

The Economist

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The next space race

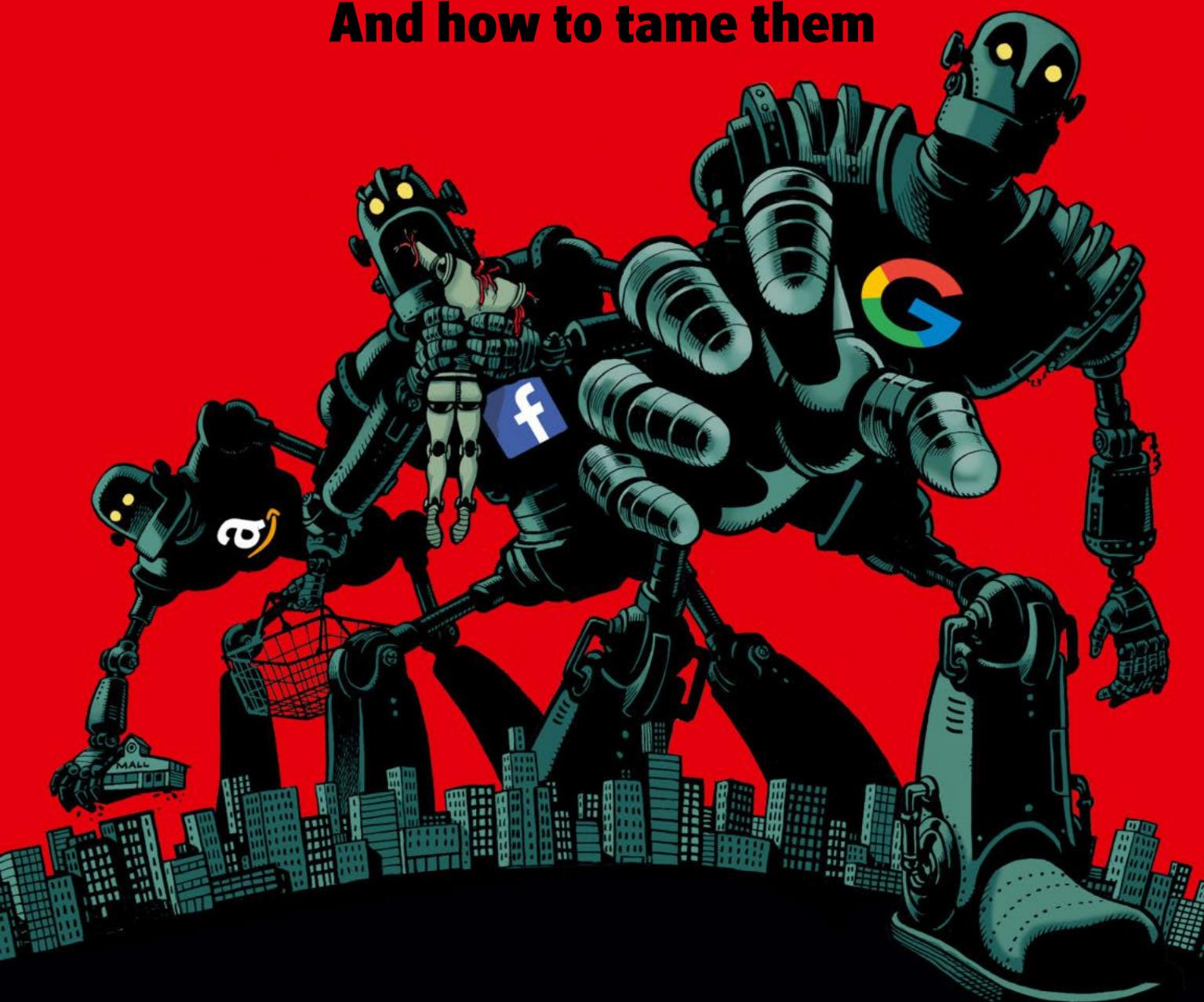
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Our Big Mac index

The new titans

And how to tame them





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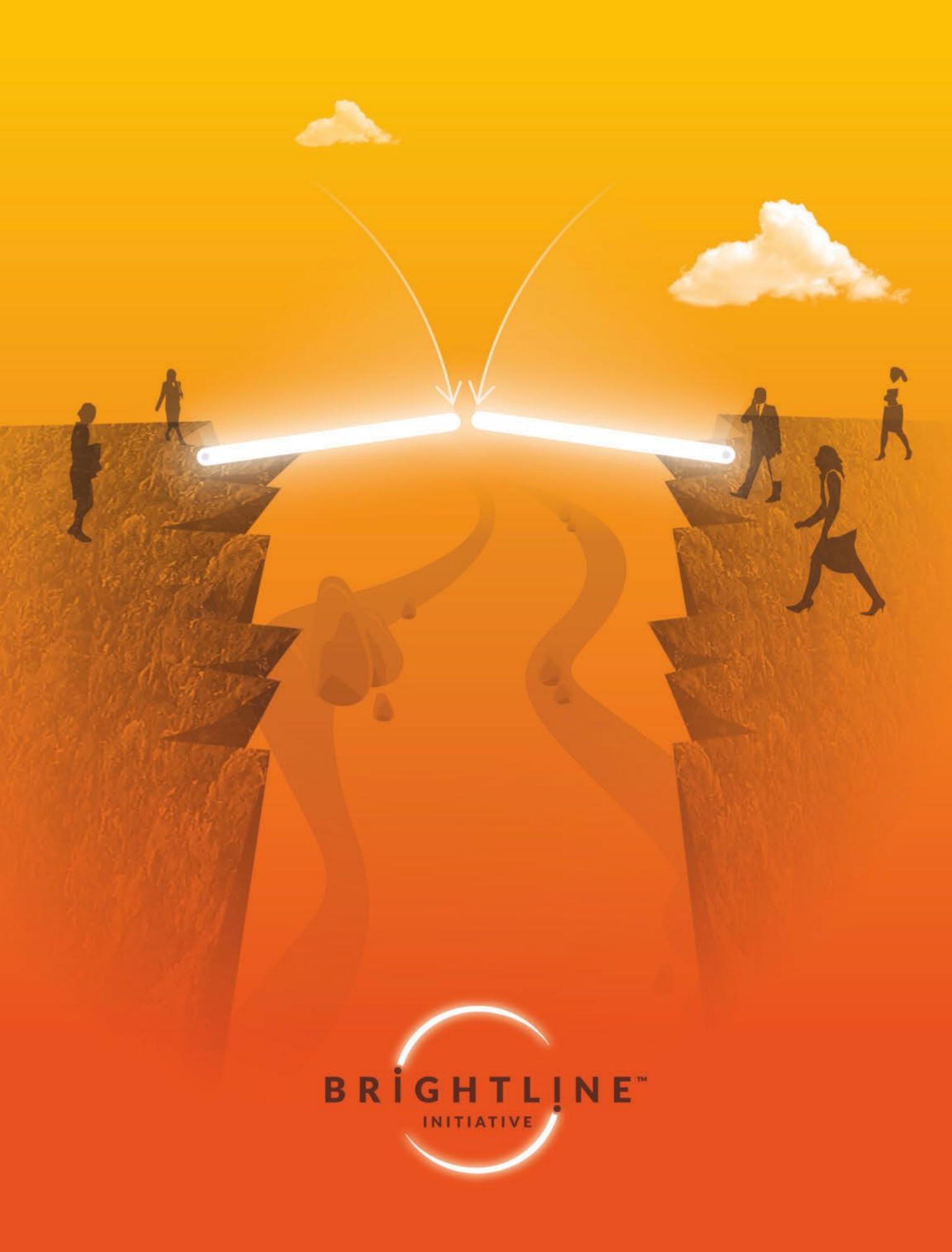
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to take part in "a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."

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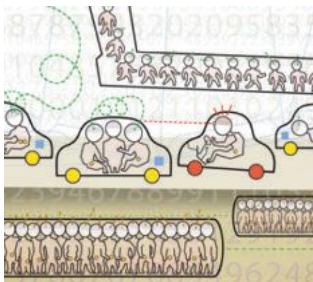
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Politics



Thousands of **Tunisians** took to the streets to protest against lower subsidies and higher taxes, which have led to a rise in the prices of basic goods. The government responded by arresting more than 800 people, before agreeing to increase aid for the poor. Tunisia was the starting-point of the Arab spring that broke out in late 2010 and swept the region.

America withheld \$65m in aid for **Palestinian** refugees, while demanding that the UN Relief and Works Agency undertake a “fundamental re-examination” of its activities. Donald Trump blames the Palestinians for a lack of progress in peace talks with Israel, which in turn says UNRWA is working against the Jewish state.

Mr Trump extended sanctions relief for **Iran** again, but warned that this was the “last chance” for Congress and the big European powers to fix what he described as the “disastrously flawed” deal with Iran over its nuclear programme in 2015. The Europeans said they were working hard to address Mr Trump’s concerns.

Ethiopia freed several hundred political prisoners. The government arrested over 1,000 people a year ago when it clamped down on protests.

A one-man revolution

Oscar Pérez, a Venezuelan police pilot who had stolen a helicopter to attack government buildings in June 2017, was killed in a confrontation with police. Last year he had thrown grenades and fired

shots at the interior ministry and supreme court and called for a rebellion against the authoritarian left-wing government of Nicolás Maduro. During a nine-hour siege by police who had tracked him down, Mr Pérez said that he was trying to surrender. Six of his companions and two policemen were also killed.

On a visit to **Chile**, Pope Francis apologised for the “irreparable harm” caused by clergy who had sexually abused children, and met some of the victims. Revelations of abuse by Fernando Karadima, a prominent priest, caused an exodus from the Catholic church in Chile starting in 2010. Pope Francis did not bow to demands that he reconsider the appointment of Juan Barros as bishop of Osorno, who victims say tried to protect Father Karadima (Bishop Barros denies this).

Provoking the Spanish bull

At their regional parliament in Barcelona, Catalan MPs elected a pro-independence speaker at their first meeting since **Spain** dissolved the chamber in October. Their planned next step is to reinstate their exiled president, Carles Puigdemont.



Angela Merkel’s Christian Democrats and the centre-left Social Democrats said they had made enough progress to launch formal talks on a new “grand coalition” in **Germany**. But party delegates still have to approve the move.

Speaking in Calais, **France’s** president, Emmanuel Macron, said he would not permit the re-establishment of a sprawling migrant camp like “The Jungle”. The French head of state also wants Britain to take

in more refugees and do more to help deal with those who are in France. The British government promised more money for security along the English Channel.

Oliver Ivanovic, a moderate **Kosovo Serb** politician, was murdered outside his party’s offices in the ethnically divided town of Mitrovica, as talks were set to resume between Serbia and Kosovo about formalising their ties. He had been convicted of war crimes in 2016 but was due to return to court for a retrial.

The Olympic spirit

South Korea and **North Korea** agreed to field a joint women’s ice-hockey team at the Winter Olympics in the South next month. The two countries’ teams will also march together in the opening ceremony.

Four of the 25 judges on **India’s** supreme court accused the chief justice of bias in assigning controversial cases to particular colleagues.

In a move seen by some as politically motivated, regulators in the **Philippines** ordered a website critical of President Rodrigo Duterte to close, for violating ownership rules. The website, Rappler, vowed to fight the order.

An Iranian oil tanker registered in Panama exploded and sank in the **East China Sea**. A collision a week earlier with a cargo ship is believed to have caused the deaths of all 32 people on board the Iranian ship. An oil slick several miles long and wide spread at the scene.

How low can you go?

Republicans and Democrats struggled to reach a deal that would stop the deportation of people who came to America illegally as young children, known as “**Dreamers**”. Donald Trump has ordered that the Deferred Action for Childhood Arrivals (DACA) programme should end soon, and has tied any agreement that prolonged it to more spending for border security. Causing

more confusion, the government’s immigration agency said it would permit those who are protected by DACA to renew their requests to stay following a court ruling, but not accept new applicants.

Negotiations over DACA were frustrated by Mr Trump reportedly asking a meeting in the **Oval Office** why America had to take migrants from “shithole” African countries and Haiti. In the ensuing furore Democrats declared him a racist, but some Republicans insist he did not make the remark. In a bad week for Mr Trump, the press was awash with rumours that his lawyers paid Stormy Daniels, a porn star, hush money in October 2016 to keep quiet about an affair a decade earlier.

Stephen Bannon, Mr Trump’s political strategist until they fell out, was reportedly subpoenaed to testify in the investigation led by Robert Mueller, the Justice Department’s special counsel, into alleged Russian influence among Trump aides.

After six decades in its old home at Grosvenor Square, the **American embassy**’s new building in London opened for business at Nine Elms.



