we can finally hang out laundry,” says an elderly local out on a morning stroll. “But many jobs were lost and so few children are left.” He points out a building that was once a school; today it is one of many care homes.

Despite an influx of 1.2m refugees over the past two years, Germany’s population faces near-irreversible decline. According to predictions from the UN in 2015, two in five Germans will be over 60 by 2050 and Europe’s oldest country will have shrunk to 75m from 82m. Since the 1970s, more Germans have been dying than are born. Fewer births and longer lives are a problem for most rich countries. But the consequences are more acute for Germany, where birth rates are lower than in Britain and France.

If Germany is a warning for others, its eastern part is a warning for its west. If it were still a country, East Germany would be the oldest in the world. Nearly 30 years after unification the region still suffers the aftershock from the fall of the Berlin Wall in 1989, when millions—mostly young, mostly women—fled for the west. Those who remained had record-low birth rates. “Kids not born in the ’90s, also didn’t have kids in the 2010s. It’s the echo of the echo,” says Frank Swiaczny from the Federal Institute for Population Research, a think-tank in Wiesbaden. The east’s population will shrink from 12.5m in 2016 to 8.7m by 2060, according to government statistics. Saxony-Anhalt, the state to which Bitterfeld-Wolfen belongs, is ahead of the curve.

Berlin used to pay little attention to the area. But regional decline has already had a political effect. In a state election in March 2016, a populist party, the AfD, came first in Bitterfeld and second in Wolfen. Such places will matter in a federal election in September, which is expected to be tight. Bitterfeld-Wolfen has seen its population plummet from 75,000 in 1989 to 40,500 today. Even after administrators tore down blocks of flats, and cut floors off others, skeletal remains of buildings still await the wrecking ball. Nearly one building in five is empty. A grand Stalinist-era construc-



tion, once the town’s cultural palace, now stands deserted. Two-thirds of kindergartens and over half the schools have closed since 1990. The number of pupils finishing secondary school has fallen by half. Employers struggle to fill vacancies.

Apprentices—especially in service industries—are hard to find. The one booming industry, care, is desperate for more geriatricians, nurses and trainees. To help fill the gap, the local *Euro-Schulen*, a training institute, has turned to Vietnam. Having studied German in Hanoi, 16 young apprentices started this month, with 20 more expected soon. Nearby Dessau is setting up a similar arrangement with China.

Germany has long relied on migrants to make up for low fertility rates. Unusually high migration in recent years has more than offset the shrinkage of the native-born population. But the EU countries that have traditionally provided the migrants, such as Poland, are also ageing. Migrant flows will slow; competition for labour will increase. And Olga Pötzsch, from the Federal Statistical Office, argues that Germany will need far more migrants to stop population decline, which is predicted to accelerate from 2020.

Uwe Schulze, a senior local official, says that refugees are not filling the labour shortage. Of the 2,600-odd asylum-seekers who arrived in the area in 2015 and 2016, fewer than a third are now registered as

“capable of working” and only 40 are fully employed. From his wood-panelled office in a neoclassical building that once housed one of Europe’s largest colour-film makers, Armin Schenk, Bitterfeld-Wolfen’s mayor, says the problems are mostly to do with language, qualifications and uncertainty about asylum. Asked whether Afghans and Syrians could join the same programme as the Vietnamese, Liane Michaelis, from *Euro-Schulen*, forcefully shakes her head, citing educational, religious and ethical barriers for care jobs. She adds that “those who do have the right papers leave quickly”. According to the OECD, about half of asylum-seekers who started off in eastern Germany in the past moved to places such as Hamburg once they secured their permit.

With the odds seemingly stacked against it, Bitterfeld-Wolfen is at least trying. On a whirlwind tour of the town, Mr Schenk shows how the old coal mine was turned into a lake with a new marina and a promenade. He repeats the town’s mantra: “It’s all about offering good-quality life and leisure.” A brochure shows pictures of smiling children, yachts and tennis. Bitterfeld-Wolfen, it reads, is “one of the youngest cities in Germany”. But even if such marketing did stem departures (and in 2015, for the first time, inward migration slightly exceeded the outflow) the town is still shrinking; more than twice as many die each year as are born.

Across many parts of rural Europe mayors struggle with similar problems, wondering when to turn their school into a care home. By 2050 Greece, Italy, Poland, Portugal and Spain—which, unlike Germany, have all suffered net brain-drains—will be older than Germany by median age and will have shrunk substantially, according to the UN. Ageing and emigration are likely further to dampen growth in central and southern European countries, says the IMF. It calculates that by 2030 GDP per person in several countries may be 3-4% lower than it would have been without emigration.

Where Bitterfeld-Wolfen goes...

In Germany, however, the consequences are particularly acute. With a strong economy and a tight labour market, some employers already struggle to fill vacancies. BCG, a consultancy, predicts that by 2030 the country will be short of between 5m and 7m workers. The triple shock of a smaller workforce, increased social spending and the likely dampening effect of an older workforce on innovation and productivity will drag down future growth, predicts Oliver Holtemöller of the Leipzig Institute for Economic Research. These effects are stronger in the east, he adds. Productivity is 20% lower than in the west; the ageing population and continuing migration to the west will make economic convergence even less likely. ■

Free exchange | On balance

Why the Federal Reserve should keep its balance-sheet large

HOW much money should exist? The Federal Reserve must soon confront this deep question. The Fed has signalled that towards the end of 2017 it will probably begin to unwind quantitative easing (QE), the purchase of financial assets using newly created bank reserves. The central bank's balance-sheet swelled from about \$900bn on the eve of the financial crisis to about \$4.5trn by 2015 as it bought mortgage-backed securities and government debt (see chart). If and when the Fed shrinks its balance-sheet, it will also retire the new money it created.

Economists such as Milton Friedman popularised the study of the quantity of money in the 1960s and 1970s. By the financial crisis, however, the subject had gone out of fashion. The interest rate, it was agreed, was what mattered for the economy. The Fed varied the supply of bank reserves, but only to keep rates in the market for interbank loans where it wanted them to be.

The Fed's injection of emergency liquidity into financial markets in 2008, however, sent interest rates tumbling. To regain control, it started paying interest on excess reserves (ie, those reserves in excess of those required by regulation). Because banks should not lend for less than what the Fed offers, the new policy set a floor under rates in the interbank market. This held even as the Fed created still more liquidity with QE.

The new system means the Fed can vary the amount of money—for example, to provide emergency liquidity—without worrying about the effect on interest rates. Maintaining the set-up, as the Fed has hinted it might, means keeping banks saturated with reserves. Ricardo Reis of the London School of Economics estimates that doing so currently requires about \$1trn of reserves. Add Mr Reis's estimate to the roughly \$1.5trn of currency now in circulation and you get a minimum balance-sheet size of \$2.5trn, much greater than before the crisis. And that is before you consider the benefits of having still more money available.

In 1969 Friedman pointed out that holding money is costly. It means forgoing the risk-free return an investor can make by buying government bonds. Yet because people need money for transactions, everyone must pay this cost (deposits in current accounts rarely earn as much as bonds). Only if the return on money is somehow made equal to that of bonds does the inefficiency disappear. One way of making this happen is to create deflation, ie, to let money rise in value over time. Another is to make money bear interest. That is tricky with cash, but it is exactly what the Fed does when it pays interest on bank reserves.

The utility of interest-bearing money shows up in financial markets, where demand for money-like instruments is rampant. A paper by Robin Greenwood, Samuel Hanson and Jeremy Stein, all of Harvard, finds that such is the appetite for one-week Treasury bills that from 1983 to 2009 they yielded, on average, 72 basis points (hundredths of a percentage point) less than six-month bills (for comparison, the difference in yield today between a five-year Treasury and a ten-year one is below 50 basis points).

This poses a problem. The authors argue that when there is not enough money, the private sector steps in, by issuing very short-term debt like asset-backed commercial paper. Unfortunately, such instruments can cause crises. A run on money-market funds, which had gorged on short-term private debt, was central to the meltdown in financial markets in late 2008. After one infamously “broke the buck” by lowering its share price to less than a dollar, the government guaranteed all such funds.

Follow the money

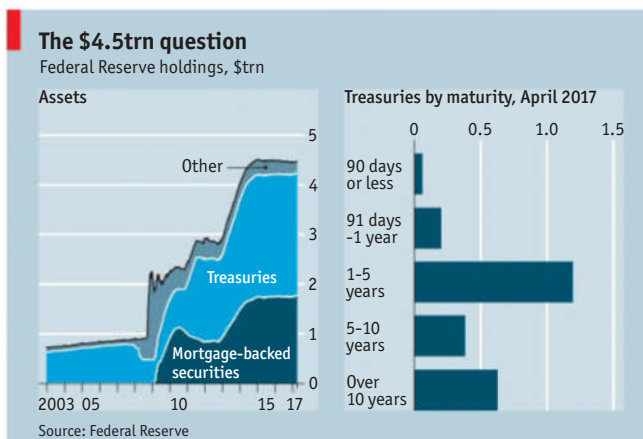
More money, then, can increase financial stability as well as economic efficiency. Set against these benefits are the costs of the Fed's intervention in—or perhaps distortion of—financial markets. The goal of QE was to provide only a temporary economic boost. How, exactly, it did so is uncertain; on a strict reading of economic theory, it should not have worked. Yet the evidence suggests that QE brought down long-term bond yields (perhaps by signalling that policy would be loose for a long time). With the Fed now raising short-term rates, shouldn't it nudge long-term rates up, too?

Perhaps. Yet it may be possible to do so without shrinking the balance-sheet, and hence without retiring any money. About a quarter of the Fed's Treasuries mature in more than a decade (see chart). The Fed could swap these for shorter-term securities, reversing an earlier policy dubbed “Operation Twist”. At the same time, it could replace its portfolio of mortgage-backed securities—which it has no good reason to hang on to—with more Treasuries.

Maintaining a large balance-sheet may seem radical—until you consider a possible next step. Friedman wrote mainly about consumers' need for money, not banks'. Why not let individuals and firms open accounts at the Fed, and also reap the benefits of interest-bearing money? Doing so would swell the Fed's balance-sheet, but eliminate still more inefficiencies. For example, it would encourage firms to hold more money, reducing the need for zealous cash-management strategies such as delaying payments to suppliers. As with QE, such a policy should not be inflationary, so long as the Fed maintained control of interest rates.

The idea is similar to one with its own name: narrow banking, which calls for all consumer deposits to be backed by safe government debt, rather than illiquid long-term loans. Narrow banking has a long history of appealing to economic luminaries, including Friedman, because it seems to end the problem of bank runs. Critics say that, by depriving banks of a source of cheap funds, narrow banking would starve the economy of credit. Supporters reply that the central bank could always lower interest rates or buy more assets to compensate.

Such a profound change to finance is not on the horizon. But the Fed may keep its balance-sheet significantly larger than it was before the crisis, even if it partly unwinds QE. Given the benefits of abundant money, that would be cause for cheer. ■





Marine biology

Mapping the mesopelagic

WOODS HOLE

One of the least-understood parts of the sea is also one of the most important. It damps down global warming and may soon help feed humanity

FEW have heard of the mesopelagic. It is a layer of the ocean, a few hundred metres below the surface, where little light penetrates, so algae do not live. But it is home to animals in abundance. There are bristlemouths: finger-sized fish with gaping maws that sport arrays of needle-like teeth. They number in the quadrillions, and may be the most numerous vertebrates on Earth. There are appendicularians: free-swimming relatives of sea-squirts a few millimetres across. They build gelatinous houses several times their body-size, to filter food from the water. There are dragonfish (pictured). They have luminescent spotlamps which project beams of red light that they can see, but their prey cannot. There are even squid and swordfish—creatures at least familiar from the fishmonger's slab.