Hawaii’s emergency-management service sent an erroneous text message to the state’s residents warning of an impending missile attack. The islanders have felt particularly rattled by North Korea’s aggressive series of missile launches and Hawaii has begun testing a system of nuclear-warning sirens. The mistaken message was apparently sent out by a shift worker who pressed the wrong button on a computer. ➤

Business

Having been blamed as one of the culprits for the spread of fake news, **Facebook** announced that it is altering its newsfeed algorithm so that users will see less content from sensation-seeking publishers and websites and enjoy more “meaningful” interactions with friends and family. The social network admitted that this could reduce the amount of time people spend on Facebook, a measure closely watched by investors. Questions also remain about how Facebook will deem which publishers are trustworthy.

John Flannery, the chief executive of **General Electric**, touted the idea of breaking up the struggling conglomerate into separate businesses. GE has already sold off many non-performing divisions and is restructuring around its three core operations of power, aviation and health care. But this week the company revealed a \$9.5bn pre-tax charge to cover reinsurance policies at GE Capital, a business whose difficulties had been thought to be in the past.

Something rotten in the state
Carillion, Britain's second-biggest construction company, collapsed. Its troubles became apparent last year when it issued profit warnings. Carillion employed around 20,000 people in Britain, and a similar number abroad. The government is under pressure because many public services, including in health care, depend on the company. Despite last year's warning signs, Carillion was still awarded contracts for infrastructure and defence programmes. The opposition claims the government was “feeding” the company contracts to keep it afloat.

SoftBank was reportedly considering listing 30% of its mobile-communications business. That could fetch ¥2trn (\$18bn), making it one of the biggest IPOs in Japan. Also testing the waters for an IPO, **Dropbox** has quietly filed

papers for a stockmarket listing, according to reports.

Tiptoe through the tulips

The **bitcoin** bubble deflated, as the price fell below \$10,000, half its peak of a month ago. Reports of regulatory crackdowns on crypto-currencies in China and South Korea have contributed to the bust, as have worries about the security of bitcoin transactions.

Britain's annual **inflation** rate slipped back to 3% in December from 3.1% in November, easing the short-term pressure on the Bank of England to raise interest rates again.



Airbus and **Boeing** again jostled for the title of world's biggest planemaker. Boeing delivered more aircraft in 2017—763 to Airbus's 718—but its European rival booked more net orders: 1,109 to Boeing's 912. Airbus has held the

lead in orders since 2013, but was short on commitments for the A380. This week the company said it would no longer build the superjumbo without orders from Emirates, the A380's biggest customer, provoking the airline into ordering 36.

Bouncing back from its emissions-cheating scandal, **Volkswagen** revealed that it sold 10.7m vehicles worldwide last year (including its 11 subsidiary brands). That will make it the world's biggest carmaker if Toyota's figure later this month confirms an estimate of 10.4m vehicles sold.

BP booked another \$1.7bn charge related to the Deepwater Horizon explosion, which killed 11 men in 2010 and caused the worst oil spill in American history. The charge arose from wrangling about the economic costs of the spill, though the energy company says this legal process is now winding down. Still, BP raised the forecast of how much it will have to pay this year because of the disaster to \$3bn.

America's big banks reported earnings for the fourth quarter. All were affected by the recent changes to America's tax laws,

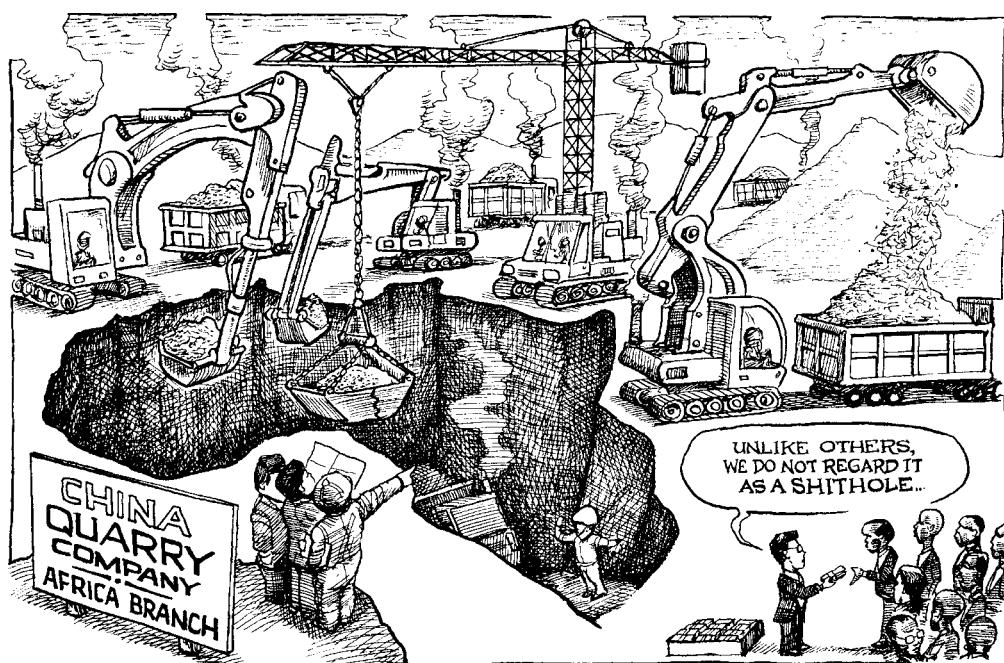
which reduced the retrospective tax benefits on certain assets. Goldman Sachs posted its first quarterly loss since 2011, of \$1.9bn, as it adjusted to the new rules. Citigroup booked a \$22bn tax charge, which led to an \$18.3bn quarterly loss, bigger than any it endured during the financial crisis. JPMorgan Chase, however, was able to turn a net profit of \$4.2bn, despite tax-adjustment costs, as did Bank of America, with net income of \$2.4bn.

Apple also adjusted to the new tax regime, announcing that it will pay \$38bn in tax to repatriate money it holds overseas, taking advantage of a new incentive for firms to make a one-time payment on foreign cash at a lower tax rate. The tech giant also pledged to spend \$30bn on new offices and data centres in America.

Sweet

In the first big divestment by the Swiss foods group under its new boss, **Nestlé** sold its confectionery business in America to **Ferrero** for \$2.8bn. Based in Italy, Ferrero makes chocolate-wrapped hazelnut sweets (very popular at ambassadors' parties, apparently).

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





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Taming the titans

Google, Facebook and Amazon are increasingly dominant. How should they be controlled?



NOT long ago, being the boss of a big Western tech firm was a dream job. As the billions rolled in, so did the plaudits: Google, Facebook, Amazon and others were making the world a better place. Today these companies are accused of being BAADD—big, anti-competitive, addictive and destructive to democracy. Regulators fine them, politicians grill them and one-time backers warn of their power to cause harm.

Much of this techlash is misguided. The presumption that big businesses must necessarily be wicked is plain wrong. Apple is to be admired as the world's most valuable listed company for the simple reason that it makes things people want to buy, even while facing fierce competition. Many online services would be worse if their providers were smaller. Evidence for the link between smartphones and unhappiness is weak. Fake news is not only an online phenomenon.

But big tech platforms, particularly Facebook, Google and Amazon, do indeed raise a worry about fair competition. That is partly because they often benefit from legal exemptions. Unlike publishers, Facebook and Google are rarely held responsible for what users do on them; and for years most American buyers on Amazon did not pay sales tax. Nor do the titans simply compete in a market. Increasingly, they are the market itself, providing the infrastructure (or “platforms”) for much of the digital economy. Many of their services appear to be free, but users “pay” for them by giving away their data. Powerful though they already are, their huge stockmarket valuations suggest that investors are counting on them to double or even triple in size in the next decade.

There is thus a justified fear that the tech titans will use their power to protect and extend their dominance, to the detriment of consumers (see page 18). The tricky task for policymakers is to restrain them without unduly stifling innovation.

The less severe contest

The platforms have become so dominant because they benefit from “network effects”. Size begets size: the more sellers Amazon, say, can attract, the more buyers will shop there, which attracts more sellers, and so on. By some estimates, Amazon captures over 40% of online shopping in America. With more than 2bn monthly users, Facebook holds sway over the media industry. Firms cannot do without Google, which in some countries processes more than 90% of web searches. Facebook and Google control two-thirds of America’s online ad revenues.

America’s trustbusters have given tech giants the benefit of the doubt. They look for consumer harm, which is hard to establish when prices are falling and services are “free”. The firms themselves stress that a giant-killing startup is just a click away and that they could be toppled by a new technology, such as the blockchain. Before Google and Facebook, Alta Vista and MySpace were the bee’s knees. Who remembers them?

However, the barriers to entry are rising. Facebook not only owns the world’s largest pool of personal data, but also its big-

gest “social graph”—the list of its members and how they are connected. Amazon has more pricing information than any other firm. Voice assistants, such as Amazon’s Alexa and Google’s Assistant, will give them even more control over how people experience the internet. China’s tech firms have the heft to compete, but are not about to get unfettered access to Western consumers.

If this trend runs its course, consumers will suffer as the tech industry becomes less vibrant. Less money will go into start-ups, most good ideas will be bought up by the titans and, one way or another, the profits will be captured by the giants.

The early signs are already visible. The European Commission has accused Google of using control of Android, its mobile operating system, to give its own apps a leg up. Facebook keeps buying firms which could one day lure users away: first Instagram, then WhatsApp and most recently tbh, an app that lets teenagers send each other compliments anonymously. Although Amazon is still increasing competition in aggregate, as industries from groceries to television can attest, it can also spot rivals and squeeze them from the market.

The rivalry remedy

What to do? In the past, societies have tackled monopolies either by breaking them up, as with Standard Oil in 1911, or by regulating them as a public utility, as with AT&T in 1913. Today both those approaches have big drawbacks. The traditional tools of utilities regulation, such as price controls and profit caps, are hard to apply, since most products are free and would come at a high price in forgone investment and innovation. Likewise, a full-scale break-up would cripple the platforms’ economies of scale, worsening the service they offer consumers. And even then, in all likelihood one of the Googlettes or Facebabies would eventually sweep all before it as the inexorable logic of network effects reasserted itself.

The lack of a simple solution deprives politicians of easy slogans, but does not leave trustbusters impotent. Two broad changes of thinking would go a long way towards sensibly taming the titans. The first is to make better use of existing competition law. Trustbusters should scrutinise mergers to gauge whether a deal is likely to neutralise a potential long-term threat, even if the target is small at the time. Such scrutiny might have prevented Facebook’s acquisition of Instagram and Google’s of Waze, which makes navigation software. To ensure that the platforms do not favour their own products, oversight groups could be set up to deliberate on complaints from rivals—a bit like the independent “technical committee” created by the antitrust case against Microsoft in 2001. Immunity to content liability must go, too.

Second, trustbusters need to think afresh about how tech markets work. A central insight, one increasingly discussed among economists and regulators, is that personal data are the currency in which customers actually buy services. Through that prism, the tech titans receive valuable information—on their users’ behaviour, friends and purchasing habits—in return for their products. Just as America drew up sophisticated rules about intellectual property in the 19th century, so it needs ➤

► a new set of laws to govern the ownership and exchange of data, with the aim of giving solid rights to individuals.

In essence this means giving people more control over their information. If a user so desires, key data should be made available in real time to other firms—as banks in Europe are now required to do with customers' account information. Regulators could oblige platform firms to make anonymised bulk data available to competitors, in return for a fee, a bit like the compulsory licensing of a patent. Such data-sharing requirements could be calibrated to firms' size: the bigger platforms

are, the more they have to share. These mechanisms would turn data from something titans hoard, to suppress competition, into something users share, to foster innovation.

None of this will be simple, but it would tame the titans without wrecking the gains they have brought. Users would find it easier to switch between services. Upstart competitors would have access to some of the data that larger firms hold and thus be better equipped to grow to maturity without being gobbled up. And shareholders could no longer assume monopoly profits for decades to come. ■

Carillion's collapse

Britain's hard bargains

The world's leading privatiser of public services needs to get better at it



WHAT do high-speed railways, school lunches and army bases have in common? Perhaps not much, which may be one reason for the dramatic collapse of Carillion, a jack-of-all-trades contractor that did a bewildering array of work for Britain's public sector. On January 15th the firm went into liquidation, casting doubt on the prospects of its 43,000 employees, 30,000 subcontractors and the fulfilment of government contracts stretching three decades into the future.

The company's fall is a story of commercial overreach and miscalculation (see page 48). But it is also the story of a political philosophy. Carillion exemplified a way of running the state that was pioneered under Margaret Thatcher and which went on to conquer the world. Where once governments provided public services, they now commission them from private companies. The idea is to subject moribund state monopolies to the competition and innovation of the market. Yet a string of failures in Britain, of which Carillion is the latest, means that the country which converted the world to "contracting out" risks becoming a cautionary tale. Voters are flirting with a Labour opposition that has already vowed to renationalise industries and now says it would bring many public contracts back in-house. The Carillion affair could mark the collapse not just of a company, but of an idea.

The bigger they come

In a sense, Carillion is a good example of how a failure of contracting-out is better than a failure in the public sector. Its losses will be borne chiefly by shareholders and creditors, not taxpayers. Look closer, however, and the demise highlights how contracting will not live up to its promises unless it changes.

Even if taxpayers are not bailing Carillion out, they may still bear hundreds of millions of pounds in costs because of project delays, the transfer of contracts and the continuing need to provide vital services. And Carillion could yet bring down thousands of subcontractors. The company had become almost too big to fail. Its fragility should have disqualified it from HS2, a decades-long high-speed rail project. Instead, ministers seemed to see the £1.4bn (\$1.9bn) contract as a lifeline.

This moral hazard is aggravated by the market's unhealthy concentration. Only three companies operate private prisons

in Britain, for instance. A billion-pound contract to redevelop a London hospital attracted only two bidders. The government routinely commissions massive, long-term projects based on fewer quotes than voters would get for refitting their kitchen.

There is also the taint of private-sector greed. Carillion's board ensured that the bonuses of its managers cannot be clawed back. And this week the National Audit Office reported that the Private Finance Initiative (PFI), an accounting gimmick designed to get borrowing off the government's balance-sheet, has led to billions in extra costs without clear benefit.

How to fix all this? PFI, though flawed, is only part of the problem. Its use has been falling. More broadly, the remedy for bad management and weak competition in the private sector is not, as Labour says, to revert to bad management and no competition in the public sector. Britons may have forgotten the 1970s, but one reason for contracting-out was that public-sector roads, services and hospital-building were often shoddy and wasteful.

Instead, Britain needs to make its private markets more efficient, by improving commissioning and lowering barriers to entry. More standardised contracts would make the tendering process less burdensome, encouraging small and foreign firms to bid, despite lacking big English legal departments. That would increase the competition faced by firms like Carillion, part of whose competitive advantage was its knowledge of how to navigate the complex contracting process.

A couple of decades ago inexperienced civil servants were routinely diddled by armies of lawyers hired by private firms. Today's commissioners are better, but still fall for false economies. They favour low bids, only for bidders to renegotiate terms upwards later. Commissioning teams, and the bodies that audit them, have been squeezed by spending cuts, a small saving next to the size of the contracts. Overstretched bureaucrats are also more likely to award contracts to known outfits, like Carillion, which offer to roll lots of services into one tempting bundle—giving the company the whip hand.

Some quarters of government seem to believe that the efficiency and innovation of the private sector happen by magic. In reality they come about only when contracting-out is subject to the discipline of a real market. Without competition, private-sector managers are no more dynamic than the bureaucrats they replaced. If the government cannot create a market worthy of the name, voters may decide to throw out the idea altogether. That would be costly indeed. ■

Currency markets

Playing ketchup with the dollar

Whether a currency is cheap or dear is not always a good guide to its fortunes. It is now



well be disappointed. The dollar reached a peak against a basket of other currencies a year ago and has not threatened to regain it. Gurus of the foreign-exchange markets agree that 2018 is likely to be another year of modest decline. That is because of three sources of downward pressure.

The first relates to the world economy. The dollar's descent is not so much a judgment on America's fitness as a sign of the burgeoning health of other places. So long as America was one of the only places that could be relied upon for economic growth, there was a powerful logic to the dollar's strength. A broad-based global upswing—evident in everything from booming stockmarkets to a surging oil price (see page 59)—means that investors are now rushing into currencies other than the dollar. That effect is proving stronger than the expectation that American firms will repatriate more profits thanks to the recent tax cut. And it seems likely to continue.

The second source of downward pressure reflects a change in policymakers' attitudes. Until quite recently, no country seemed keen on a strong exchange rate. A cheap currency was prized. Curbing imports and boosting exports was a way to grab a bigger share of scarce world demand. In 2010 Brazil's finance minister said that a "currency war" had broken out, with countries vying to weaken their exchange rates using weapons such as quantitative easing (printing money to buy bonds) or capital controls. Rich-world central banks feared that even a hint of tighter monetary policy might cause their cur-

IN DECEMBER a new dollar bill came into circulation adorned with the signature of Steve Mnuchin. Instead of his usual scrawl, the treasury secretary opted to print his name. If he hoped that his best handwriting would give the greenback a fillip, he may

encies to surge against their peers, to their economy's detriment. But now that global growth is buoyant, few countries seem to mind much if their currency rises. Interest rates have been raised, not only in America but also in Canada and Britain. The European Central Bank (ECB) has reduced its bond-buying programme, as has Japan's central bank.

An era of currency peace

As extraordinary monetary policy is slowly withdrawn, the fundamentals matter more. This is the third force pushing down the dollar: its price against other major currencies. Benchmarks such as *The Economist's* Big Mac index, based on the idea that goods and services (in this case a burger) should cost the same the world over, are useful guides to how far currency values are out of whack. According to the latest version of the index, only a handful of rich countries have dearer currencies than America's (see page 62). That is a big change from a decade ago. On the same benchmark in 2008, only two rich countries had a cheaper currency than the greenback.

Some currencies have already jumped against the dollar. In a matter of weeks last summer the euro moved from \$1.11 to \$1.20, in response to a hint from the ECB's boss, Mario Draghi, that the tailing off of its bond-buying would begin soon. Other currencies are more likely to strengthen than in past years. It is easy to imagine the yen snapping back towards its fair value in the way the euro did last year. There are still cheap currencies in countries with close ties to the euro area's thriving economy, such as Poland and the Czech Republic. With the exception of Brazil's real, emerging-market currencies in general are still very undervalued. Expect them to strengthen further.

In the short term, a consensus on a currency's fall can be a prelude to it going the other way. But for 2018 as a whole, further strength in the greenback seems unlikely, no matter whose autograph is on the bills. ■

Democracy in Tunisia

The seven-year itch

Tunisia needs help if it is to remain a model for the Arab world



GDP per person has barely budged since the revolution. That is why Tunisia has once again been mired in protests, this time over higher taxes, lower subsidies and the lack of jobs.

Nine governments in seven years have failed to revive the economy (see page 39). Tunisians are losing faith in democracy.

BREAD, freedom, dignity." These were the demands of Tunisian protesters who threw off autocracy and sparked the Arab spring seven years ago this month. Tunisians now have more freedom and some dignity. But bread is scarcer than ever.

Some even yearn for the return of Zine el-Abidine Ben Ali, the despot whom they tossed out in 2011. According to today's rose-tinted nostalgia, he at least ensured that Tunisians had work. In fact, Mr Ben Ali left Tunisians feeling much as they do today: as if they have no future. He also tortured dissidents, oppressed workers and plundered the public coffers.

The best hope for Tunisia is still democracy. But for democracy to arrive, the government needs to put bread on the table—by beginning to fix Tunisia's economy.

There is much to do. The country is still haunted by the abuses of Mr Ben Ali and his cronies, who drove away foreign investors. In recent years a spate of terrorist attacks has scared off sun-loving tourists. At the first hint of cuts to the public sec- ►

►tor, the country's powerful labour unions call people into the streets or cripple the country with strikes. Repairing the economy will take time—and cause pain. But just when patience is needed, mob rule has become the norm.

The government's first task is macroeconomic stability. Youssef Chahed, the prime minister, deserves credit for sticking to his guns over the tax rises and subsidy cuts that led to the recent protests. (He had a nudge from the IMF, which has agreed to lend Tunisia €2.4bn, or \$2.9bn.) Even so, the government, an unruly alliance of nationalists and Islamists, has only haltingly worked to bring down the budget deficit, which was 6% of GDP last year, and to hold down public debt.

No pain, no gain

Mr Chahed must also do more to disentangle the state from the economy. Some 20% of workers have jobs in the public sector; their wages consume almost 14% of GDP, among the highest proportions in the world. Yet firms run by the government are stonkingly inefficient. The state oil company hired 14% more workers over the past decade—during which time production

volumes fell by 29%. Poorly run companies stumble on because competitors face steep barriers to entry in most sectors of the economy. Revenues from the sale of oil, gas and phosphate are not invested in infrastructure that might encourage enterprise, especially in the neglected hinterland, where the commodities are extracted.

Rich countries could do more to help keep Tunisia on track. Yet President Donald Trump's proposed budget would cut bilateral aid to the country by two-thirds. France has given relatively little to its former colony. More important, America and Europe could open their markets to more Tunisian goods. In 2016 the European Union raised quotas for Tunisian olive oil, a significant export, for two years. Such deals could be extended, and more thrashed out—on Tunisian dates, vegetables, clothes and machinery.

But the world can do only so much. The burden ultimately falls on Tunisia's leaders to mend the economy and make the case for democracy. Their caution is prolonging the pain of reform. Tunisians acted boldly in choosing democracy. They must be just as bold in pursuing prosperity. ■

The new space race

In heaven as it is on Earth

Events in space reflect those back home



LATER this month, if all has gone according to plan, a rocket called the Falcon Heavy will take off from Cape Canaveral, in Florida (see page 66). Its mission is to put a sports car in orbit around the sun. The Falcon Heavy is the latest product of SpaceX, a firm founded by Elon Musk, an American billionaire. The car is Mr Musk's own, made by Tesla, another of his businesses. SpaceX has the explicit aim, besides making money, of enabling people to travel to and colonise Mars. Before then, the Falcon Heavy may earn its keep lifting satellites and carrying tourists on "slingshot" trips around the moon.

Mr Musk's ambition is to propel humanity beyond its home planet. But what is going on in space today also reflects the shifting balance of power on Earth. In the days of the space race between America and the Soviet Union, the heavens were a front in the cold war between two competing ideologies. Since then, power has not merely shifted between countries. It has also shifted between governments and individuals.

Wacky races

International competition is not absent from outer space. China, for instance, is making noises about Mars. Last year it deemed an expanse of desert in the country's north-west to be sufficiently Martian to be reserved as a training ground for Mars-bound "taikonauts". China is also moving its principal space port from the north to the south of the country, partly in order to take advantage of the extra launch velocity imparted nearer the equator by Earth's spin (see page 27). In America, meanwhile, President Donald Trump signed an order in December directing NASA, the country's space agency, to prepare for a return of American astronauts to the moon.

Yet in comparison with the 1960s, things are all quite slow-moving. Actual target dates were notably absent from Mr Trump's announcement, and China's ambitions for men and women on the moon have a similarly lackadaisical feel to them. This greater relaxation about matters space-related is in part because the original race was seen as a crucial test of whether capitalism or central planning was the better economic system (though NASA's effort was probably the most centrally planned civilian operation in the history of the United States). The lack of intensity in space today reflects the calmer nature of superpower rivalry on Earth.

It also reflects the diffusion of wealth and technology. The number of "spacefaring" countries has increased since the 1960s, when only America and the Soviet Union counted. Now—besides China and Russia—Europe, India and Japan also have space programmes that can, and do, reach the moon and other heavenly bodies with robot spacecraft.

As for the idea that a private individual could run a space programme, that would have been laughable back then. Now several are. For Mr Musk has rivals, from Blue Origin (backed by Jeff Bezos of Amazon) at one end to a plucky, pint-sized start-up called Rocket Lab at the other. (It hopes to make its first launch into orbit in the next few days.) Lifting satellites into orbit is a proper business, and therefore properly the business of businessfolk. The fact that a wealthy person is willing to spend his money on such a fanciful space project as going to Mars is, though, an intriguing departure—and a good measure of just how rich some people have become.

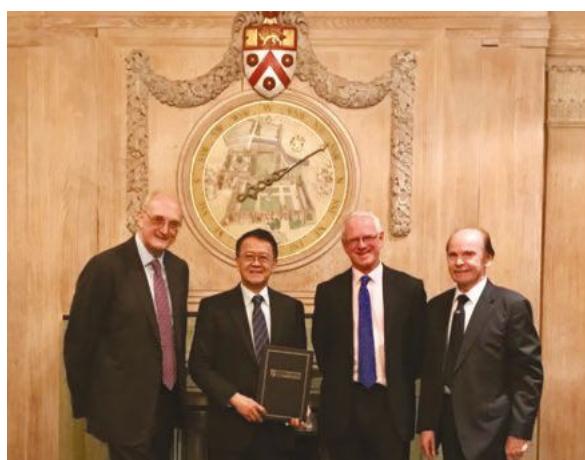
For now, the world's private space programmes, whether commercial or quixotic, are mostly American. But the model is spreading. Even China sports nascent rocket firms. The incipient race to Mars will include companies as well as countries. That will make it a better test of economic systems than the original space race ever was. ■

CAMBRIDGE PARTNERS SUNWAY

The University of Cambridge has signed agreements with Malaysia's Sunway Medical Centre and the Jeffrey Cheah Foundation in which Sunway Medical Centre will establish the Sunway Clinical Research Centre as the regional site partner of the University of Cambridge School of Clinical Medicine. This is the first Cambridge-linked collaboration of its kind in the world.