And soon there will be nets. Having pilaged shallower waters, the world's fishing powers are looking to the mesopelagic as a new frontier. The UN's Food and Agriculture Organisation reported in 2002 that the fish-meal and fish-oil industries would need to exploit this part of the ocean in order to feed fish farms. In the past nine months Norway has issued 46 new licences for vessels to fish there. In September the government of Sindh, a province that is home to most of Pakistan's fishing fleet, issued a draft policy on licensing mesopelagic fishing in its waters. And at the North Atlantic Seafood Forum, held in

March, in Bergen, Norway's principal port, the session about fishing the mesopelagic was entitled "the Big Apple".

On the face of things, biting that apple seems a good idea. The mesopelagic is home to 10bn tonnes of animals. Cropping a mere 1% of this each year would double the landed catch of the ocean's fisheries. Most of this catch would probably not appeal to human palates. But fish farmers and meal merchants would lap it up.

The mesopelagic also, however, acts as a carbon pump. Every year it pulls between 5bn and 12bn tonnes of that element out of the surface waters and into the depths, where there is a vast reservoir of the stuff. Though currents which well up from that reservoir return a similar amount of carbon to the shallows, this cycle still plays an important role as a counterbalance to man-made global warming.

Deep waters

To try to understand the mesopelagic better, the Woods Hole Oceanographic Institute (WHOI) in Massachusetts, NASA, America's space agency, and Norway's Institute of Marine Research are all embarking on projects to study it. As ecosystems go, it is an odd one. Its inhabitants are in a state of perpetual migration, rising to the surface at night to feed, then returning to depths of between 200 metres and 1km at dawn, to escape predation. It is this migration, the biggest in the world, that drives

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the carbon pump. The nocturnal feasting consumes prodigious amounts of that climate-changing element in the form of small, planktonic creatures. Then, during the day, the feasters release part of what they have consumed as faeces. Some of them also die. These faeces and bodies fall through the water column as what is known as marine snow, and accumulate at the bottom. Without mesopelagic predators, far more plankton would die in the surface waters, their bodily carbon returned rapidly to the atmosphere. The vast harmless reservoir of carbon in the depths would thus be a little smaller; the damaging burden of atmospheric carbon a good bit greater.

Until now, the only sensible way to probe mesopelagic activity has been by sonar. This is, indeed, how the zone was discovered, in 1942, by an American anti-submarine research project. From their earliest days such soundings suggested a lot of creatures live in the mesopelagic. They are sufficiently abundant that the equipment then available saw the zone as a "false bottom", beneath which sonar could not penetrate and submarines might thus hide. But it was subsequent probing by a Spanish expedition, the Malaspina circumnavigation in 2010, which came up with the current 10bn-tonne estimate and showed just how big a part of Earth's biosphere the mesopelagic actually is.

Sonar is still important for investigating the zone. Norway, which has long paid attention to the sustainability of its fishing operations, will launch the third incarnation of *Dr. Fridtjof Nansen*, the flagship of its marine-research fleet, in May, with an explicit focus on mapping and understanding mesopelagic life using the most advanced civilian sonar available. But sonar can see only so much. WHOI's goal is to study the zone using robots, which the in- ▶▶

▶stitute's engineers are now constructing.

The largest of these planned devices is called *Deep See*. It is a sensor-packed underwater sled weighing about 700kg. One of WHOI's research vessels will tow *Deep See* through the mesopelagic, gathering wide-angle camera footage and environmental data. When the probe spots something, a second robot will swim down from the research vessel to explore.

This second device, *Mesobot*, weighs 75kg and is shaped like a bar of soap. Unlike *Deep See*, *Mesobot* will run untethered. It is designed to hang in the water column and observe mesopelagic life for extended periods, in particular by using high-definition cameras to track animals up and down during their daily migration. WHOI's roboticists are paying special attention to *Mesobot*'s thrusters, ensuring that they do not disturb the life the probe is trying to video. It will be the first time that the behaviour of mesopelagic animals has been recorded in a natural setting. *Mesobot* will also have a special sieve for capturing organisms in a way that preserves them from the disruptive pressure change associated with surfacing.

WHOI's third type of mesopelagic robot will be disposable probes called *Snowclops*. These will sink through the water column, measuring the amount of marine snow at various depths. On its way down, snow is a potential source of food for other animals. Recording its fate at different levels is thus crucial to understanding how the carbon pump works.

Combining data from these three types of robots will paint a more accurate picture of life in the mesopelagic, and thus of its importance to matters climatic. In collaboration with NASA, WHOI also hopes to find variables that are observable by satellite and that correlate with the health of the mesopelagic and the size of its carbon flux. The principal satellite involved here, if it can survive the Trump administration's budget proposal to cut its funding to zero, will be *PACE* (short for Plankton, Aerosol, Cloud, ocean Ecosystem). This is scheduled for launch in 2022. Though *PACE* will not be able to see directly into the mesopelagic, it will be able to measure, from the spectrum of light reflected from the ocean, things like rates of plankton consumption.

The forthcoming decade should, then, serve to start answering the question of how much fishing of the mesopelagic can be undertaken without disrupting it—and with it, its role in climate regulation. Once the fleets start hauling in their catches, the temptation will be to collect more and more. History shows that such piscatorial free-for-alls usually end badly. In the case of the mesopelagic, though, regulators will start with a clean slate, and thus a rare opportunity to agree in advance a way of stopping that happening. Whether they will take it is another matter. ■



Icebreakers

Making waves

The quickest way to break the ice is by submarine

ARCTIC sea-ice is melting. For many that is a source of alarm. But for others, the ice is still not melting fast enough. They would like to give it a helping hand. Clear lanes through the Arctic ocean would permit commercial and naval shipping to travel quickly between the Atlantic and the Pacific. These lanes might also assist the search for oil and gas.

The Russian authorities seem particularly keen on the idea. Last year they launched *Arktika*, the first of three giant, new nuclear-powered icebreakers intended to help open such routes. But some people think this approach—bludgeoning through the ice with what is, in essence, an armour-plated knife—is old-fashioned. They believe the job could be done faster and more elegantly using a piece of physics called flexural gravity-wave resonance. If they are right, the icebreakers of tomorrow might be submarines.

Resonance icebreaking was discovered in 1974 by Canada's coast guard, when it began using icebreaking hovercraft able to operate in waters too shallow for conventional icebreakers. At low speeds, these craft work much as icebreaking ships do, by forcing sections of pack-ice in front of their bows to rise up and detach themselves from the main sheet. When travelling above 20kph, though, they cause oscillations, known as flexural gravity waves, in the ice sheet they have passed over. At the correct speed of passage these waves hit a resonant frequency—increasing in amplitude as the critical speed is maintained until, at an amplitude dependent on

the thickness of the sheet, that sheet will crack up and disintegrate, leaving a navigable passage behind.

For things like freeing river mouths of ice, this approach can work well. But hovercraft skirts are easily damaged by ridged ice (the sort that forms when previously broken ice refreezes), so the vehicles cannot be used in places that require frequent clearance. Also, resonance-breaking by hovercraft does not work for ice sheets more than about a metre thick.

That limit is, however, no constraint on the thinking of researchers led by Viktor Kozin of the Komsomolsk-on-Amur State Technical University, in Russia. Dr Kozin and his team have been investigating resonance icebreaking since the 1990s. But, instead of hovercraft, they use submarines.

Dr Kozin's original research was on ways to permit naval submarines to surface safely and quickly through ice, the previous method having been simply to rise until contact was made with the ice sheet and then increase buoyancy until the ice cracked (as an American vessel is pictured doing above). That, though, is slow and can damage the boat. Dr Kozin found that the bow wave from a submarine travelling close to the surface pushes the ice sheet upwards, making flexural gravity waves in it, which cause it to break up.

Follow-up studies by Dr Kozin and his pupil, Vitaliy Zemlyak, who is now at the Sholem-Aleichem Priamursky State University in Birobidzhan, indicate that a submarine travelling 30 metres below the ice can break a sheet one metre thick. At 20 me- ▶▶

► tres it could break ice two metres thick. And it can do it quickly. Comparable data are not available for *Arktika*, but America's heavy icebreaker, *Polar Star*, can break a channel through two-metre ice at a rate of three knots. A submarine could force such a passage ten times as fast.

Dr Kozin and Dr Zemlyak have also found that the area of ice broken can be increased greatly by using two submarines moving together on parallel courses, and they are now looking at increasing the pressure exerted on the ice still further, by adding wedges, spoilers and vortex generators to a submarine, or even installing an impeller, a giant propeller mounted horizontally. Experiments on these ideas will start next winter.

Building new submarines to act as icebreakers would be a huge investment. But here, Russia may have a short cut. It tends to retire its naval submarines faster than America does. At the moment such boats are normally consigned to the scrapyard. Turning them into icebreakers to open up the Arctic might give them a second life. ■

High-security locks

Forging the unforgeable

A key that can't be copied (probably)

KEYS have been around for a long time. The earliest, made from wood, date back 4,000 years, to the ancient Egyptians. The Romans improved them a bit by making them from metal. But there, more or less, they have stayed. Electronic card-keys aside, a key is still, basically, a piece of metal sporting a series of grooves, teeth and indentations which, when inserted into a keyway, line up to move pins and levers to lock or unlock a mechanism.

Such keys are made with conventional manufacturing techniques, such as cutting and stamping. But now there is a new way, in the form of 3D printing, to craft metal objects. And keys are about to succumb to it, to the great benefit of keyholders.

A 3D printer works by melting together layers of material that are added successively to the object being created. It can thus make something from the inside out, as it were, by printing intricate internal features and then covering them with a solid layer. Features shielded from view are extremely difficult to copy, let alone reproduce using normal machine tools. What better way to reinvent the key, reckoned Alejandro Ojeda, a mechanical engineer who at the time was studying at the Swiss Federal Institute of Technology, in Zurich, than to 3D-print it in this way.

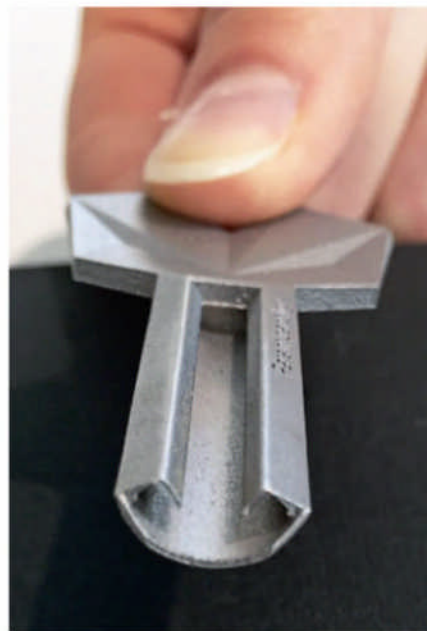
What prompted his interest is how simple it is to copy most keys: a few minutes at a local key shop will usually suffice. And copying is getting easier. It is now possible to take a picture of a key with a smartphone and turn the image into a computer file that can be used to make a replica with the aid of a cheap, hobbyist 3D printer. The resulting duplicate will probably be printed in plastic, and thus lack durability. But it is likely to be good enough to work at least once—and once might be enough.