Tan Sri Dato' Seri Dr Jeffrey Cheah AO, Founder and Chairman of Sunway Group (second from right), signs agreements at the University of Cambridge with Prof Patrick Maxwell, Head of School of Clinical Medicine of the University of Cambridge and Director of Cambridge University Health Partners (left), Stephen Posey, Chief Executive of Papworth Hospital NHS Foundation Trust (second from left), and Stephen J. Toope, OC, Vice-Chancellor of the University of Cambridge (right).



From left: Prof Sir Leszek Borysiewicz, Emeritus Vice Chancellor of University of Cambridge, Tan Sri Dato' Seri Dr Jeffrey Cheah AO, Prof Patrick Maxwell, and Prof Jarlath Ronayne, Tan Sri Jeffrey Cheah Distinguished Professor at Sunway University.



From left: YB Datuk Seri Dr S. Subramaniam, Minister of Health, Malaysia, commemorated the establishment of the Sunway Clinical Research Centre, with YBhg Tan Sri Dato' Seri Dr Jeffrey Cheah AO, and Gary Keegan, Director of Development for Cambridge University Health Partners.

The turn to nationalism

Regarding the rise of nationalism ("Vladimir's choice", December 23rd), the middle class is not angry because it demands respect, but because the liberal elite has run out of ideas about how to create good jobs in the face of rapidly increasing populations. For many people, nationalism holds the promise of a higher morality compared with the debauchery of the elite, which is out of touch with middle-class aspirations. The middle class in India latches on to nationalism as it promises better infrastructure and jobs. Politicians on the right have channelled this anger by blaming the liberal elite, migrants (internal, in India's case) and religious minorities.

The global liberal order represents the status quo. The rise of nationalism gives it an opportunity to set its house in order, investing more to improve the lives of the masses. Governments need to do all they can to end corruption and deliver good governance. Power has to be taken away from the tight networks of old money and elite schools, and given to those who are capable of delivering the goods. That might be the only way to stop the angry slide towards aggressive right-wing nationalism.

RUSHABH MEHTA

Mumbai

You referred to Europe's liberation from the "carapace" of the Austro-Hungarian empire. This reminded me of a visit to Schloss Artstetten in Austria, the home and burial place of Archduke Franz Ferdinand, a notable victim of nationalism. In his study was a map of the proposed United States of Greater Austria, a plan for a democratic multinational confederation that the archduke's advisers had urged in order to resolve social and ethnic tensions. Looking at this beautiful map I reflected that it took two world wars and decades of imperial Soviet control before those states were again united.

JAMES DAWSON
London

Much as nationalism might be part of the Law and Justice party's ideology in Poland, it is by no means its centrepiece. What lies at its core is the worldview of its leader, Jaroslaw Kaczynski, who perceives reality as a battle between good and evil. This is a reason why he and his acolytes disapprove of the way Poland moved from communism and authoritarianism to capitalism and democracy. There was no revolution, no decisive final battle. The transition to democracy was made possible by a business transaction to wipe the slate clean. What was particularly outrageous for them was to see leaders of the opposition drinking vodka and fraternising with Communist Party bosses during the negotiations. To them, 1989 was an immoral deal as most apparatchiks got off scot-free.

Mr Kaczynski's worldview explains Law and Justice's intransigence and authoritarian leanings. After all, democracy is a messy process that involves compromises, trade-offs and concessions, for which there is no place in Mr Kaczynski's Manichean universe. The instrumentality of one-party rule in the crusade against evil has great appeal.

PIOTR ZIENTARA
Associate professor of economics
University of Gdansk

Polygamy and civil war

You pointed to the high incidence of polygamy, and specifically polygyny, in which one husband has multiple wives, for being in part responsible for South Sudan's civil war ("The perils of polygamy", December 23rd). In fact, the causal relationship between polygyny and conflict is unclear. Societies with the highest polygyny rates, such as Benin, Burkina Faso and Guinea, are also characterised by high rates of population growth and by lengthy gaps between men's and women's average ages at first marriage, with men marrying five to ten years later than women. This combination of factors means that, even though males spend

less of their lives in marriage than do females in these societies, they almost all marry at some point. Notably, Benin, Burkina Faso and Guinea, although impoverished and poorly governed, have yet to experience civil war.

Polygyny in these societies is no boon to women, but neither is it the driver of social unrest that some have claimed it to be.

BRUCE WHITEHOUSE
Associate professor of anthropology
Lehigh University
Bethlehem, Pennsylvania

The sugar trade

"Nearly sweet nothing" (December 16th) misread the reality of international sugar politics. Countries and regional trade blocs apply substantial tariff protections on sugar imports to protect their own producers. The European Union and the United States apply duties of over 100%, for example. As such, Caribbean countries agreed long ago to a Common External Tariff (CET) of 40% on imports of raw and refined sugar. In October 2017, the EU ended a policy that had for decades provided Caribbean sugar producers with a far higher price than was available anywhere else. As we turn to our domestic and regional markets, we face widespread dumping of subsidised sugar.

The Caribbean industry simply wishes to exercise its right to tariff protection, which was originally negotiated when CARICOM was established and is a widespread practice around the world. The Inter-American Development Bank judges the effect on consumer prices to be negligible. We want to see a genuine regionally integrated sugar market, providing security of supply and quality to Caribbean manufacturers and consumers. Proper application of the CET will create this, and importantly, will incentivise investment.

KARL JAMES
Chairman
Sugar Association of the Caribbean
Couva, Trinidad

Who settled Iceland?

The claim that Iceland was unpopulated when settled by Norsemen in 874 ("An old tongue's new tricks", December 23rd) is questioned by some historians. The first settlers may actually have been Gaelic-speaking, seafaring Irish monks fleeing the Vikings in Ireland. According to this theory, the monks moved on once the Norse marauders showed up. Scholars of the Sagas point to the impact of Gaelic writings and believe it is not coincidental that Ireland and Iceland were the only places in western Europe where oral traditions were written down this way.

FEARHAS O'BEARA
Brussels

Uh-uh



Johnson wrote about the importance of pauses in conversation, such as the use of "mm-hmm" to show sympathy as a listener (December 16th). The screenwriters of "The Big Sleep" in 1946 knew the importance of the pause. Take this for example, an exchange between General Sternwood and Philip Marlowe following a monologue by the general:

Philip Marlowe: "Hmm."

General Sternwood: "What does that mean?"

Philip Marlowe: "It means, hmm."

PAUL O'MALLEY

Fort Wayne, Indiana ■

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

Executive Focus



COURT OF JUSTICE
OF THE EUROPEAN UNION

The Court of Justice of the European Union, Luxembourg,
is inviting applications for the post of

DIRECTOR GENERAL FOR INFORMATION

The Directorate General of Information's mission is to produce, manage and store all information concerning the activities of the institution. It comprises the Directorate for Information Technology, the Library Directorate and the Communications Directorate.

Reporting to the Registrar of the Court of Justice, the Director General will be responsible, in particular, for defining and implementing a strategy for the management of knowledge and information in line with the priorities established by the institution, in particular in the light of its specific nature as a judicial body.

The successful candidate will be appointed as an official of the Court of Justice, in accordance with Article 29(2) of the EU Staff Regulations, at grade AD 15 or AD 16.

Further details, as well as information regarding the requirements for the job and the application procedure are available at :

www.curia.europa.eu/jobs

Deadline for applications is 31 January 2018.

www.curia.europa.eu



SHELTER AFRIQUE
Financing Affordable Housing for Africa

INDEPENDENT DIRECTOR

SHELTER-AFRIQUE is a regional Housing Finance Institution established by African Governments and the African Development Bank dedicated to investment in housing and urban development in African countries. The current shareholding comprises 44 African countries, the African Development Bank and the African Re-Insurance Corporation. In order to enhance its corporate governance, the Institution with its headquarters in Nairobi would like to fill a vacancy on its Board of Directors for the position of Independent Director with specialty in investment analysis, construction finance, debt restructuring and/or capital raising from nationals of its member countries.

The Director shall be expected to:

1. Actively participate in the Board Committees and Board meetings and deliberations as any other director;
2. Provide technical, financial, and other independent expertise to the Board;
3. Reduce potential conflicts between the management and wider interest of the Company and Shareholders;
4. Provide the benefit of their experience and know-how to decision making by the Board;
5. Lead some of the Board's Committees;
6. Independent Director shall serve for a term of 3 years renewable only once;

Minimum Qualifications and experience:

1. Prospective candidates must have at least ten-year experience as a Director of the board of directors of a reputable local or International organization;
2. The Director should have qualifications and experience in investment analysis, low-income housing construction project finance, debt restructuring and/or capital raising.
3. He/She will have an MBA or other advanced business degree with at least 10 years professional experience.
4. The Independent director shall have no material relationship with the Institution beyond his or her directorship and who:
 - » Has not been an employee or an officer of Shelter-Afrique for the preceding five financial years;
 - » Has not been an employee or an officer of a company directly or indirectly controlled by the Institution;
 - » Has not been a client, or financial agent in business in relation with the Institution;
 - » Has no family links with the senior officers of the Institution;
 - » Has not, during the last five years, worked for the Institution in a professional capacity e.g. as its auditor or corporate lawyer;
 - » Has not been a director of the Institution during the last twelve years
 - » Does not represent any Shareholder or group of Shareholders;

COMPENSATION:

Shelter-Afrique shall offer competitive and attractive compensation to the independent directors to include travel and other costs as well as sitting allowances and/or director fees for both Board and Committee meetings.

APPLICATIONS:

Applicants are invited to send a cover letter illustrating their suitability against the listed qualifications and detailed curriculum vitae as well as names and addresses of the referees to executivedirector@shelterafrique.org and/or Shelter Afrique Center Longonot Road Upper Hill PO Box 41479-00100, Nairobi Kenya.

Applicants should indicate the position applied for as the subject line of their email submissions. The deadline for submission is 21st February 2018. Only short-listed applicants meeting the above requirements will be contacted.

We invite you to learn more about Shelter-Afrique by accessing our website: www.shelterafrique.org

RESEARCH DIRECTOR AND EXECUTIVE DIRECTOR MERCATOR INSTITUTE FOR CHINA STUDIES, BERLIN

The Mercator Institute for China Studies (MERICS) was founded in 2013 based on an initiative by Stiftung Mercator. MERICS pursues practice-oriented China research focusing on contemporary issues and is one of the largest institutes of its kind in the world. The institute investigates important topics and fields of activity relevant to relations with China, disseminates its research findings among the general public, and makes its expertise on China available to decision-makers in the political and business fields and society at large. MERICS has its headquarters in Berlin.

The institute is currently seeking a new Director and hopes to fill the position as soon as possible.

We are looking for a person who will represent the institute in public and in the media and who will assume responsibility for the coordination and administration of all research activities undertaken by MERICS. Along with the relevant professional and personal skills, the institute's Director requires a comprehensive understanding of how to work with civil society and endowments, and a keen interest in think-tank development and innovation.

Candidate qualifications/profile

- Extensive research and leadership experience in leading research institutions focusing on contemporary China
- Extensive practical knowledge of and a strong commitment to research into the significance of China in the twenty-first century
- Publications in internationally prestigious journals
- Proven success in the acquisition of third-party funding
- A high level of entrepreneurial and leadership ability
- Strong organizational ability and capacity for conceptual and strategic thinking
- An ability to deal with crises and conflict, strong judgement and decision-making skills

- Resilient network across political institutions in Germany and the EU, civil society, the media and the private sector

- Strong communication skills and powers of persuasion in a range of environments and contexts
- Excellent knowledge of Chinese, long period spent in China an advantage
- German as native language an advantage

Tasks

- Coordination and administration of MERICS research programme
- Ongoing institutional development of MERICS
- Representation of the institute in public and the media

The position offers scope for strong responsible leadership and creative development. Please send a comprehensive application including your CV, credentials, salary requirements and the earliest date at which you could take up the position per email to: Marc Bermann, Head of China Program, Stiftung Mercator. Email: marc.bermann@stiftung-mercator.de. Application deadline: 23 February 2018



**STIFTUNG
MERCATOR**



With the political mood turning against digital giants, the world's largest tech bosses are scrambling to understand what could be in store. A note from their strategist



Eve Smith <evesmith@invisiblehandstrategies.com>

Silicon Valley, we have a problem

1 message

Eve Smith, Invisible Hand Strategies, LLC <evesmith@invisiblehandstrategies.com>
 To: Jeff Bezos <jeffbezos@amazon.com>, Mark Zuckerberg <markzuckerberg@facebook.com>,
 Sundar Pichai <sundarpichai@google.com>
 CC: Tim Cook <timcook@apple.com>, Reed Hastings <reedhastings@netflix.com>,
 Satya Nadella <satyanadella@microsoft.com>

19 January 2018 at 17:45

Dear Jeff, Mark and Sundar, if I may

I imagine your concern about the simmering tech backlash has grown since we ran into each other in the desert in September. The heat directed at your firms has certainly risen. Attached to this e-mail you will find the full report I promised, analysing the grave political and business risks that your firms face. I hope you will read everything I am sending in full, and please do not distribute my work to your underlings, as none of us want this e-mail to leak to the press.

The takeaway is that it is looking more likely that one of you could end up like the giant structure at Burning Man which the crowd torches, watching with rapt attention as it burns down to ash.

Things have been rough in Europe for a while. They are getting worse. Having levelled a fine of \$2.7bn against Google in 2017, the European Commission's Magrethe Vestager wants to go further. National governments are also baring their teeth. In December Germany's cartel office accused Facebook of unfairly using its position to track internet users. France has threatened to fine Facebook for sharing data between its various apps. Almost every day you get hammered for not properly policing the content, including extremists' videos, revenge porn and fake news, that appears on your platforms.

America is not the haven it was. Under Barack Obama tech was treated as a dazzling national asset; he had your back. The candidates in

2020, whoever they are, are likely to run on an anti-tech platform of some sort. Democrats have already pledged to "crack down on corporate monopolies". The Republicans—besides hating you for being coastal liberals desperate to promote your politically correct worldview—have some business worries, too. Just look at how the Department of Justice (DoJ) is trying to block AT&T's acquisition of Time Warner, a content company. I know they gutted net neutrality: but that had more to do with hating everything Obama did than valuing a light touch with the internet.

Meanwhile a handful of state attorneys general, including Missouri's, have launched probes into Google. Any of these could spark a fire. The federal antitrust case against Microsoft started after states investigated the company's conduct; Texas played a pivotal role in handicapping Standard Oil in the 1880s. The Sherman Act of 1890 followed and by 1911—before the Clayton Act was even passed—John D. Rockefeller's pride and joy, the greatest company of its day, was lying on the floor in 34 parts. Knowing that a consultant in Washington refers to Amazon, Facebook and Google as "Standard Commerce, Standard Social and Standard Data" should make you shudder.

Rockefeller was once the richest man in the world. Don't think that crown will help whichever of you is wearing it when the music stops. The fact that four of the five most valuable publicly traded firms in the ➤

world are technology companies, with a combined market value of \$3trn, gives you muscle. So do the massive revenues which most of you turn into profits. But the fact that all the figures associated with your industry are huge—except for your tax bills—is one reason you have so many enemies.

There is one ray of light. Almost all your services remain wildly popular with consumers; they use your products to communicate, to navigate, to search for stuff, to buy things and to socialise. They cannot imagine life without you. This is one reason investors have dismissed anti-tech rhetoric as political grandstanding. But today's market sentiment could change quickly. An analyst at RBC Capital, Mark Mahaney, recently published a list of "top ten internet surprises for 2018". Material regulatory action against tech was number one; he rated the probability as low but "higher than financial markets ascribe". And the impact could be huge.

"Tech" is not yet a four-letter word, but it could soon become one.

BAADD to worse

You are an industry that embraces acronyms, so let me explain the situation with a new one: "BAADD". You are thought to be too big, anti-competitive, addictive and destructive to democracy.

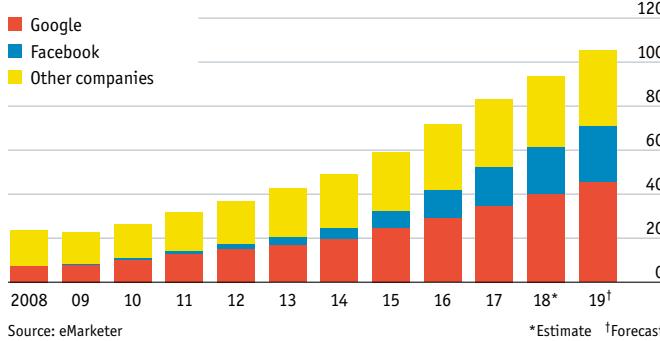
Those who dislike you for being **big** draw on research from *The Economist*, think-tanks and academia pointing to the rising concentration in American business, some of which links high corporate profits to inequality. The value of your mountains of data is becoming obvious, especially as you continue to push into new areas that collect more information about consumers while binding them closer to you, such as the home microphones you are careful to call home speakers. Facebook and Google are responsible for nearly 80% of news publishers' referral traffic. In 2017 they claimed around 80% of every new online-ad dollar in America. Google dominates as much as 85% of online-search-ad revenue worldwide. When you combine the stuff Amazon sells itself with the stuff others sell using it as a marketplace, the company controls some 40% of America's online commerce.

Many also believe you to be **anti-competitive**. Amazon is a retailer which is also a marketplace. Google determines the position that publishers get in search results and which ads are served to their patrons—as well as controlling the system that says if the ads were read and should be paid for. Ms Vestager fined it for hurting rival online-shopping services; it could face further charges for forcing smartphone makers using its Android operating system to include various Google apps.

All three of your firms have used insights from the data you gather to spot incipient rivals and buy them up. Facebook's little-known app Onavo, which tracks users' smartphone activity, helped it spot several potential threats, including Instagram, a photo app, which it bought

Advalanche

United States, net digital advertising revenue, \$bn



in 2012; WhatsApp, a messaging service, for which it paid a stunning \$22bn in 2014; and tbh, a social-polling app, which it acquired last year. When Snapchat rebuffed it in 2013, it responded by cloning the app's most successful features. There's a potential lesson from history here. Microsoft tried to buy the nascent browser company Netscape in the 1990s; when it failed, it put lots of the browser's features into its own product, making it freely available to all. That got it into a lot of trouble. Some see the weak share price of Snap, Snapchat's parent company, as proof that challenging Google's and Facebook's online-ad duopoly has become nearly impossible.

A further charge is that tech firms' products are **addictive**. People argue about this, but many feel that people who spend time on social media, especially teens, are less happy than peers. Rates of teen depression and suicide have risen in some places; some adults have been shown to be more prone to insomnia, depression and anxiety due to online activities. Two of Apple's shareholders—the California State Teachers' Retirement System pension fund and Jana Partners, a hedge fund—recently demanded more be done to help youngsters' smartphone addiction. You know you are in trouble if a Wall Street firm is lecturing you about morality.

In addition to harming mental health, your firms are charged with **damaging democracy**. Social-media firms create filter bubbles, where users are fed information confirming their existing beliefs; they spread fake news that reinforces political polarisation. After last year's terror attacks in London, Theresa May and others pointed fingers at YouTube, where jihadists promote extremist propaganda. Russia's use of social media in America's 2016 presidential race reflected particularly poorly on Facebook, which was seen as doing too little to stamp out deceptive ads and fake news stories. As for nuclear braggadocio on Twitter, let's not even go there.

Proposed actions

Was it Sun Tzu who said: "Your most unhappy customers are your greatest source of learning"? Actually, no. It was Bill Gates. Less good on an ancient Chinese battlefield: wiser, through bitter experience, in the ways of antitrust. These days your unhappiest customers don't just moan; they go online to discuss innovative regulatory schemes, some of them quite wacky: Joshua Wright, a professor at George Mason University, calls this "hipster antitrust". Hipsterish or not, here are some of the ideas making the rounds, with the most damaging first:

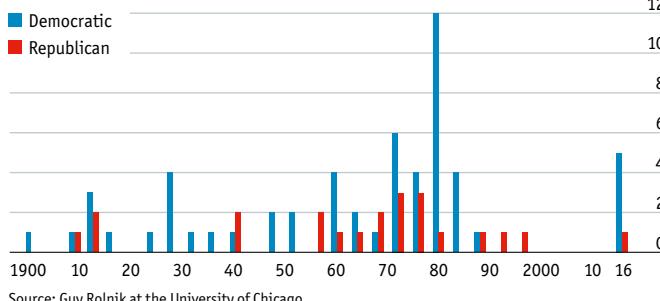
Break up

This has several supporters, especially on the left. One is Barry Lynn of the Open Markets Institute (he was dismissed from the New America Foundation last year, allegedly because Google's Eric Schmidt disagreed with his take on tech). Tim Wu, who was influential in the Obama White House—he coined the term "net neutrality"—was recently overheard telling an *Economist* journalist that he is in favour of a revival of "the big case tradition" of trustbusting. The do, or the European Commission could try and force Facebook to get rid of Instagram and WhatsApp (the deal European regulators really care about), thus creating three rival social networks. Google could be split from YouTube (which, kind of remarkably, is itself the world's second-largest search engine) or be forced to spin off DoubleClick, the technology it bought in 2007 that places ads across the web.

Such gambits might well fail; but that risk is not the deterrent you might expect. Mr Wu and others think such attempts serve a greater good even if their subject survives. Before eventually breaking up AT&T, which controlled America's telephones, regulators forced it to license its technology. Neither IBM in the 1960s nor Microsoft in the 1990s was actually split up. But IBM had to open its platform to independent software developers and Microsoft was obliged to disclose details about the workings of its Windows operating system to rivals. Some scholars reckon this government-ordained disruption was as much of a boost to progress as any endogenous "creative destruc-

Monopoly is not a game

Mentions of "antitrust" in Democratic and Republican platforms



a company with a market share of more than 3% by one with a share higher than 15% should be challenged by the doj. There are no limits like that any more. For the past four decades American antitrust thinking has been in thrall to the argument which Robert Bork, a legal scholar, made in "The Antitrust Paradox": consumer welfare is the thing antitrust should worry about most. In practice, this has boiled down to thinking that if prices don't go up no harm is done. Around the same time economists of the Chicago School, devoted to the idea that markets are self-correcting, started to have a big influence on antitrust enforcement under President Ronald Reagan—or, rather, lack of enforcement.

It is a sign of the times that the University of Chicago is today home to several professors, such as Luigi Zingales and Guy Rolnik, calling loudly for more scrutiny of tech firms. Many believe that looking simply at prices and market shares is too simplistic—especially when technology is often free to the user and constantly changing the shape of the market. One reason that Britain's Office of Fair Trading was relaxed about Facebook's Instagram purchase was that it saw Instagram as a "camera and photo-editing app", not a social network, and thus unlikely to ever be "attractive to advertisers on a stand-alone basis". Clearly they lacked imagination.

Europe has always used a range of metrics, taking on board market concentration and consumer welfare—which includes price, quality and the diversity of products in the market—to evaluate fair competition. And countries there clearly now want to police more deals. Last year Germany and Austria changed their merger-review policies to assess deals based on the values, not revenues, of the acquired firms. This will enable them to scrutinise the acquisition of startups that do not yet make money. Ms Vestager has suggested this could apply across Europe. Some would like to see it applied in America.

Amy Klobuchar, a Democratic senator, has proposed two bills to change the standard for big deals, requiring firms to prove that their deal would be helpful to competition and to report data about a merger's impact for five years. Those bills won't pass, but a "potential competition doctrine" which looks at what the small fry might become, not at what they are today, could emerge through new precedents. It is also possible that bodies of user data, as well as market shares, might get considered.

My advice? Don't pursue any big deals in this current climate. Microsoft misjudged the mood by trying to buy Intuit, a maker of financial software, for \$1.5bn in 1994; the episode drew attention to other aspects of its market power. And, frankly, small deals may be out, too. Facebook's acquisition of tbh is for a paltry \$80m, but it has still sparked cries of foul from tech watchers such as Ben Thompson at Stratechery, a newsletter, who think that network effects mean no social networks should be allowed to merge. For the time being, your shopping trolleys should be kept empty.

Data portability and interoperability

There are two overlapping issues about customer data. One is that data bind users to you; the other is that data give you an anti-competitive edge. Remedies to the first problem seek to let customers move their data elsewhere; remedies to the second seek to force you to share their data with others.

Google already voluntarily offers a "takeout service" which lets users export a copy of their data. Europe's General Data Protection Regulation, which comes into effect this May, will extend the principle of data portability to other platforms. Observers compare it to how mobile-phone users can switch networks without losing their phone number. This should not worry you too much. Most customers won't care; very few people are up for the hassle of actually using Google's takeout service. And your dominance means there is very little funding for new search engines and social networks, and thus few alternative services to which consumers can port their data.

tion". They may not be going too far when they trace the rise of your generation of tech firms to those antitrust cases.