Dr Ojeda's answer is the Stealth Key (pictured). This is printed in titanium, one of the toughest of metals. Its teeth are hidden under a pair of narrow ledges, making it unscannable. But when inserted into the lock the teeth can operate the mechanism.

To bring the Stealth Key to market, Dr Ojeda teamed up with Felix Reinert, an expert on 3D-printing metal, to found a firm called UrbanAlps. Jiri Holda, a lock designer, joined them to help devise a keymaking process that employs an industrial 3D-printing system called selective laser melting (SLM). This is currently used to make high-strength components for jet engines and gas turbines. Indeed, it was these uses, which also involve printing a lot of concealed detail, that gave Dr Ojeda his key-printing idea in the first place.

SLM, as its name suggests, uses a laser to fuse the layers of metallic powder of which the object being printed is made. It is good at its job, but slow. It takes only seconds to cut a conventional key, but making a Stealth Key can occupy the best part of a day. UrbanAlps' SLM machine does, however, print 850 of them at a time—each, naturally, different from the others.

Stealth keys are not cheap. A pair, together with a lock mechanism (made the conventional way), cost about \$200. But



Hidden depths

UrbanAlps' founders hope the added security they bring will make them attractive—probably to industrial customers to start with, and to the general public as padlocks. They do have a downside, though. If you lose one, getting a replacement will involve a security check, because only UrbanAlps has the digital-design file for the original. And a duplicate will take another day in the 3D printer. ■

Gut microbes and the brain

Bad medicine

Dosing pregnant mice with penicillin changes their offspring's behaviour

THE symbiosis between human beings and the bacteria dwelling in their guts is a delicate thing. When it works well, both sides benefit. The bugs get a comfy home. The hosts get help with their digestion, making more food available than otherwise would be. If relations are upset, though, bad consequences may flow. Both obesity and malnutrition can be exacerbated by the wrong gut bacteria. Illnesses such as asthma and eczema are linked to a lack of certain bugs from an infant's intestines. And there is evidence, from experiments on mice, that an absence of gut flora affects the development of the brain. Such absence weakens the blood-brain barrier, which normally helps to keep foreign material out of that organ. It also seems to make animals less sociable than would otherwise be expected.

The experiments which show these brain and behavioural changes have, though, either been done on mice raised in sterile conditions or on ones that have had their alimentary bacterial ecosystems "nuked" with antibiotics in high dose—far higher, pro rata, than would be administered to a human for medical reasons. The next stage is to test whether anything similar happens to mice fed more realistic doses of antibiotics. And this is what Sophie Leclercq of McMaster University, in Hamilton, Ontario, has now done.

Dr Leclercq and her colleagues, who have just published their results in *Nature Communications*, laced the drinking water of some pregnant female mice with medically appropriate levels of penicillin, starting a week before those females were due to give birth, and carrying on three weeks after birth, to the point where their offspring were weaned (penicillin is known to be transferred from mother to pup in milk). One group of mothers-to-be had only the antibiotic added to their water. A second had a bacterium called *Lactobacillus rhamnosus*, a so-called probiotic that ►►

has been demonstrated experimentally to be good for the intestinal health of mice, added as well. A third group of expectant mothers were given their drinking water unadulterated. Twenty-five pups were born to mothers in the first group, 19 to the second and 28 to the third.

Six weeks *post partum*, the researchers tested the sociability of the various offspring by putting them, one at a time, for ten minutes, into a small, Y-shaped tunnel with two chambers at the ends. One chamber contained another mouse, of the same sex as the experimental animal, held in a small wire cage. The second contained an empty cage.

The team found that, when released into this apparatus, the offspring of mothers exposed only to penicillin preferred to be alone. They spent more time in the empty chamber (four and a half minutes, on average) than in the chamber containing another mouse (three and three-quarter minutes). Those born of mothers exposed neither to penicillin nor to *Lactobacillus* showed the reverse pattern, averaging only three and a half minutes in the empty chamber and almost five in the chamber that gave them company. Those mice born of mothers given both penicillin and *Lactobacillus* fell between these extremes, averaging a bit under four and a half minutes in the chamber that gave them company, and three and three-quarters in the empty one. In all cases there was no significant difference between the sexes.

Dr Leclercq got similar results when she tested the preferences of her mice for social novelty. She did this by letting them choose, in the tunnel, between a new mouse and the one they had already met. She found those exposed to penicillin alone less interested in the new mouse than those exposed to both penicillin and *Lactobacillus*, or to neither.

She also found that exposure to penicillin alone made male mice more aggressive. She arranged for males in the experiment to be threatened by an unfamiliar male belonging to a strain known for being big and hostile. Males born of mothers given unadulterated drinking water all quickly assumed a submissive posture when confronted with such a stranger. Half of the males born of mothers treated with the antibiotic did not, however, submit. Indeed, they fought back even though they were clearly outmatched—as did a fifth of the males whose mothers had been treated simultaneously with the antibiotic and *Lactobacillus*.

All these results are in line with the hypothesis that low doses of antibiotic affect behaviour similarly to high doses. So, when Dr Leclercq and her colleagues killed and examined their animals shortly after the behavioural tests, they expected to see permeable blood-brain barriers in the mice exposed to penicillin. But they did

not. They actually saw the reverse: the blood-brain barriers of mice exposed solely to penicillin were far less permeable than those of the other two groups.

What is going on—and, in particular, what relationship (if any) exists between the effects of gut flora on the blood-brain barrier and on behaviour—remains to be seen. But Dr Leclercq and her colleagues have demonstrated that medically relevant doses of penicillin, even when administered via the mother rather than directly, can have palpable effects on young mice. Whether the same applies to young people, just before or after birth, is surely a matter worth investigating. ■



The science of shoelaces

A knotty problem

Three Californian engineers have found out how laces come undone

ENGINEERING brings great benefit to humanity, from aircraft to bicycles and from bridges to computer chips. It has, though, had difficulty creating a shoelace that does not accidentally come loose. At least in part, this is because no one has truly understood why shoelaces come undone in the first place. But that crucial gap in human knowledge has just been plugged. As they report in the *Proceedings of the Royal Society*, Christopher Daily-Diamond, Christine Gregg and Oliver O'Reilly, a group of engineers at the University of California, Berkeley, have now worked out the mechanics of shoelace bow disintegration.

A shoelace bow is a type of slip knot that has, at its core, a reef knot. Like conventional reef knots, bows can be mistied as “granny” knots, which come undone more

easily than a true reef does. But even a shoelace bow with a true reef at its core will fail eventually, and have to be retied.

Walking involves two mechanical processes, both of which might be expected to exert forces on a shoelace bow. One is the forward and back movement of the leg. The other is the impact of the shoe itself hitting the ground. Preliminary experiments carried out by Mr Daily-Diamond, Ms Gregg and Dr O'Reilly showed that neither of these alone is enough to persuade a bow to unravel. Both are needed. So they had to devise experiments which could measure and record what was going on while someone was actually walking.

The “someone” in question was Ms Gregg, who endured numerous sessions on a treadmill so that the behaviour of her shoelaces could be monitored. Using cameras, and also tiny accelerometers attached to the laces, the researchers realised that two things are important. One is how the act of walking deforms the reef at the centre of a bow. The other is how the different inertial forces on the straight-ended and looped extremities of the bow conspire to pull the lace though the reef in the way a wearer would when taking a shoe off.

The first thing which happens during walking is that the reef itself is loosened by the inertial forces of the lace ends pulling on it. This occurs as a walker's foot moves first forward and then backward as it hits the ground during a stride. Immediately after that, the shock of impact distorts the reef still further. The combination of pull and distortion loosens the reef's grip on the lace, permitting it to slip.

In principle, the lace could slip either way, giving an equal chance of the bow eventually undoing completely or turning into a non-slip knot of the sort that long fingernails are needed to deal with. In practice, the former is far more common. The reason turns out to be that the free ends of the bow can swing farther than the looped ends do. The extra inertial force this causes favours slippage in the direction of the longer of the free ends. To start with, the effect is small. But as the free end in question continues to elongate, the disparity in inertial force gets bigger—and, eventually, only two or three strides are needed to take a shoe from being apparently securely tied to being untied.

Probably, nothing can be done about this differential elongation. But it might be possible to use the insights Mr Daily-Diamond, Ms Gregg and Dr O'Reilly have provided to create laces that restrict the distortion of the reef at a bow's centre, and thus slow the whole process down. Regardless of any practical benefit, though, the three researchers, are surely contenders for an Ig Nobel prize. That award is made every year for work which “first makes you laugh, and then makes you think”. Their study of laces looks like a shoo-in. ■



Refugees

The forgotten millions

How to improve prospects for refugees

THE European migration crisis of 2015 quickly turned into a morality play. Liberals lined railway platforms to welcome refugees, while their nativist foes warned of chaos and terrorism. Lost in the row were the millions of refugees who stayed in the developing world, unwilling or unable to journey to richer countries. The boats disgorging Syrians and Afghans onto Greek islands delivered one of the most serious emergencies the European Union has ever known. But according to a new book, they were a sideshow.

The starting point of “Refuge” by Alexander Betts and Paul Collier, a refugee expert and a development economist, is the plight of the 86% of refugees who live in poor countries. The outlook for most is grim. Although the number of people displaced by conflict or persecution (including those forced to flee inside their own countries) is at a post-war high of 65m, more salient is the length of their exile: about half the world’s refugees have endured their status for more than five years.

Take Syria’s civil war, six years old with no end in sight. Most of the 4m Syrian refugees languishing in neighbouring Turkey, Jordan and Lebanon cannot return home. But they struggle to find decent work or educate their children in the towns and cities to which most have flocked (the small numbers in camps have even fewer options). Any visitor to places like the Bekaa valley in Lebanon will quickly see the

Refuge: Transforming a Broken Refugee System. By Alexander Betts and Paul Collier. *Allen Lane; 265 pages; £20. To be published in America by OUP in September*

hopelessness that sets in when refugees are denied a stake in their own future.

The UN’s refugee body (UNHCR) has a legal mandate to help, but it is chronically underfunded and increasingly irrelevant. Under the prevailing “care and maintenance” model, the UNHCR and its partner agencies act as surrogate states, keeping refugees in limbo for years. That suits rich countries, which pay to keep refugees away, and allays the economic and security fears of their hosts. But it creates lost generations—the third generation of Somali refugees in the vast Dadaab agglomeration in Kenya (pictured) now numbers 10,000—and does nothing for the refugees who are not in camps. The big argument of “Refuge” is that refugees should be given jobs rather than coddled as victims, and that governments should harness the forces of globalisation and capitalism to help.

The authors’ Eureka moment came in Jordan in 2015, when they were shown a low-tax “special economic zone” (of the sort popular in parts of Asia) near Zaatari, a refugee camp. The camp “reeked of lives on hold”, while the zone needed workers. The answer seemed obvious: alongside nationals, refugees should be put to work.

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Done well, the authors argue hopefully, this approach can align the interests of refugees, donors and host countries. To test their ideas Messrs Betts and Collier have helped establish a pilot scheme in Jordan, with help from Western governments (the EU has offered trade concessions) and companies like Asda, a British supermarket, which uses suppliers that hire refugees in the zone. Results so far are mixed, although it is early days. Different solutions can be found for other countries. In some parts of Africa, for example, refugees can be given arable land to farm; Uganda has found success with this approach. When peace returns at home, refugees can return. If it doesn’t, after a set period they should be allowed to naturalise.