Pre-emptive action might sometimes be an option. Some see your search for a second headquarters, Jeff, as a portent of such a strategy: a step towards spinning off Amazon Web Services. (This would not allay concerns about Amazon being both a retailer and marketplace, but it could subdue and distract regulators.) The creation of Alphabet as a holding company in 2015 means that splitting, say, Google from YouTube would be less hard than in years gone by.

Self-severance might be preferable to waiting for regulators to arbitrarily decide which limb to sever. But it is still a big step. An alternative is just lying low. Do not provoke regulators, as Mr Gates did (he called one FTC commissioner a communist). Do spend some of your money on influence. In 2017 the internet sector spent \$50m on lobbying in America, which is three times what it spent in 2009—but still only a quarter of what pharma firms spend. Your K-street battalions should remind regulators that attacking deals which have already been done chills the market. And the antitrust hipsters need to know that break-ups are not stable solutions. The network effects that make bigger networks more attractive to new joiners give these markets a winner-takes-all quality. One of the Googlettes, or the Facebabies, will do better than all the rest, and a new giant will rise.

Utility regulation

That said, taking this winner-takes-all argument too far could backfire. Mark, you and your peers may all come to rue the day you described Facebook as a "utility". You were trying to argue that Facebook's market-dominating social network could be as ubiquitous as electricity. In doing so you armed your critics. Utilities so big that everyone depends on them get regulated.

That could be really disastrous. Have a look at "Railroaded" by Richard White, a historian at Stanford. The Interstate Commerce Commission (ICC) was created in 1886 to stop train companies discriminating against particular farmers by establishing set and transparent pricing. It quickly overreached and ended up regulating trucking and the telegraph. It also proved chronically prone to regulatory capture—which, I admit, might be an upside for you, but which in the case of the ICC was a disaster.

Price regulation is hard for services that are basically free to the user. It is possible, though, that a regulator could force prices up—for example by insisting that you offer customers the chance to pay for an ad-free service. A more likely approach, though, would be to cap profits. On the basis of your third-quarter figures, a mandated 20% rate of return would represent a fall in profitability rates of 11% for Google and 56% for Facebook. Your share prices would plunge.

Prevent new acquisitions

In 1968 America's merger guidelines suggested that any acquisition of



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► But that dominance has a downside. It is the reason why some people want to force firms to offer “API keys” which give competitors access to particular data, such as Amazon’s sales figures or the “social graph” of Facebook’s users’ connections. You will probably want to fight sharing data in such ways, because the critics have a point: newcomers are hard put to compete. The days when Instagram was able to grow by using an API that allowed people to discover all the people they followed on Twitter as soon as they joined are long gone. You may find that you have surprising allies in the fight, too. Some privacy advocates find the idea of data being forcibly shared pretty worrying.

Losing that fight could be uncomfortable, but it would hardly be deadly. Indeed, while it would hit your share price, it could offer long-term advantages. The way in which it opens you up to competition reinforces your centrality to the ecosystem—and that ecosystem may, as a result, grow faster. The interoperability forced on Microsoft at the turn of the century, which allowed rivals to make their products more compatible with Windows, had that sort of accelerating effect—and Microsoft has hardly gone away. It is worth more than three times as much now as it was then.

A new dispute-resolution group

Techlashers think one reason regulators have come up short is that they are overburdened policing too many industries. New groups to handle complaints and resolve disputes could make things faster and simpler. If a retailer feels it has been unfairly squashed in Amazon’s search results, or a newspaper believes its ranking in Facebook’s feeds is too low, they could go to such outfits for redress.

There are two potential models. Firms could start their own “technical committees” made up of external experts with access to the relevant proprietary code, data and algorithms. They would be empowered to decide whether other firms are being fairly treated. Again, that is what happened in the Microsoft case. The alternative would be an independent external tribunal. America has panels for disputes about patents and about discrimination by cable-TV operators which might serve as precedents.

You may not like the idea of creating a new tribunal (or the very word “tribunal”), but it is in your interest to see complaints resolved easily and cost-effectively. In the meantime, start being more careful about how you treat rival firms. It might have been different before, but anti-competitive behaviour is suddenly being taken very seriously. Like sexual harassment accusations, it carries a reputational cost. “M”, for monopolist, is today’s scarlet letter.

Content liability

The laws and precedents that free you from liability for the content that you host have been a boon; but they were not set up for a world in which your platforms have become essential media properties in their own right. Your blanket protection is not going to last.

Though some of you have tasked your lobbyists with trying to weaken it, sensing the thin end of a wedge, an American bill that would hold you liable for online sex-trafficking is likely to pass. Germany can now impose fat fines if flagged content is not taken down within 24 hours. Laws of this nature are probably not the catastrophes you have denounced them to be. You will have to hire more “moderators”, but in time you will develop new technologies to screen out undesirable content, as you already do with spam. Google’s ability to deal with “right to be forgotten” claims, which enable people to request information about them to be taken down, has become a well-oiled machine, far from the tremendous burden some had feared.

The way ahead

In general, when you can get out ahead of the issue you should do so. Embracing transparency about who pays for political ads before Congress got around to requiring it of you was a smart move. Look at setting up your own technical committees, too.

Your new-year’s pledge to “fix Facebook”, Mark, looks like a bold effort in this direction. Have a care, though: some people may want more fixing than you are happy to offer. There are some who say you can never deliver what is needed without scrapping your ad-based business model, which will always value engagement over the quality of the experience. And when fixes like changing the newsfeed algorithms have effects on lots of other companies, you may both harm your business and reinforce concerns about its immense power.

It is critical that you compete with each other. If you are waging war on various fronts, such as commerce and digital advertising, you look a lot less monopolistic. This is probably an argument for keeping alive businesses that you might otherwise scale back, as Google has done with its social offering, Google+. Acting as if your rivals are too well-resourced and entrenched for even another giant to take on lends credence to the arguments against you.

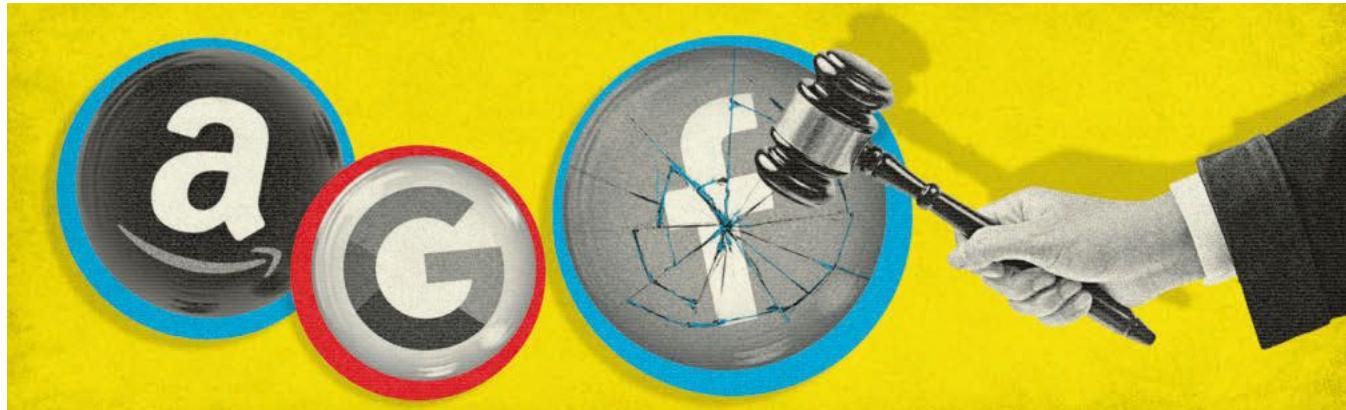
And there’s another lesson from the robber barons—one that some of you and your peers have already embraced. Philanthropy can change people’s opinions and shape your legacies into the far future. In part because you do not employ as many people as corporate giants of previous eras, it is critical to think about local initiatives that can woo public opinion around the world. Mark has made the biggest strides in setting up a foundation. The rest of you could form personal or corporate foundations, too.

If you have any questions, please be in touch by encrypted app.

Very sincerely yours,

Eve Smith
Invisible Hand Strategies, LLC

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Politics in Thailand

Home truths

UBON RATCHATHANI

The rice-growing heartland harbours unexpected support for the military regime

“We vote for policies, not for a party,” declares Jutamas Kamsomsri, a housewife in a farming family in the village of Nakam. “We aren’t stupid, we watch the news on Facebook,” the bespectacled matriarch adds. This in itself may be news to those who assume that voters in Isaan, a poor region in north-east Thailand that is home to roughly a third of the country’s 69m people, are blindly loyal to Thaksin Shinawatra, a former prime minister deposed in a coup in 2006, and to his sister Yingluck Shinawatra, who ran the country for almost three years until another coup ousted her in 2014.

Parties associated with the family have won every election since 2001, thanks to votes from Thailand’s north and northeast. Their supporters call themselves “red shirts” and are stalwarts of the Shinawatras’ current political vehicle, the Pheu Thai party (PT). Given that history, however, Isaan’s farmers are surprisingly ambivalent about how they will vote if the military regime allows thrice-delayed parliamentary elections to be held in November, as promised.

Isaan is vast and carpeted in paddy-fields. Hunks of cassava are spread out on the roads to dry. Locals grumble over the prices they receive for their grains, sugar cane and tapioca, as almost everyone works on the land (just over a third of Thai

workers do overall). A surge in agricultural prices between 2001 and 2012 is remembered fondly. They have wobbled ever since. Dogs and children thread through the streets of forlorn villages while the elderly gossip. Almost everyone of working age is in Bangkok; the region has little industry of its own. A quarter of households are headed by an old person, a much higher share than in the country as a whole.

Money can buy you love

The Shinawatras’ popularity was the result of populist policies. Isaan’s love was dearly, and ingeniously, bought. Take rice subsidies. Mr Thaksin introduced payments for farmers which became more generous under his sister. Six years ago Ms Yingluck’s government began to buy the grain directly from farmers at roughly 50% more than the prevailing international price. This hoarding was supposed to create scarcity abroad (Thailand was the world’s biggest exporter at the time), allowing the government to offload its stock without big losses. But other exporters filled the gap. The scheme, fraught with corruption, ended up costing the government \$16bn. The army used the fiasco as an excuse to seize power. Ms Yingluck fled the country in August before the verdict was delivered in a related case against her for negligence.

Other beloved Shinawatra policies in-

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clude the 30-baht scheme, which allowed the poor and sick to consult a doctor for about \$1. Across Isaan women working at looms and men tapping rubber also speak of their appreciation for Mr Thaksin’s brutal anti-drugs campaign (a model for the current one in the Philippines), his support for student loans and his glitzy international connections. “Thaksin’s good for exports!” reckons one.

But the enthusiasm is not ubiquitous—not even in Nakam, where PT triumphed at the most recent election. Titipol Phakdeewanich, a professor of politics at Ubon Ratchathani University, reckons the party “can’t take Isaan for granted”. For one thing, the ruling junta has kept many of the Shinawatras’ most popular policies. Subsidies to rice farmers are still doled out: in September the government approved \$2.2bn in loans and handouts to help stabilise prices ahead of the harvest.

Critics say such policies encourage households to take on more and more debt. However, unlike under Ms Yingluck, the spending is curtailed. For example, if farmers register their land properly, they can get 1,200 baht for each rai of land they farm (one rai is equivalent to 1,600 square metres). But the payouts are only available to smallholders. A woman who farms a tiny plot believes that this arrangement is better than previous subsidies. Farmers benefited from PT’s generous prices for rice only if they had excess rice to sell. The smallest, poorest farmers, who harvest the few rai they own to feed their families, did not benefit at all, she says.

The junta also wants to move beyond this kind of handout. In a popular step, new social welfare cards appeared in October. These provide 200-300 baht (\$6.26-9.39) a month to those who earn less than ➤

► 100,000 baht a year—some 11m people. They can spend it only on approved goods, such as rice and soap, and only in certain shops. The poorer people are, the more they receive. The government took months to get the registration process right, to be sure it was including only the truly needy, says Nathporn Chatusripitak of the deputy prime minister's office. Next month government workers will start meeting those with cards to help them manage their finances and enroll in schemes to improve their incomes, he says. Poor farmers will be taught to grow new, more lucrative crops, better suited to the local environment. The scheme aims to stop the “vicious cycle” of dependence on crop-price subsidies, says Mr Nathporn.