Where does the West fit in? The authors slam Angela Merkel, Germany’s chancellor, for triggering huge movements of refugees and migrants to Europe by relaxing entry rules for Syrians in August 2015. The charge is unfair. Mrs Merkel’s decision was as much consequence as cause: the exodus was well under way by the summer. A striking claim that Germany’s decisions “may have” intensified the violence in Syria is presented without evidence.

The authors are on steadier ground when they note the high price of European generosity. Sweden, for example, has diverted half its foreign-aid budget to pay for refugees at home; thus the world’s poorest are in effect subsidising their more fortunate brethren in Sweden’s expensive asylum system. The drain has lost Syria its brightest, crimping its chances of post-conflict recovery. Rather than argue for rich countries to take in ever more refugees, the authors urge them to offer political and economic help to “havens” like Jordan and Kenya, including financial incentives for firms to invest.

This will unsettle those who despair at ►►

▶ Europe's inability to handle a refugee influx of 1m when its poorer neighbours cope with far higher numbers. Perhaps a bigger problem is that "Refugee" provides no guide on how to handle today's mixed flows of economic migrants and refugees. Unlike many advocacy groups, the authors are careful (and right) to distinguish the two. But the people smugglers in Libya who haul Eritreans onto boats together with Nigerians and Bangladeshis do not, creating headaches for European governments.

"Refugee" suffers from poor editing; it is wearily repetitive and dotted with errors (Mrs Merkel has not, for example, imposed a cap on refugees). A few eyebrows will also be raised at the claim that Europe's refugee flows were responsible for Britain's vote to leave the EU. But this should not detract from the humanity of a book that places the long-term needs of the world's refugees at its heart. "Refugee" is the first comprehensive attempt in years to re-think from first principles a system hide-bound by old thinking and hand-wringing. Its ideas demand a hearing. ■

A very Victorian marriage

To have and to hold

Jane Welsh Carlyle and Her Victorian World: A Story of Love, Work, Friendship, and Marriage. By Kathy Chamberlain. *Duckworth Overlook*; 398 pages; \$37.50 and £25

"SOME kind of angel married to some kind of god!" So seemed Jane Welsh Carlyle and her husband, Thomas, to a friend in 1845. Her wit and his fame—as the author of "The French Revolution" (1837) and "On Heroes, Hero-Worship and the Heroic in History" (1841), among other books—had shot them into the literary firmament. Poets, novelists, philosophers and revolutionaries all beat a path to their door in Cheyne Row, Chelsea.

But the image was a fantasy. Thomas was a curmudgeon, a "self-tortured, aggravating mystery of a man" as Kathy Chamberlain writes in her new book, and a prize chauvinist besides. "The Man should rule in the house and not the Woman," he warned his bride-to-be. But Jane was a born ironist with "a genius", she said later, "for not being ruled!" No angel then, but fun. One friend saw dinner guests seated beside her "in incessant fits of laughter!", and her letters echo her talk—mocking, self-mocking, mercurial, "splashing off whatever is on my mind", in Jane's words.

Letters are the stuff of this engaging book. Though the marriage was not happy (Ms Chamberlain is wary of tales that it was unconsummated), Thomas and Jane

wrote constantly whenever separated—curiously in need of each other, the author observes, and "attuned...to each other's words". Wisely, Ms Chamberlain focuses on a few interesting years, 1843 to 1849, a time of revolution. Her book is crowded with people and stories—overcrowded even, and a little rough at the edges. But one persistent and fascinating thread is Jane's search for what she called her "I-ity", her "self-subsisting and alas! self-seeking Me". Sometimes it was a craving for confirmation; she glowed after a visit from Alfred Lord Tennyson to "talk with me! by myself me!" Sometimes it was a longing for a mission, a purpose.

Above all, it was her need to write. She knew her worth. When Thomas praised her "charming bits of Letters", she flew at him: "as if I were some nice little Child writing...to its God papa...let us hear no more of my bits of Letters". She was after bigger fish—authenticity, "as it flies", she wrote. Chiding a cousin for her reserve, she demanded "the real transcript of your mind at the moment": "if a sadness, or a longing, or a perplexity, or a bedeviledness falls on you...then down with it on paper—tho' only six lines or six words".

Jane never published. She could cope with the "transcript" only in private; couldn't even write it down, she said, if there was anyone else in the room. A draft novel by two friends shocked her precisely by its authenticity: by the "exposure of their whole minds naked as before the fall". With one brief exception, the thought of publication froze her own attempts at formal writing. But then there was always someone in the room—Thomas's heroes gazing from the shelves, high among them the writer himself, "The Hero as Man of Letters", hailed by him as "our most important modern person". No wonder she kept her head down. ■



No underdog

New fiction

The animal within

How to be Human. By Paula Coccozza. *Hutchinson*; 308 pages; £12.99. To be published in America by Metropolitan in May

IN A patch of east London, somewhere between the urban and the wild, a love triangle emerges—between a woman, her ex-boyfriend and a fox. This is the premise of "How to be Human", a debut novel by Paula Coccozza, a British journalist. It is a thrilling psychodrama that twists and turns with the residents of a few houses and their adjacent woods.

Mary, the story's protagonist, has broken up with Mark, her domineering fiancé, but their destructive relationship has sucked her life dry. Then a fox arrives in her unkempt garden; at first he is a pest and then a friend. He brings her "gifts", which she finds increasingly full of meaning: a pair of boxer shorts, a gardening glove, an egg. Everything normal in her life starts to slip, but she has something far more valuable, "her fox".

As with other works that cross the bestial line—the horse fixation in Peter Shaffer's "Equus" or "The Goat or Who Is Sylvia?" by Edward Albee—this is a disturbing narrative about sanity and obsession. But Ms Coccozza makes a further point about the supposed civility of humans. Are people's urban lives natural? She brilliantly captures a sense of Hitchcockian, curtain-twitching intensity as Mary and her terraced neighbours struggle to escape each other. While Mary, through the wall, hears Michelle's sobs, induced by postnatal depression, Michelle lashes out at Mary, "You think I haven't seen you... creeping around at night."

In pleasant contrast to this claustrophobic human world comes that of the book's vulpine star, known as "Red", "Flight", "Sunset" or "Fox". In lyrical, disjointed prose Ms Coccozza describes how he naps, eats beetles and scents the neighbourhood; spraying, wiping, squeezing, twisting and dropping his "amazing smell cloud". He conducts himself in a far more refined manner than the humans, who get drunk, become abusive, throw things and try to control one another.

Mary embraces the freedom of the feral; but as her walk to the wilder side progresses, it becomes unclear whether this is the cure she needs or if things are spiralling dangerously out of control. Like the scent of a fox, truth and fact in "How to be Human" start to evaporate. What is left behind is a pervasive sense that beneath the veneer of civility, something wilder is always lurking. ■

Damien Hirst

From the heart of the sea

VENICE

Covered in barnacles and encrustations, Damien Hirst's new art is exquisitely crafted. Collectors should be careful, though; art is easy to buy, but hard to sell

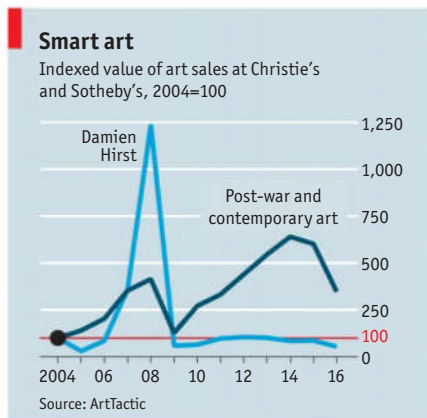
AN OBSESSIVE art collector, Cif Amotan II, loads a ship, the *Apistos*, with treasures for a temple to the sun. But the ship is wrecked at sea. And the treasures? Forgotten, until recently, when they were rediscovered, retrieved, restored and put on show. That is the conceit behind Damien Hirst's new exhibition, "Treasures from the Wreck of the Unbelievable", a fantastical adventure across Venice at Palazzo Grassi and Punta della Dogana, the landmark galleries created by François Pinault, a French billionaire who made his money from luxury goods.

Just inside the main entrance of Palazzo Grassi a huge bronze head grimaces on the floor. Beside it, dominating the atrium, is an 18m-tall headless demon adorned with worms and sea plants. The rest of this part of the show is more domestic in scale, reflecting the building's history as a luxurious mansion: intricate silver *objets d'art*; pharaonic busts in marble and granite; a sculpture of Mr Hirst himself as the mythical collector. By contrast, the works in the Punta della Dogana, the city's former customs house, are bigger: room-sized sculptures of warriors covered in coral, a darkened gallery filled with gold in glittering glass cases. Think Tomb Raider-meets-the Metropolitan Museum of Art.

Despite the story about the shipwreck, these artworks were actually made in Mr Hirst's studios in Britain and by highly trained European craftsmen, and deposited in the Indian Ocean—off Mozambique, it is believed—where they were filmed being lifted out of the sand. Excerpts and stills from the film are shown in both venues.

Other than a small and much-derided exhibition of his paintings, "Treasures" is Mr Hirst's first significant show of new work since 2008, when his market fell dramatically in the wake of an extended two-day auction at Sotheby's that coincided with the start of the financial crash. The art world—which will soon descend en masse for the Venice Biennale—has been alive with speculation that the exhibition will mark a return to critical and commercial form. The show, which continues until December 3rd, is Hollywood-epic in scale, 190 sculptures in 50 rooms—and it's all for sale.

When he became well known, in the 1990s, Mr Hirst could do no wrong, creating the works that would make him famous: spot paintings, medicine cabinets and animals in formaldehyde. In the 2000s he defined the booming art market. In 2007 a pill



cabinet sold for \$19.2m, making him the most expensive living artist at auction.

For a long time Mr Hirst had followed art-market convention, selling his new work discreetly through his main dealers, Jay Jopling and Larry Gagosian, in an arrangement known as the "primary market". Auctions, which are part of the "secondary market", resell old work rather than fresh work that has never been sold before. Artists make their money from the primary market, but they earn nothing from secondary-market sales other than the tiny percentage that comes from *droit de suite*, or "artists' resale rights".

In 2008, Mr Hirst broke all the rules. He took over Sotheby's London headquarters for "Beautiful Inside My Head Forever", a two-day auction of 244 new works that fetched \$201m, most of which, after fees and expenses, went to him. Some critics were virulent; others thought it commercially astute and conceptually brilliant.

Yet Mr Hirst has never repeated the exercise. That may be because, even after nearly a decade, the art market is still trying to digest the Sotheby's sale. Very few works from the "Beautiful" auction have come back onto the market, and those that have have not done well. In March, a spinkull painting from the auction was resold at auction for £449,000 (\$545,565), just two-thirds of the sterling price it made in 2008 (and less than half the dollar price).

Collectors who don't need to sell are holding on to their works, and the Hirst auction market has shrunk considerably. In 2008, the year of the Sotheby's sale, \$223.3m-worth of Hirst work was sold at auction; a year later, with the onset of the financial crisis, volume had slumped to \$14.6m. The artist's auction sales in 2016 were lower than in 2009.

Mr Hirst, meanwhile, has continued to flourish. In a rare admission, White Cube, Mr Hirst's London gallery, revealed in 2013 that worldwide sales of his new work the year before had come to \$110m. Most artists split primary sales equally with their galleries; but Mr Hirst has negotiating power and it is likely he retains more than 50% of any sale, perhaps as much as 75%. The average value of Mr Hirst's auction sales has been relatively consistent since 2009, at just over \$17m a year, according to ArtTactic, a specialist research firm. If his primary-market sales in 2012 were similarly ▶▶



The doges would have loved it

▶ consistent, then Mr Hirst has been making plenty of money. Which is lucky, because he has certainly been spending it.

The Venice show may be the most ambitious exhibition ever mounted by an artist. Mr Hirst says the work cost him more than £50m to make, and Mr Pinault has paid several million more to exhibit it. Mr Hirst clearly is not short of cash. In 2014 he bought a mansion in Regent's Park, north London, for almost £40m. He has spent years renovating a large historic house, Toddington Manor, in Gloucestershire. He runs large studio operations and has a world-class art collection of more than

3,000 works. In 2015 he opened a £25m London gallery with 25 staff, to show his collection to the public free of charge.

Early visitors to the Venice show, mostly critics and the press, were divided in their reactions. The *Guardian* called it a "titanic return to form", the *Times* "a wreck... [that] should be dumped at sea". Francesco Bonami, a respected curator, says: "There is the art world and beyond that another universe, the real world, where people love his work. I know [this show] will be a huge public success." Mr Hirst enjoys household recognition, which may explain why the *Daily Mail*, a British tabloid newspaper

with little interest in art, sent a team of people to cover the opening. He makes and sells thousands of inexpensive prints, making his work accessible to almost all, and his retrospective at Tate Modern in 2012 was one of the museum's most popular shows.

Meanwhile Mr Hirst's dealers have been offering sculptures from the show for between \$500,000 and \$5m. Many pieces, totalling tens of millions of dollars, are already believed to have sold. If true, then Mr Hirst's loyal collectors have already cast their ballot on the show, critical approval or no. ■

Johnson | Gender bender

Another chapter in the never-ending debate about gender and power

LANGUAGES often force awkward choices. In English, you can say "someone left his umbrella" and risk annoying some women, or "someone left their umbrella" and risk alienating some grammar sticklers. In French, *son parapluie* can mean either "his" or "her" umbrella.

But this hardly means there are no problems with gender, sex and politics in France. The French language requires a gender for every single noun and adjective: not only men and women, bulls and cows, but also tables and chairs, rocks and bricks. (The French for "gender" is *genre*, which also means "class" or "type", as it does in English.) A noun's gender rarely has anything to do with its real-world qualities: there's not much feminine about *la table*, or anything macho about *le chapeau* (hat).

But it happens that titles of powerful people, unlike the genders of hats and tables, are not random: it's *le ministre*, *le général*, *le chef d'état* (head of state), *le sénateur*, *le magistrat*. A pattern emerges: whereas a few "generic" words are feminine (like *la personne*), all these powerful titles are masculine. A generic president is *le président*, masculine, perhaps subtly nudging French-speakers to think of presidents as men. Only if a woman becomes the actual president—as Marine Le Pen, of the National Front hopes to do in the French elections which begin on April 23rd—does the title become *la présidente*.

The traditional use of the masculine as generic has rubbed various French people the wrong way. In 1984, the government called upon the French Academy to look into the question of feminising certain titles. The academy, the official guardian of the language since 1635, replied with, in effect, a refusal. Titles that were originally grammatically masculine should not be given feminine versions;



"unintended consequences" could result. Grammatical gender only occasionally corresponds with biological sex, the academicians argued. They seemed to think they had the impeccably feminist position. A woman is just as capable as a man of being *le président*. (*La présidente*, say some traditionalists going further, is the wife of the president. This was certainly the case a century ago, but today's first lady in France is known as the *première dame*.)

Various bodies pressed on, ignoring the academy, which has no powers of enforcement. In 1998 the National Assembly ruled that titles relevant to its various officers and functions should be feminised, such as *la députée* and *la présidente*. In 2014, a deputy from the centre-right, Julien Aubert, sided with the academy against the chamber's rules, and repeatedly referred to the presiding officer, Sandrine Mazetier from the opposing Socialist Party, as *madame le président*, mixing the feminine personal title

and the masculine job title. Ms Mazetier, as she had the right to do under the chamber's rules, fined him a quarter of his monthly salary, and a debate ensued under headlines like "When ridicule kills feminism" and "Should the French Academy be dissolved?"

The problem cannot be entirely avoided. The academy rightly notes that in the plural, the masculine has always covered the feminine too, and writing for example *tous ceux* (all those who), using masculine forms, has rarely attracted much attention; the masculine is "unmarked", meaning it carries no special meaning, whereas the feminine is "marked", or specifically female. Writing *toutes celles et tous ceux* over and over would fill French with even more lumbering awkwardness than repeated "he or she" does in English, given the number of words it would affect in French. Words like "voters" and "members" could become the shorter, but typographically ugly and unpronounceable *électeurs/trices* or *adhérent(e)s*.

For now, mainstream French opinion is converging on a compromise between practical solutions on one hand and the French Academy's traditionalism on the other. The masculine is generic, especially for plurals: no need for *électeurs/trices*. But titles may be feminised when doing so is grammatically simple and logical, as it usually is. And those who want to be known by them deserve that courtesy.

Ms Le Pen would hardly be a perfect tribune for feminism as France's head of state. She has posed as a defender of women's rights, but largely in opposition to the presumed antifeminist attitudes of the Muslims she would like to keep out of France. Many French voters, according to polls, would like to see her keep her current job title—*présidente* indeed, but only of her own party.



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GENERAL PROCUREMENT NOTICE

**"PRE-PAYMENT METERING SYSTEM PROJECT IN THE SIX DISTRIBUTION ZONES OF BANGLADESH POWER DEVELOPMENT BOARD (BPDB)"
POWER DIVISION, MINISTRY OF POWER, ENERGY AND MINERAL RESOURCES, BANGLADESH**

**Mode of Financing: Service Ijara and Installment Sale
Financing No. BGD1005**

The Bangladesh Power Development Board (BPDB), a state owned utility of the Government of Bangladesh (GoB), has received financing from the Islamic Development Bank (IDB) toward the cost of the "Pre-payment Metering System Project in the Six Distribution Zones of Bangladesh Power Development Board (BPDB)" and it intends to apply part of the proceeds to payments for goods, works, related services and consulting services to be procured under this project. This project will be jointly financed by the BPDB/GoB and IDB.

The project will include the following components:

- Prepayment Metering System (Procurement, installation, construction, commissioning, testing and operationalization of a complete prepayment metering system including Main Information Center with Servers, Vending Software, Prepayment Meters, Vending Stations etc.) to be procured under IDB's international competitive bidding (ICB) procedures with Prequalification.

- Consultancy Services (detailed design and supervision) to be procured under IDB's procurement procedures for short-listing of international firms.

Procurement of goods and works contracts financed by the Islamic Development Bank will be conducted through the procedures as specified in the Guidelines for Procurement of Goods and Works under Islamic Development Bank Financing (current edition), and is open to all eligible bidders as defined in the guidelines. Consultancy services contract will be procured in accordance with the Guidelines for the Use of Consultants under Islamic Development Bank Financing (current edition).

Specific procurement notices for contracts will be announced, as they become available, in IDB Website, BPDB Website and international and local technical magazines and/ or newspapers.

K. M. NAZIM UDDIN

**Project Director, Pre-payment Metering Project for
Distribution Comilla & Mymensing Zones,
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- An ideal location in the so-called « Jardin des Plantes » district, close to the grandes écoles, the Place du Panthéon and the Luxembourg Gardens
- The property consists of three wings built around a large, partially-landscaped interior courtyard. The structure has a basement, a half-basement level, a ground floor and four upper floors
- Many classrooms and laboratories, and several lecture theatres
- Total floor area : 20,297 sq. metres
- Current occupants will vacate the premises by December 2021 at the latest

MINISTÈRE DE L'ÉCONOMIE ET DES FINANCES



Republic of Kosovo Government Ministry of Infrastructure
REQUEST FOR EXPRESSIONS OF INTEREST
(CONSULTANCY SERVICES)

Project: Upgrading of the Milloshevë - Mitrovicë M2 Main Road
Sector: Transportation **Mode of Financing:** Istisna'a Financing
Financing No. ZKS-0002

Contract/Bid No.: MoI/ICB/Services/2017-18/010/01

The Republic of Kosovo has received financing from the Islamic Development Bank toward the cost of Upgrading the **Milloshevë - Mitrovicë M2 Main Road Project**, and it intends to apply part of the proceeds toward payments under the contract for Consulting Services for the Design Review and Construction Supervision of the Upgrading **Milloshevë - Mitrovicë M2 Main Road Project**, from 16.95km to 21.50km (a length of 4.55km). The objective of the assignment is to carry out detailed design review, procurement of civil works contractor, supervision and monitoring of physical progress, quality and the financial status of the construction works with the objective to ensure that the works are completed on time, meet the engineering specifications, social, environmental and road safety standards.

The Ministry of Infrastructure (Executing Agency) now invites eligible consultants to indicate their interest in providing the required services. Interested consultants must provide specific information which demonstrate that they are fully qualified to perform the services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Experience in the following area or tasks shall be the minimum requirement for the assignment:

- Review of detailed engineering design and specifications;
- Support/assistance in the preparation of technical specifications, bidding documents and review and evaluation of bids;
- Supervision of Civil Works contracts, and Contract Management;
- Carrying out all standard duties required from the Engineer according to the FIDIC Condition of Contract.

Consultants may express interests in the forms of association, validated by an intention letter or agreement among members of the association which clearly specifies the type of association, i.e. a joint-venture or sub consultancy.

A consultant will be selected from a short-list of international consultancy firms through Quality and Cost Based Selection method as set out in the **Guidelines for the Use of Consultants under Islamic Development Bank Financing** (current edition). Interested consultants may obtain further information at the address below during office hours (09:00 to 16:00 hours) from Mondays to Fridays.

Expression of interest, in English, in a sealed envelope clearly marked "Expression of interest for Consulting Services for the Design Review and Construction Supervision of 4.55km long Milloshevë - Mitrovicë M2 Road", must be delivered to the address indicated below not later than **28 April 2017 at 11:00 hrs Local time**.