In short, the generals have taken a leaf from the Shinawatras' book, and are win-

ning support as a result. What is more, disenchantment with politicians persists even though the army has squashed Thailand's democracy. A law banning political gatherings of more than five people means that parties will struggle to create and publicise policies zappy enough to entice voters. Besides, under the constitution Thais approved in a referendum 18 months ago, the army will select the entirety of Thailand's upper house and will need the backing of just a quarter of elected lawmakers to secure their choice of prime minister. Many in Isaan assume that Prayuth Chan-ocha, the junta leader, will remain prime minister even if elections take place. One village boss believes he will be tainted in the process: “If he runs in the election he won't be as strong as he is now. He will become a politician.” ■

women have held the post) can even withdraw a case from a bench after it has been assigned, or reconstitute a bench at will.

There is nothing new to charges that chief justices abuse their power as “master of the roster”. What is new is for complaints to emerge from within the Vatican-like Supreme Court itself, a break with a collegial tradition that has typically seen judges close ranks to protect even garishly corrupt colleagues. The four dissident judges are not lightweights; they are the next four in seniority to the chief justice himself. One of their complaints is that the current chief justice, Dipak Misra, appears routinely to have assigned controversial cases to junior judges.

Mr Misra, who took office in August and is due to retire in October, has not responded to the charges. Perhaps he expects this cloud to blow over, as others have in the past. The trouble is that there is not just one recent case whose handling has raised eyebrows, but several.

Two of these touch upon Mr Misra himself. One involves the suicide note written by an ousted chief minister of the state of Arunachal Pradesh, detailing allegations that Supreme Court judges including Mr Misra (before he became chief justice) had demanded a bribe of some \$13m to rule in his favour in the case that ended up depriving him of office—and driving him to hang himself. The other is a case against a medical school that lost its license, and allegedly tried to get it back by bribing the Supreme Court. Although Mr Misra himself sat on the bench that investigators say was offered the bribe, and which passed a string of rulings favourable to the school, rather than recuse himself from the subsequent bribery case, the chief justice assigned it to a bench that he himself chairs. The government, meanwhile, is counting on favourable rulings in a slew of brewing cases. It is an awkward time for Mr Misra's own colleagues to accuse him of partiality. ■

India's Supreme Court

Bench press

DELHI

Senior judges accuse their boss of manipulating the system

FOR the biggest constitutional crisis in a generation, as some have labelled the drama currently roiling India's courts, the setting and the action proved disingenuously genteel. On January 12th four Supreme Court judges hosted an impromptu tea on the lawn of a grace-and-favour bungalow off a tree-lined New Delhi avenue. Enthroned in plastic chairs, the solemn judges revealed to puzzled reporters that two months earlier they had addressed a letter to India's chief justice. Having received no satisfactory answer, they would now make its contents public.

In the manner of India's often prolix court rulings, their text meandered before reaching its point: “There have been instances where cases having far-reaching consequences for the nation and the institution have been assigned by the chief justices of this court selectively to the benches ‘of their preference’ without any rational basis for such assignment.” In short, the frumpish foursome were suggesting that holders of the top judicial office, current and former, tried to influence justice by shunting cases towards particular judges.

That is indeed a serious charge. As in America, another large and tumultuous democracy, the Supreme Court plays an essential role not only as a final legal arbiter but also as a counterweight to the caprice of the executive and legislative branches. Yet unlike America's nine Supreme Court justices, India's 31 (that is their constitutionally ordained strength; the actual number varies and is currently 25) never sit as a

group. Instead the chief justice, normally the court's longest-serving judge, has the job of choosing when to hear cases and then of assigning each to a “bench” of two or more justices.

In theory, these powers help justice to be done, by allowing the court to hear cases faster, and the chief justice to accelerate the most pressing ones and steer technical subjects to judges with the relevant expertise. But they also allow the chief justice to ignore, speed or delay certain dossiers for less edifying reasons, and to feed controversial cases to colleagues whose records suggest a particular outcome. He (no



Mr Misra is keeping mum

Politics in Sri Lanka

Coconuts and jolts

COLOMBO

The president is struggling to push through promised reforms

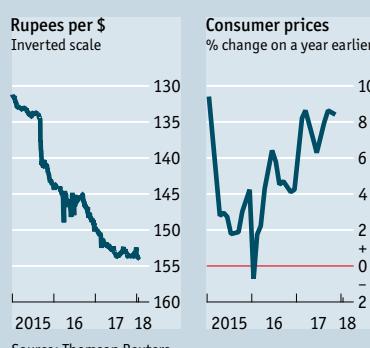
AT THE time, it was seen as an astonishing victory. In retrospect, it was also something of a Pyrrhic one. Few expected Maithripala Sirisena to defeat the incumbent, Mahinda Rajapaksa, in the presidential election of 2015. After all, Mr Rajapaksa, although increasingly authoritarian, had presided in 2009 over the defeat of the separatist Tamil Tigers, ending Sri Lanka's 26-year civil war. Mr Sirisena was merely a rebellious member of the president's own Sri Lanka Freedom Party (SLFP). To win and then to govern, Mr Sirisena relied on the support of the SLFP's main rival, the United National Party (UNP). As Sri Lankans prepare to vote in local elections on February 10th, that alliance has come to haunt him.

In theory, the alliance between the UNP and Mr Sirisena's faction of the SLFP ended in December. But this is a polite fiction necessitated by the campaign. In practice, neither group has sufficient numbers in parliament to govern without the other. Mr Rajapaksa, who is backing a new outfit called the Sri Lanka People's Front, has called on voters to treat the poll as a referendum on the government.

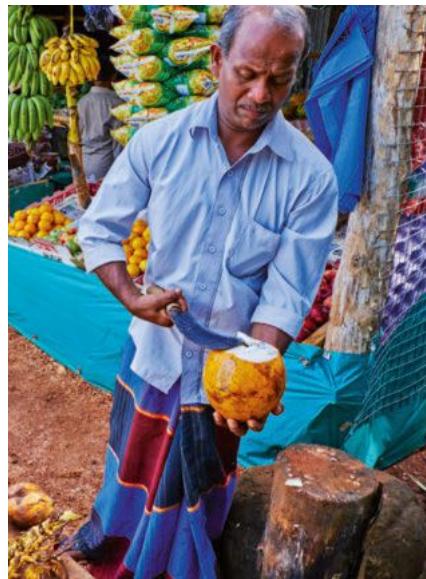
The lack of a fixed political base has coloured Mr Sirisena's three years in office. The endless struggle to assert his authority over the SLFP has taken up much of his time and energy, while the alliance with the UNP has associated him with its unpopular economic policies. The president's ambitious promises—to transfer executive authority from the president to parliament; to devolve power to the regions; to crack down on corruption; and to hold the army to account for the war crimes it is alleged to have committed in

Not what the voters ordered

Sri Lanka



Source: Thomson Reuters



Inflation in a nutshell

the final days of the war—have gone largely unfulfilled.

The powers of the president have been watered down, but not nearly as much as Mr Sirisena had pledged. A promised new constitution which would strengthen the powers of the regions has never materialised, to the irritation of the Tamil National Alliance, a party that supported Mr Sirisena's presidential bid. No members of the former government have been prosecuted for corruption, nor have any wayward soldiers been brought to book. Building public trust in government was an important element of the government's mandate, says Asoka Obeyesekere, the local head of Transparency International, an anti-corruption pressure group, but it has made no progress at all. Instead, the UNP has become embroiled in a corruption scandal of its own, and many observers worry that the investigating authorities are not independent enough to untangle it.

Meanwhile, runaway borrowing for vanity projects under Mr Rajapaksa left the new government with a balance-of-payments crisis. It had to turn to the IMF in 2016, and last year approved a tax overhaul to help rein in the deficit. Rising taxes and the falling rupee, in turn, have helped push up inflation, which has jumped from 2% to 8% during Mr Sirisena's tenure (see chart). A common gripe concerns the price of coconuts, which has doubled over the past year—a blow given that coconut milk is a staple ingredient in local curries.

The local elections could deepen Mr Sirisena's troubles. Politicians tend to follow the wind; if the SLFP performs poorly, power will ebb away from the president in anticipation of the presidential election in 2019 and a parliamentary one in 2020. It does not help that Mr Sirisena pledged to serve only a single term—another reason he may soon be viewed as a lame duck. ■

Politics in Kyrgyzstan

Kyrgyz autumn

ALMATY

Central Asia's only democracy is sliding into authoritarianism

TINY and turbulent, Kyrgyzstan likes to tout itself as a trailblazer for democracy in Central Asia, a region otherwise presided over by autocrats. The former Soviet republic of 6m has “proven to the world that it is a democratic country”, its new president, Sooronbay Jeenbekov, trumpeted triumphantly as he was sworn into office in November. But the unusually competitive election that brought him to power may have been less an affirmation of democracy than its last gasp.

Mr Jeenbekov was making history. In the 26 years since the collapse of the Soviet Union, his election marked Central Asia's first peaceful handover of power from one democratically elected leader to another. But the election was flawed. Mr Jeenbekov, a dour 59-year-old, has admitted that it was marred by vote-buying. International observers were also troubled by media bias and the strong-arming of civil servants to vote for Mr Jeenbekov, who was prime minister at the time and had been endorsed by the outgoing president.

Things have got worse since the election. On December 30th Mr Jeenbekov's main rival for the presidency, Omurbek Babanov, announced that he was quitting politics and resigning his parliamentary seat. That came as no surprise. Mr Babanov—whom Mr Jeenbekov had personally threatened to lock up—had already fled the country after the election to escape spurious charges of inciting ethnic unrest that could have led to a long spell in prison. Kanatbek Isayev, an MP who endorsed Mr Babanov, did not escape so lightly. On January 4th he was jailed for nine years for corruption, in a case that had been dormant since 2011 but which the authorities suddenly decided to press ahead with last year. He faces a separate, implausible charge of plotting a coup that could see another sentence slapped on top.

Jailing obstreperous politicians is becoming a habit. Last year the authorities abruptly accused Omurbek Tekebayev, another opposition leader, of taking a bribe in 2010. He was subsequently imprisoned for eight years, preventing him from mounting an electoral challenge to Mr Jeenbekov.

Kyrgyz journalists who fail to toe the government line are also under pressure. After the election a plucky website named Kloop published allegations that Mr Jeenbekov's campaign team had got hold, and made unfair use, of government data on voters to swing the closely fought election. ►

► It was rewarded with threats of libel action. Mr Jeyenbekov has form when it comes to suing journalists. In October he won a fierce libel suit against another media outlet. Police have also impounded the property of a television station belonging to Mr Babanov, ostensibly over a disputed payment to another business.

Foreign journalists and watchdogs have not fared well under Mr Jeyenbekov either. In December one of the few Western reporters based in Kyrgyzstan, Chris Rickleton, a correspondent for AFP, a news agency, was summarily deported on claims that he had violated immigration law, which he denies. The authorities have prevented Mihra Rittmann, a researcher for Human Rights Watch, a pressure group, from visiting the country for two years on

similar grounds. Last year the government also barred a campaigner from a respected Russian rights group, Memorial. Azimjon Askarov, one of Kyrgyzstan's most prominent human-rights advocates, is serving a life sentence, also on flimsy charges of fomenting ethnic unrest.

As Mr Jeyenbekov recently noted, Kyrgyzstan remains the first and only Central Asian country with a functioning, if flawed, parliamentary democracy. Protesters have toppled wayward governments twice in recent years. Democracy, Mr Jeyenbekov said poetically in his inauguration speech, "has two friends: first freedom, second responsibility". Alas, he does not seem to be taking his responsibility to protect the country's democratic freedoms at all seriously. ■

ans are emotional, renege on agreements and have made hostility to Japan part of their national identity. South Koreans retort that the Japanese are reluctant to face their wartime past, especially under Mr Abe, who is seen as a revisionist. There is some truth to both narratives, but the diplomatic back and forth has become petty. "I feel sold out by both," says Lee Ok-seon, a 91-year-old former comfort woman.

America, the closest foreign ally of both countries, is frustrated too. Closer co-operation is needed to counter China, whose regional hegemony is feared by both countries, and to rein in North Korea, whose missiles threaten them both (and the American bases they host). In 2016 Japan and Korea agreed to share intelligence on North Korea. Ties are deepening between their armed forces, too. But much more could be done, says an adviser to the American armed forces in Seoul.

History matters to the young, too, but not as much as to the old. Youth in both countries have more favourable views of the other than older generations, polls say. Japanese of all ages feel more affinity with South Koreans than with Chinese; South Koreans in their 20s have warmer feelings towards the Japanese than the Chinese, unlike older people. Some are even trying to repair relations. In December young South Korean and Japanese students met in Seoul to discuss "the difference in ways of thinking" about comfort women, says Kaho Okada, a Japanese participant.