Attention: **Project Management Unit (PMU)**
The Ministry of Infrastructure

Address: Bregu i Diellit II, Lam: 4/3, Off. no. 3; Pristina 10000, Kosova
Tel: +383 38 555 934 **Fax:** +383 38 555 934
E-mail: PMUprocurement@rks-gov.net
Web site: <http://mi-ks.net/sq/tendere>



Republic of Kosovo Government Ministry of Infrastructure
SPECIFIC PROCUREMENT NOTICE

(Invitation for Pre-qualification of Contractors)

Project: Upgrading of the Milloshevë - Mitrovicë M2 Main Road
Sector: Transportation **Mode of Financing:** Istisna'a Financing
Financing No. ZKS-0002

Contract/Bid No. MoI/ICB/Works/2017-18/020/01

1. The Republic of Kosovo has received financing from the Islamic Development Bank (IsDB) toward the cost of Upgrading the **Milloshevë - Mitrovicë M2 Main Road Project**, and it intends to apply part of the proceeds toward payments under the contract for the Upgrading 4.55km of **Milloshevë - Mitrovicë M2 Main Road Project**, from 16.95km to 21.50km. The Ministry of Infrastructure (Executing Agency) now intends to prequalify contractors and/or firms for Civil Works for the Upgrading 4.55km of Milloshevë - Mitrovicë M2 Main Road Project.
2. Milloshevë-Mitrovicë M2 Road is Kosovo's main highway linking the Northwestern region of the country with two main cities of Vushtrri and Mitrovica and the capital city Pristina and further to the Republic of Macedonia. IDB financing for civil works will cover the construction of 4.55 km of highway from Km 16.95 to Km 21.51, which consists of a by-pass to the city of Vushtrri along a new alignment. The design speed of road is 60-100km/h. The civil works would consist of construction of a separated dual 2-lane carriageway, each with 3.75m width, 2m wide shoulders on both sides and other road side facilities. The major works include earthworks, granular pavement layers, stabilizing layers, bituminous layer, retaining structures, gabion walls, bridges, culverts, road side drainage system, installation of road safety devices and other miscellaneous works.
3. The civil works contract will be procured through International Competitive Bidding procedures with prequalification of bidders. The prequalification will be conducted through procedures as specified in the IsDB's Guidelines for **Procurement of Goods and Works under Islamic Development Bank Financing** (current edition), and is open to all eligible bidders, as defined in the guidelines.
4. It is expected that Invitations for Bidding (IFB) will be made in **June 2017**.
5. Interested eligible applicants may obtain further information from and inspect the Prequalification Document at the email address indicated below during working hours (09:00 to 16:00) from Mondays to Fridays.
6. A complete set of the Prequalification Document in the English language may be obtained by interested applicants through submission of a written application to the address or an email indicated below and after payment of Euro 20 (Euro twenty only) through cash or certified cheque. The Prequalification Document could be obtained by the authorized person or through suggested emails.
7. Applications for Prequalification should be submitted in sealed envelopes, and be delivered to the address below by **15 June 2017 at 12:00am (Local time)**, and be clearly marked "Prequalification for Civil Works for the Upgrading 4.55km of Milloshevë - Mitrovicë M2 Main Road Project; Ref. No. MoI/ICB/Works/2017-18/020/01".

Attention: **Project Management Unit (PMU)**
The Ministry of Infrastructure

Address: Bregu i Diellit II, Lam: 4/3, Off. no. 3; Pristina 10000, Kosova
Tel: +383 38 555 934 **Fax:** +383 38 555 934
E-mail: PMUprocurement@rks-gov.net
Web site: <http://mi-ks.net/sq/tendere>

Appointments



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ELIGIBILITY

The following are the minimum requirements to be eligible for the "Young Graduates Program":

- A Master's or post-graduate degree (high school diploma + 5 five years of higher studies);
- Citizenship of a WAEMU member country
- Fluency in French and English.
- Relevant working experience of 0-2 years at most.

APPLICATION FORM

Each application form must contain the following documents:

- Curriculum vitae (CV);
- Certified true copy of the birth certificate;
- Copy of ID document (national ID Card or passport);
- Certified true copy of the degree or certificate of achievement for a degree completed in 5 years of higher education;
- Certified true copy of the transcript of the latest degree.

Applications from women and citizens of Guinea Bissau are highly encouraged.

Applications must be sent not later than 30 April 2017 to:

Monsieur le Directeur des Ressources Humaines (DRH)
Banque Ouest Africaine de Développement (BOAD)
68 Avenue de la Libération, BP: 1172, Lomé (TOGO)

Applications can also be transmitted to BOAD headquarters by email at: boadsiege@boad.org.

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Expression of Interest (EOI) – A World-Class Destination Commercial Development in the SKYCITY of Hong Kong International Airport



Airport Authority Hong Kong (the Authority) plans to develop its SKYCITY, a world-class destination commercial development at Hong Kong International Airport (HKIA).

SKYCITY covers approximately 25 hectares of land which will be developed in phases, comprising Retail, Dining and Entertainment (RDE) facilities, as well as offices and hotels to meet the increasing demand of the local and overseas visitors. SKYCITY is poised to become a dynamic lifestyle and family entertainment hub for Hong Kong residents and overseas travellers alike.

Phase 1 of SKYCITY will be one of the largest RDE development projects in Hong Kong. The Authority cordially invites property developers and consortia to submit EOI for the development and management of this project. For details, please visit the SKYCITY website (www.skycityhongkong.com).

Unparalleled business opportunities in a premier location

- SKYCITY is well-positioned, just next to the passenger terminals of HKIA which serves over 70 million international and local passengers annually.
- The passenger traffic is projected to rise to over 100 million per year by 2030 with the completion of HKIA's three-runway system.
- Full potential will be brought by the nearby new cross-border infrastructure which will enhance the connectivity of HKIA with Hong Kong and the Pearl River Delta region of China, covering a market of approximately 60 million people and a GDP of around HK\$7 trillion within a 2-hour drive.

Expression of Interest (EOI) Closing Date: 17 May, 2017 (2:30 p.m. Hong Kong Time)

Project Particulars:

| | |
|---|--|
| Location | SKYCITY, Hong Kong International Airport |
| Total Gross Floor Area | Approximately 195 000 sq. m. to 380 000 sq. m. |
| Target Tender Date (After review of EOI submissions) | Third Quarter of 2017 |

To Express Your Interest:

Interested property developers or consortia shall request for a copy of the EOI document by email registration under the "Register for EOI" section on the SKYCITY website (www.skycityhongkong.com). The registration closing date is 12 May 2017.

The Authority has the right to assess the eligibility of the registrants for the issuance of the EOI document. The EOI document will be sent by e-mail to eligible registrants within 2 working days upon receiving the request from them.

Registrants are responsible for reserving sufficient time for the preparation and submission of the completed EOI document.

Interested property developers or consortia shall submit the completed EOI document to the Authority according to the detailed requirements set out in the EOI document on or before 17 May 2017 (2:30 p.m. Hong Kong Time).

Enquiries: (852) 2183 3562 (Mr. Wong)
Email: SKYCITYRDE1@hkairport.com
Fax: (852) 2511 6330
Website: www.skycityhongkong.com



Economic data

% change on year ago

| | Gross domestic product | | | Industrial production latest | Consumer prices | | Unemployment rate, % | Current-account balance | | Budget balance % of GDP 2017 [†] | Interest rates, % 10-year gov't bonds, latest | Currency units, per \$ | |
|----------------|------------------------|---------------------------|-------------------|---------------------------------|-----------------|-------------------|-------------------------|---------------------------|-------------------------------|--|--|------------------------|----------|
| | latest | qtr* 2017 [†] | 2017 [†] | | latest | 2017 [†] | | latest 12 months, \$bn | % of GDP 2017 [†] | | | Apr 11th | year ago |
| United States | +2.0 Q4 | +2.1 | +2.3 | +0.5 Feb | +2.7 Feb | +2.4 | 4.5 Mar | -481.2 Q4 | -2.8 | -3.5 | 2.35 | - | - |
| China | +6.8 Q4 | +7.0 | +6.5 | +6.3 Feb | +0.9 Mar | +2.3 | 4.0 Q4 [§] | +196.4 Q4 | +1.7 | -4.0 | 3.14 ^{§§} | 6.90 | 6.47 |
| Japan | +1.6 Q4 | +1.2 | +1.2 | +4.8 Feb | +0.2 Feb | +0.7 | 2.8 Feb | +187.8 Feb | +3.5 | -5.3 | 0.05 | 110 | 108 |
| Britain | +1.9 Q4 | +2.7 | +1.7 | +2.8 Feb | +2.3 Mar | +2.7 | 4.7 Dec ^{††} | -115.7 Q4 | -4.0 | -4.0 | 1.08 | 0.80 | 0.70 |
| Canada | +1.9 Q4 | +2.6 | +2.0 | +3.5 Jan | +2.0 Feb | +1.9 | 6.7 Mar | -51.2 Q4 | -2.7 | -2.6 | 1.55 | 1.33 | 1.29 |
| Euro area | +1.8 Q4 | +1.9 | +1.6 | +1.2 Feb | +1.5 Mar | +1.6 | 9.5 Feb | +387.3 Jan | +3.0 | -1.6 | 0.20 | 0.94 | 0.87 |
| Austria | +1.7 Q4 | +2.0 | +1.6 | -1.1 Jan | +2.2 Feb | +1.7 | 5.7 Feb | +6.6 Q4 | +2.4 | -1.1 | 0.45 | 0.94 | 0.87 |
| Belgium | +1.2 Q4 | +2.0 | +1.4 | -1.6 Jan | +2.3 Mar | +2.0 | 7.0 Feb | -2.0 Dec | +1.1 | -2.7 | 0.75 | 0.94 | 0.87 |
| France | +1.1 Q4 | +1.7 | +1.3 | -0.7 Feb | +1.1 Mar | +1.3 | 10.0 Feb | -32.4 Feb | -1.0 | -3.1 | 0.93 | 0.94 | 0.87 |
| Germany | +1.8 Q4 | +1.7 | +1.6 | +2.3 Feb | +1.6 Mar | +1.8 | 3.9 Feb [†] | +287.3 Feb | +8.2 | +0.5 | 0.20 | 0.94 | 0.87 |
| Greece | -1.4 Q4 | -4.8 | +1.2 | +10.7 Feb | +1.7 Mar | +0.8 | 23.5 Jan | -0.6 Jan | -1.2 | -6.4 | 6.72 | 0.94 | 0.87 |
| Italy | +1.0 Q4 | +0.7 | +0.9 | +1.9 Feb | +1.4 Mar | +1.4 | 11.5 Feb | +47.5 Jan | +2.5 | -2.4 | 2.27 | 0.94 | 0.87 |
| Netherlands | +2.5 Q4 | +2.5 | +2.0 | +5.1 Feb | +1.1 Mar | +1.2 | 6.3 Feb | +64.8 Q4 | +8.5 | +0.5 | 0.48 | 0.94 | 0.87 |
| Spain | +3.0 Q4 | +2.8 | +2.6 | -1.7 Feb | +2.3 Mar | +2.2 | 18.0 Feb | +24.9 Jan | +1.5 | -3.3 | 1.61 | 0.94 | 0.87 |
| Czech Republic | +2.0 Q4 | +1.6 | +2.5 | +2.7 Feb | +2.6 Mar | +2.4 | 3.5 Feb [†] | +2.3 Q4 | +0.7 | -0.5 | 1.01 | 25.1 | 23.6 |
| Denmark | +2.3 Q4 | +1.9 | +1.4 | +2.3 Feb | +1.0 Mar | +1.2 | 4.3 Feb | +24.9 Feb | +7.1 | -1.4 | 0.51 | 7.00 | 6.50 |
| Norway | +1.8 Q4 | +4.5 | +1.8 | -4.0 Feb | +2.4 Mar | +2.4 | 4.2 Jan ^{††} | +18.1 Q4 | +5.3 | +2.8 | 1.60 | 8.59 | 8.19 |
| Poland | +3.2 Q4 | +7.0 | +3.2 | +1.2 Feb | +2.0 Mar | +2.0 | 8.2 Mar [§] | +0.5 Jan | -1.2 | -3.2 | 3.44 | 4.00 | 3.74 |
| Russia | +0.3 Q4 | na | +1.4 | -2.7 Feb | +4.2 Mar | +4.5 | 5.6 Feb [§] | +34.9 Q1 | +2.8 | -2.9 | 8.13 | 57.1 | 66.8 |
| Sweden | +2.3 Q4 | +4.2 | +2.6 | +4.1 Feb | +1.3 Mar | +1.6 | 7.4 Feb [§] | +23.7 Q4 | +4.8 | -0.4 | 0.54 | 9.04 | 8.10 |
| Switzerland | +0.6 Q4 | +0.3 | +1.4 | -1.2 Q4 | +0.6 Mar | +0.5 | 3.3 Mar | +70.6 Q4 | +9.7 | +0.2 | -0.16 | 1.01 | 0.95 |
| Turkey | +3.5 Q4 | na | +2.6 | -1.7 Feb | +11.3 Mar | +9.7 | 12.7 Dec [§] | -33.7 Feb | -4.4 | -2.1 | 10.97 | 3.72 | 2.83 |
| Australia | +2.4 Q4 | +4.4 | +2.7 | +1.0 Q4 | +1.5 Q4 | +2.1 | 5.9 Feb | -33.1 Q4 | -1.3 | -1.8 | 2.53 | 1.34 | 1.31 |
| Hong Kong | +3.1 Q4 | +4.8 | +2.6 | -0.7 Q4 | -0.1 Feb | +1.7 | 3.3 Feb ^{††} | +14.5 Q4 | +5.9 | +1.5 | 1.54 | 7.77 | 7.75 |
| India | +7.0 Q4 | +5.1 | +7.2 | +2.7 Jan | +3.7 Feb | +4.6 | 5.0 2015 | -11.9 Q4 | -1.0 | -3.2 | 6.81 | 64.5 | 66.5 |
| Indonesia | +4.9 Q4 | na | +5.2 | +3.3 Feb | +3.6 Mar | +4.3 | 5.6 Q3 [§] | -16.3 Q4 | -2.0 | -2.1 | 7.09 | 13,282 | 13,128 |
| Malaysia | +4.5 Q4 | na | +4.3 | +4.7 Feb | +4.5 Feb | +4.0 | 3.5 Jan [§] | +6.0 Q4 | +2.8 | -3.1 | 4.12 | 4.43 | 3.89 |
| Pakistan | +5.7 2016** | na | +5.4 | +1.1 Jan | +4.9 Mar | +4.6 | 5.9 2015 | -4.9 Q4 | -2.6 | -4.8 | 8.15 ^{†††} | 105 | 105 |
| Philippines | +6.6 Q4 | +7.0 | +6.4 | +10.8 Feb | +3.4 Mar | +3.3 | 6.6 Q1 [§] | +0.6 Dec | +0.8 | -2.6 | 5.22 | 49.6 | 46.1 |
| Singapore | +2.9 Q4 | +12.3 | +2.1 | +12.6 Feb | +0.7 Feb | +1.3 | 2.2 Q4 | +56.7 Q4 | +19.2 | -1.0 | 2.20 | 1.40 | 1.34 |
| South Korea | +2.4 Q4 | +2.0 | +2.5 | +6.6 Feb | +2.2 Mar | +1.8 | 4.2 Mar [§] | +97.6 Feb | +6.4 | -1.0 | 2.20 | 1,146 | 1,147 |
| Taiwan | +2.9 Q4 | +1.8 | +1.8 | +10.6 Feb | +0.2 Mar | +2.1 | 3.8 Feb | +70.9 Q4 | +12.1 | -0.7 | 1.10 | 30.6 | 32.4 |
| Thailand | +3.0 Q4 | +1.7 | +3.5 | -1.5 Feb | +0.8 Mar | +1.3 | 1.1 Feb [§] | +46.8 Q4 | +11.7 | -2.3 | 2.58 | 34.6 | 35.1 |
| Argentina | -2.1 Q4 | +1.9 | +2.7 | -2.5 Oct | — *** | — | 7.6 Q4 [§] | -15.0 Q4 | -2.7 | -4.1 | na | 15.2 | 14.5 |
| Brazil | -2.5 Q4 | -3.4 | +0.6 | -0.8 Feb | +4.6 Mar | +4.5 | 13.2 Feb [§] | -22.8 Feb | -1.6 | -7.7 | 9.79 | 3.15 | 3.53 |
| Chile | +0.5 Q4 | -1.4 | +1.8 | -7.6 Feb | +2.7 Mar | +3.0 | 6.4 Feb ^{§††} | -3.6 Q4 | -1.3 | -2.3 | 3.93 | 656 | 683 |
| Colombia | +1.6 Q4 | +4.0 | +2.4 | -0.2 Jan | +4.7 Mar | +4.0 | 10.5 Feb [§] | -12.5 Q4 | -3.6 | -2.8 | 6.66 | 2,873 | 3,056 |
| Mexico | +2.4 Q4 | +2.9 | +1.5 | -1.7 Feb | +5.4 Mar | +5.0 | 3.5 Feb | -27.9 Q4 | -2.6 | -2.5 | 7.14 | 18.8 | 17.7 |
| Venezuela | -8.8 Q4~ | -6.2 | -5.5 | na | na | +562 | 7.3 Apr [§] | -17.8 Q3~ | -1.5 | -19.6 | 10.43 | 9.99 | 9.99 |
| Egypt | +3.4 Q3 | na | +3.9 | +23.9 Feb | +30.9 Mar | +19.2 | 12.4 Q4 [§] | -20.1 Q4 | -6.2 | -10.8 | na | 18.1 | 8.88 |
| Israel | +4.3 Q4 | +6.5 | +3.9 | +3.2 Jan | +0.4 Feb | +0.6 | 4.3 Feb | +12.4 Q4 | +4.4 | -2.3 | 2.17 | 3.65 | 3.77 |
| Saudi Arabia | +1.4 2016 | na | +0.8 | na | -0.1 Feb | +2.0 | 5.6 2015 | -24.9 Q4 | -2.1 | -7.3 | 3.68 | 3.75 | 3.75 |
| South Africa | +0.7 Q4 | -0.3 | +1.1 | -2.4 Feb | +6.3 Feb | +5.7 | 26.5 Q4 [§] | -9.5 Q4 | -3.6 | -3.1 | 8.96 | 13.9 | 14.7 |

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. ***Official number not yet proved to be reliable; The State Street PriceStats Inflation Index, Jan 29.53%; year ago 30.79% ^{†††††}Dollar-denominated bonds.

The Economist

FILMS

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THE DEEP

Exploring the ocean floor

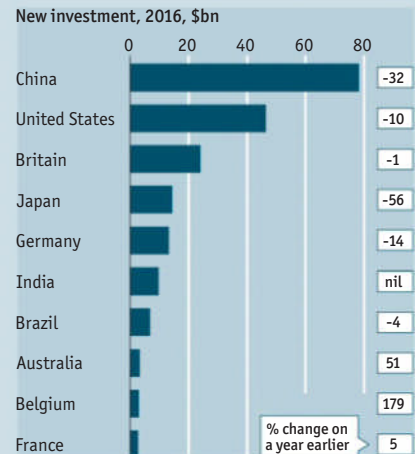
films.economist.com/p/blancpain-ocean

Markets

| | Index Apr 11th | % change on | | |
|---------------------------|-------------------|-------------|----------------------------|----------------|
| | | one week | in local currency terms | in \$ terms |
| United States (DJIA) | 20,651.3 | -0.2 | +4.5 | +4.5 |
| China (SSEA) | 3,444.3 | +2.1 | +6.0 | +6.7 |
| Japan (Nikkei 225) | 18,747.9 | -0.3 | -1.9 | +4.3 |
| Britain (FTSE 100) | 7,365.5 | +0.6 | +3.1 | +4.2 |
| Canada (S&PTX) | 15,727.1 | +0.4 | +2.9 | +3.4 |
| Euro area (FTSE Euro 100) | 1,176.2 | -0.3 | +5.8 | +6.6 |
| Euro area (EURO STOXX 50) | 3,470.0 | -0.3 | +5.5 | +6.3 |
| Austria (ATX) | 2,886.4 | +0.9 | +10.2 | +11.1 |
| Belgium (Bel 20) | 3,807.6 | +0.1 | +5.6 | +6.4 |
| France (CAC 40) | 5,101.9 | nil | +4.9 | +5.7 |
| Germany (DAX)* | 12,139.4 | -1.2 | +5.7 | +6.5 |
| Greece (Athex Comp) | 680.1 | +2.0 | +5.7 | +6.5 |
| Italy (FTSE/MIB) | 20,109.1 | -0.7 | +4.5 | +5.3 |
| Netherlands (AEX) | 518.4 | +0.8 | +7.3 | +8.1 |
| Spain (Madrid SE) | 1,046.9 | +0.4 | +11.0 | +11.8 |
| Czech Republic (PX) | 993.0 | +1.2 | +7.7 | +10.0 |
| Denmark (OMXCXB) | 838.9 | +0.4 | +5.0 | +5.8 |
| Hungary (BUX) | 32,199.2 | +0.8 | +0.6 | +0.4 |
| Norway (OSEAX) | 763.2 | +0.7 | -0.2 | nil |
| Poland (WIG) | 58,510.0 | -0.9 | +13.1 | +18.1 |
| Russia (RTS, \$ terms) | 1,091.1 | -4.0 | -5.3 | -5.3 |
| Sweden (OMXS30) | 1,570.9 | +0.2 | +3.5 | +4.0 |
| Switzerland (SMI) | 8,641.6 | -0.1 | +5.1 | +6.2 |
| Turkey (BIST) | 90,904.4 | +2.6 | +16.3 | +10.1 |
| Australia (All Ord.) | 5,964.6 | +1.2 | +4.3 | +8.4 |
| Hong Kong (Hang Seng) | 24,088.5 | -0.7 | +9.5 | +9.2 |
| India (BSE) | 29,788.4 | -0.4 | +11.9 | +17.8 |
| Indonesia (JSX) | 5,627.9 | -0.4 | +6.3 | +7.8 |
| Malaysia (KLSE) | 1,735.8 | -0.6 | +5.7 | +7.0 |
| Pakistan (KSE) | 48,250.1 | +0.3 | +0.9 | +0.5 |
| Singapore (STI) | 3,174.8 | -0.1 | +10.2 | +13.5 |
| South Korea (KOSPI) | 2,123.9 | -1.7 | +4.8 | +10.5 |
| Taiwan (TWI) | 9,832.4 | +0.2 | +6.3 | +11.8 |
| Thailand (SET) | 1,582.8 | -0.1 | +2.6 | +6.2 |
| Argentina (MERV) | 20,994.8 | +0.8 | +24.1 | +29.1 |
| Brazil (BVSP) | 64,359.8 | -2.1 | +6.9 | +10.3 |
| Chile (IGPA) | 24,426.3 | +1.1 | +17.8 | +20.3 |
| Colombia (IGBC) | 10,228.4 | +0.5 | +1.2 | +5.7 |
| Mexico (IPC) | 49,637.9 | +0.6 | +8.8 | +19.1 |
| Venezuela (IBC) | 46,808.7 | +2.3 | +47.6 | na |
| Egypt (EGX 30) | 12,995.7 | -2.0 | +5.3 | +5.7 |
| Israel (TA-100) | 1,258.9 | +0.4 | -1.4 | +3.9 |
| Saudi Arabia (Tadawul) | 7,036.4 | +0.7 | -2.8 | -2.8 |
| South Africa (JSE AS) | 53,535.2 | +1.7 | +5.7 | +4.1 |

Renewable energy

New investment in renewable energy globally fell by 23% last year, to \$241.6bn. The fall is partly the result of an investment slowdown in China and Japan, after a huge increase in wind and solar capacity that was financed in 2015. But lower capital costs are also responsible: in dollar terms, solar photovoltaics, onshore wind and offshore wind are at least 10% cheaper per megawatt than they were in 2015. Global installed capacity of wind, solar and other renewables rose by a record 11 gigawatts (GW), to 138.5GW, in 2016. The costs of generating these renewables are now comparable with fossil-fuel plants. But their future remains vulnerable to policy changes and to slowing growth in electricity demand.



Source: Frankfurt School UNEP Collaborating Centre, Bloomberg New Energy Finance

Other markets

| | Index Apr 11th | % change on | | |
|---------------------------------|----------------------|-------------|----------------------------|----------------|
| | | one week | in local currency terms | in \$ terms |
| United States (S&P 500) | 2,353.8 | -0.3 | +5.1 | +5.1 |
| United States (NAScomp) | 5,866.8 | -0.5 | +9.0 | +9.0 |
| China (SSEB, \$ terms) | 344.2 | +2.0 | +0.7 | +0.7 |
| Japan (Topix) | 1,495.1 | -0.6 | -1.5 | +4.7 |
| Europe (FTSEurofirst 300) | 1,501.4 | +0.2 | +5.1 | +5.9 |
| World, dev'd (MSCI) | 1,847.9 | -0.1 | +5.5 | +5.5 |
| Emerging markets (MSCI) | 954.4 | -1.1 | +10.7 | +10.7 |
| World, all (MSCI) | 447.4 | -0.2 | +6.1 | +6.1 |
| World bonds (Citigroup) | 902.7 | +0.3 | +2.1 | +2.1 |
| EMBI+ (JPMorgan) | 806.1 | +0.5 | +4.4 | +4.4 |
| Hedge funds (HFRX) | 1,223.8 [§] | +0.2 | +1.7 | +1.7 |
| Volatility, US (VIX) | 15.1 | +11.8 | +14.0 (levels) | |
| CDSs, Eur (iTRAXX) [†] | 76.8 | +2.2 | +6.4 | +7.2 |
| CDSs, N Am (CDX) [†] | 66.5 | +0.8 | -1.9 | -1.9 |
| Carbon trading (EU ETS) € | 4.9 | +0.8 | -26.0 | -25.4 |

Sources: IHS Markit; Thomson Reuters. [†]Total return index. [‡]Credit-default-swap spreads, basis points. [§]Apr 10th.

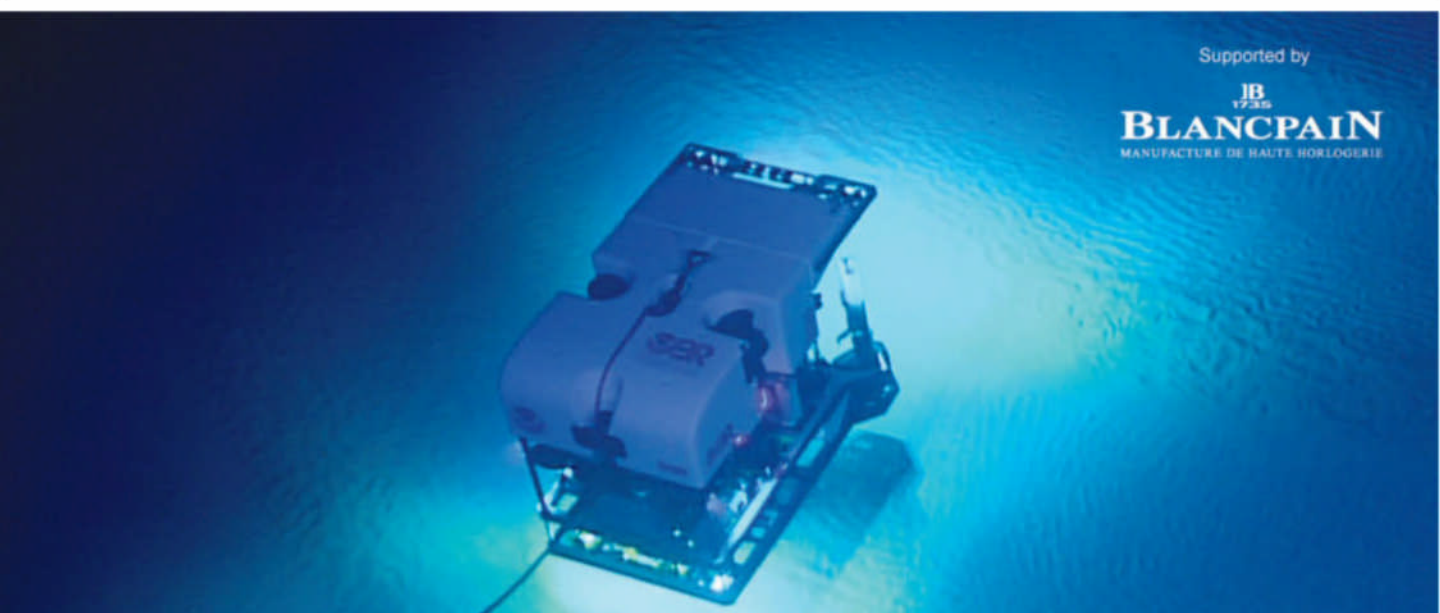
Indicators for more countries and additional series, go to: Economist.com/indicators

The Economist commodity-price index

2005=100

| | | | % change on | |
|--------------------------------|---------|-----------|--------------|-------------|
| | Apr 4th | Apr 10th* | one month | one year |
| Dollar Index | | | | |
| All Items | 142.6 | 133.2 | -7.3 | +2.0 |
| Food | 151.0 | 132.7 | -13.4 | -12.0 |
| Industrials | | | | |
| All | 133.9 | 133.6 | +0.1 | +21.8 |
| Nfa [†] | 139.4 | 138.4 | -2.8 | +14.0 |
| Metals | 131.6 | 131.5 | +1.4 | +25.7 |
| Sterling Index | | | | |
| All items | 208.5 | 194.9 | -9.2 | +16.6 |
| Euro Index | | | | |
| All items | 166.3 | 156.2 | -6.9 | +9.4 |
| Gold | | | | |
| \$ per oz | 1,256.8 | 1,251.9 | +3.8 | -0.5 |
| West Texas Intermediate | | | | |
| \$ per barrel | 51.0 | 53.1 | +11.2 | +25.9 |

Sources: Bloomberg; CME Group; Cotlook; Darmann & Curl; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Urner Barry; WSJ. ^{*}Provisional [†]Non-food agriculturals.





A prickly business

Major Adrian Coles, champion of Britain's hedgehogs, died on March 23rd, aged 86

“FROM Clee to heaven the beacon burns,” runs the opening line of A.E. Housman’s “A Shropshire Lad”. The Clee hills, rising to 1,700 feet, are the highest points in the county. From there, across green slopes scoured and scattered with ruins of old quarry buildings, the view south opens over the valley of the Teme to the blue hills of Herefordshire and Worcestershire.

To the slopes clings Clee Hill village which, until it closed, had Shropshire’s highest pub (called “The Kremlin” because, via the radar aerials on the hill, its juke box could pick up Radio Moscow). The sole hostelry is now the Golden Cross, where the regular beer is Hobsons Twisted Spire and visitors can play, on ancient battered equipment, quoits and pitch-penny. A bakery and post office stand along the main A 417, which is not very main here. In fact, because it crosses common land, at two points it is spanned by a cattle grid.

Several other cattle grids lie around Clee Hill, and it was one of those that led Adrian Coles to hedgehogs. At the time, indeed for 40 years, he was the local county councillor. The job mostly involved meetings about schools, social services, fly-tipping and the like; as well as keeping an eye on village greens, commons and roads. Its high point came when, as “Father of the

Council”, he sat beside the queen at lunch and proposed the loyal toast. Its turning point came in 1982, when his small daughter ran in to tell him that a hedgehog was stuck under the cattle grid at the end of the drive. (“I didn’t choose hedgehogs,” he said later; “I had hedgehogs thrust upon me.”) With cautious sticks and an egg-pan he got it out, his first close encounter; and realised he had stumbled on a general problem. There were probably hedgehogs stuck under cattle grids all over Britain.

His solution was to build a little corner ramp, made of concrete or wood and at an angle of 20°, up which a hedgehog could scramble. He then persuaded the council (he was in the right job) to install them in county grids. They are now compulsory on public roads across the country.

Major Coles found himself getting exercised about hedgehogs. Their numbers were falling so fast that they were almost on the edge of extinction. Pesticides poisoned them, and cars squashed them. (Most Britons have seen only that two-dimensional sort.) The fencing and paving of suburban gardens stopped them foraging for food. And yet they were such good chaps, useful creatures, eating the slugs and woodlice no gardener wanted. Their doughtiness, as they rolled up into a ball to face their enemies, was something he, as a

career army officer, could only admire. He held nothing against them, except the actual difficulty of picking them up.

He had tapped into a national affection which was already there. If Britain had a favourite wild animal, it was probably not the fox, gallant but verminous, or the hare, magical but moonstruck, but the bright-eyed pointy-nosed hedgehog, suddenly appearing on lawns at dusk like the head of an old brush. The creature had been immortalised by Beatrix Potter in her tale of Mrs Tiggy-Winkle, the tiny laundress who stole (but only to wash and starch them till they shone) the handkerchiefs of little girls.

Hot-water bottle and box

As Major Coles warmed to the task his garden was invaded, soon containing more hedgehogs per acre than any other spot in Britain. His next step was to found a society, for which he also designed a tie. It grew fast. When at 85 he retired from running it, the British Hedgehog Preservation Society had more than 11,000 members. These included 700 “carers” who would provide an injured hedgehog with a hot-water bottle and a warm box, or put the small pink feet in splints. Major Coles talked regularly on the BBC, advised vets and lobbied Parliament. During droughts he would send a general letter to newspapers, urging people to put out water and cat food.

He fought other successful campaigns, including getting household appliances sold with sealed plugs, and worked hard for many charities; but for this one he was famous. Letters would arrive from abroad addressed to “Major Hedgehog, England”. A grand moment came in 2014, when an exhibit called “Hedgehog Street” won a gold medal at the Royal Horticultural Society’s show at Hampton Court. It displayed three suburban gardens laid out as he recommended, with lush vegetation and five-inch-square gaps in their fences, for hedgehogs to get through. Major Coles, now widowed and living at the Royal Hospital Chelsea, presided in his scarlet pensioner’s coat with his service medals, and with a camera-shy hedgehog in his lap.

Lower-key, but just as satisfactory, was the celebration at the Golden Cross in Clee Hill in 2012 to mark the BHPS’s 30th anniversary. The pub had renamed itself “The Cross Hedgehog” for the occasion. Hobsons had brewed a new ale, “Old Prickly”, and the village bakery supplied spiky loaves of bread. The head of the BHPS had to admit that numbers were still falling, by 25% in the past decade. But the rate of decline had slowed; a network was now in place to help, and the hedgehog’s place in British hearts and minds seemed assured. With that cheering thought, many a glass of Old Prickly was raised to Major Coles, and to the movement he had started with his egg-pan and his sticks. ■

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