Meanwhile, cultural ties are growing. A record 7.1m South Koreans visited Japan last year, while South Korea was the most popular tourist destination for Japanese. Kim Ji-yoon of the Asan Institute for Policy Studies, a research outfit in Seoul, reckons changing attitudes herald better relations in the future. (It helps that the 31 surviving South Korean comfort women have an average age of 91.) "When I talk to my Japanese friends, we don't argue over whose land is whose," laughs Mr Yu. ■

Japan and South Korea

K-pop v history

SEOUL AND TOKYO

Diplomatic rows notwithstanding, the two countries are growing closer

YU MYUNG-SU and his friends have been fans of Japanese culture for as long as he can remember. The 24-year-old South Korean spent years watching Japanese cartoons, films and dramas before moving last year to the southern Japanese island of Kyushu. There he has discovered new charms. "Japanese service culture is really the best," he says.

Mr Yu's enthusiasm is reciprocated by young Japanese; many are into k-pop, for example. BTS, a South Korean boyband of seven mop-tops of varying degrees of bleaching, who re-record all their tracks in Japanese, was the highest-selling foreign act in Japan last year. (The acronym stands for the Korean for "Bulletproof Boy Scouts"). Japanese fans snapped up 270,000 copies of one of its offerings in just one day. Meanwhile, sparse, noir-ish detective novels by Keigo Higashino, a Japanese crime writer, accounted for three of the ten best-selling works of fiction in South Korea last year. Several South Korean directors have made films based on his books.

The cultural affinity of young South Koreans and Japanese stands in stark contrast to the animosity between the two countries' politicians. The neighbours have much in common culturally, and share strategic interests in Asia. But since establishing formal diplomatic ties in 1965, two decades after the end of Japan's colonial rule of Korea, relations have oscillated between bad and worse.

Ties deteriorated again this month when South Korea undermined an agreement of 2015 that was supposed "finally

and irreversibly" to have settled the thorniest dispute of all, over the "comfort women"—South Koreans forced during the war to work in Japanese military brothels. The government of Moon Jae-in, South Korea's president, asked Japan for an apology (already given) and implied that Japan had not paid enough compensation by saying it would match the ¥1bn (\$8m) Japan is providing to support the last surviving victims. In response, Shinzo Abe, Japan's prime minister, suggested that he would skip the opening of the Winter Olympics in South Korea next month.

Colonial history is the main cause of the bad blood between the governments. The Japanese grumble that the South Kore-



Pelvic thrusts for mutual understanding



Space launches

Hainan aims high

WENCHANG

China's ambitions in space are growing. America is keeping its distance

NATTY yellow carts whizz tourists around Wenchang space port, a sprawling launch site on the tropical island of Hainan. The brisk tour passes beneath an enormous poster of Xi Jinping, China's president, then disgorges passengers for photographs not far from a skeletal launch tower. Back at the visitor centre there is a small exhibition featuring space suits, a model moon-rover and the charred husk of a re-entry capsule that brought Chinese astronauts back from orbit. A gift shop at the exit sells plastic rockets, branded bottle openers and cuddly alien mascots.

The base in a township of Wenchang city is the newest of China's four space-launch facilities. It is also by far the easiest to visit—thanks in part to the enthusiasm of officials in Hainan, a haven for tourists and rich retirees. Wenchang's local government has adopted a logo for the city reminiscent of Starfleet badges in "Star Trek". It is building a space-themed tourist village near the launch site, with attractions that include a field of vegetables grown from seeds that have been carried in spaceships.

If the dream is to turn this palm-fringed corner of Hainan into a tourist trap comparable to Florida's balmy space coast, there is still a lot to do. Several idle building sites suggest that some investors have gambled rashly. Signs have been taken down from a patch of scrub that was once earmarked for an amusement centre. On a recent weekday, pensioners wintering nearby were

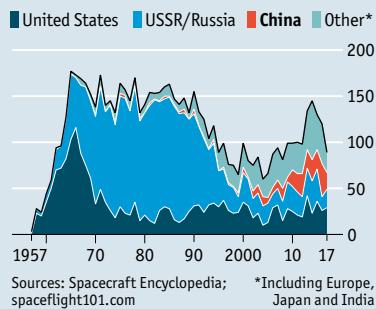
among the few visitors to the launch site. A local says that people often come out feeling like they have had a lesson in patriotism, but not much fun.

Perhaps this will change when Wenchang gets up to speed. The base is crucial to China's extraterrestrial ambitions because it is the only site from which it can launch its latest and largest rocket, the Long March 5 (pictured). Narrow railway tunnels limit the size of the components that can be delivered to the three other bases. Rockets are anyway more efficient the closer they are launched to the equator, where the faster rotation of Earth provides extra lift. Of China's launch centres, Wenchang is by far the nearest to that sweet spot.

The Long March 5 can carry about 25

Filling the void

Spacecraft launched by space agencies per year
By country



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tonnes into low orbit, roughly double the maximum load of China's next most powerful rocket. This is only a bit less than the biggest rocket currently used by America's space agency, NASA, can carry—but far less than the Falcon Heavy, behemoth being developed by SpaceX, a private American firm (see page 66). The Long March 5's maiden launch, in 2016, was a success. But the second one last summer failed a few minutes after lift-off. Wenchang's two launch pads have stood empty ever since.

That failure, and another one last year involving another type of Long March rocket, slowed China's space efforts. Officials had hoped to launch around 30 rockets of one type or another in 2017 but only managed 18 (there were 29 launches in America and another 20 of Russian ones—see chart). But they promise to bounce back in 2018, with 40-or-so lift-offs planned this year. These will probably include a third outing for the Long March 5—assuming its flaws can be fixed in time—and missions that will greatly expand the number of satellites serving BeiDou, China's home-grown satellite navigation system.

The next two years could see big progress in China's two highest-profile civil programmes in space: lunar exploration and building a space station. In 2013 China sent a rover to the moon's surface, the first soft landing there since Russia and America discontinued such efforts in the 1970s. Towards the end of this year China hopes to put a robot on the far side of the moon, a region never yet explored from the lunar surface. That landing will help preparations for an attempt—tentatively planned for 2019—to collect rocks from the surface and return them to Earth.

China talks of launching the main module of a permanent space station as soon as 2019, and expanding it with two bolt-ons early in the following decade. It is going on ➤

alone with this programme. America passed a law in 2011 that forbids NASA from sharing knowledge or resources with its Chinese equivalent. This ensured that China remained locked out of the International Space Station; America was never keen on letting it in because of the military uses of China's space programme. China has instead experimented with two temporary orbiters of its own, the newest of which it crewed for a month in 2016 (the older one has reached the end of its mission and looks likely to tumble to the Earth sometime in the next few months).

Eventually, China would like to send its taikonauts to the moon. There is no target date for achieving this, but in 2016 an official speculated that a Chinese citizen might step on the lunar surface within 15 to 20 years. The country has Mars in its sights, too. It plans to land a rover there in 2020 or shortly thereafter. It wants to retrieve rocks from Mars sometime in the 2030s.

China still lags far behind America in its space accomplishments, but it does not appear bent on a cold-war-style race. It spends far less on its civil space programme than the \$19.7bn that NASA was allocated last year. China is doggedly pursuing its goals, however. Joan Johnson-Freese of the US Naval War College compares China to Aesop's tortoise.

One of the Communist Party's aims is to boost national pride at home. In 2016 Mr Xi declared that April 24th would be celebrated annually as "space day": it is the anniversary of China's first satellite launch in 1970. Even if outshining America remains a distant goal, China is mindful of the progress being made by India, another big developing country that dreams of the stars. India is planning its first soft-landing on the moon in March, more than four years after China's.

Europe is keen to collaborate. Chinese and European scientists launched their first joint satellite in 2003. They are now cooperating in a study of solar wind. Astronauts from the European Space Agency (esa) recently trained with Chinese counterparts in survival skills. Karl Bergquist, an esa official, says a few European astronauts are learning Chinese to prepare for possible joint missions.

But America's worries are growing about the military aspects of China's space programme. Marco Aliberti of the European Space Policy Institute in Vienna says this has been particularly evident since 2013, when China showed it could launch projectiles into the lofty orbits traced by America's most sensitive satellites, suggesting it was developing an ability to knock them out. Many American scientists favour a more relaxed approach. But in an era of "America First", the chances are slim of NASA being allowed to befriend China.

All this rankles among Chinese officials. They note that tense relations be-

tween America and Russia have not prevented those two countries' space agencies from working together (since retiring the space shuttle, America has been dependent on Russian rockets to get astronauts into space). As many people in China see it, America's behaviour is further confirmation of a long-held belief that America wants to create impediments to China's rise. Jiao Weixin, a space expert at Peking University, says America is locked in "cold-war thinking". If American authorities do not wish to work with China, he says, there are others who will. ■

become "agents of evil foreign forces".

On January 1st Ms Luo went public on Weibo, a microblogging site. When Mr Chen denied the claims, Ms Luo published transcripts of him saying things like "Can't I touch you?" and "Then can you touch me a little?" On January 11th the university ruled that her accusations were true and suspended Mr Chen. Three days later the Ministry of Education stripped him of a prestigious scholarship and demanded he repay the stipend. Thus #MeToo finally arrived in China, claiming its first scalp and establishing a new hashtag with the Chinese characters for "me too": #WoYeShi.

China's movement against sexual harassment is very different from those in the West. So far, accusations have all come from universities, not the film business or politics. No celebrities have tweeted #WoYeShi. Almost all the accusations have been made anonymously. Ms Luo's story stuck out because she used her own name. That was partly, she said, because she lived in America, where she had some protection from the retaliation she might have suffered were she in China.

The movement there faces greater challenges than elsewhere. Tian Dong, a lawyer who specialises in gender-related cases, says there is no legal definition of sexual harassment in China. Chinese companies often ignore harassment in their terms of employment and training. Social attitudes have changed profoundly in the past 30 years, but traditional sexual roles remain entrenched. Women are expected to shut up and look demure. A study by the Guangzhou Gender Centre, an NGO, found that almost 70% of students said they had been harassed. Fewer than 4% said they had, or ever would, report assaults to the police.

Above all, #WoYeShi faces the Communist Party—the most powerful organ of which, the Standing Committee of the Politburo, has never had a female member. Given the party's ingrained sexism and hostility to any form of activism, the surprising thing is not that #WoYeShi has had less impact than #MeToo. It is how far it has come in a short time. Universities face a wave of accusations. There have been petitions in 68 of them demanding systems for reporting and investigating harassment charges, says Feng Yuan of the Women's Study Centre at Shantou University.

In 2015 five activists were arrested for trying to campaign against sexual harassment on public transport. Recently, internet censors have been busy deleting #WoYeShi petitions. But the party appears to have changed its tune. In an online commentary, its flagship *People's Daily* praised Ms Luo, saying "being brave is the best stance." By sounding sympathetic, the party may hope that it can forestall demands that could evolve into a broader popular movement. ■



Sexual harassment

#ChinaToo

BEIJING

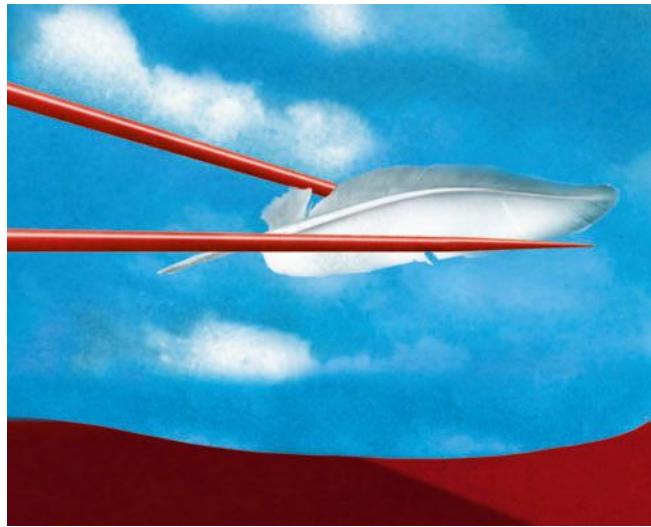
The #MeToo movement has arrived in China. The Communist Party is worried

WHEN Luo Xixi was studying for a PhD at Beihang University in Beijing, her supervisor, Chen Xiaowu, asked her to go with him to his sister's house to look after her plants. Women, she recalled him saying at the time, are innately better at domestic chores. Once in the house, she says, he demanded sex, letting her go only when she pleaded she was a virgin. As she left, he warned her not to tell anyone, claiming he had merely been testing her to see whether she was "a well-mannered student".

Thirteen years later, in October 2017, Ms Luo was working in Silicon Valley as news spread of a social-media campaign by victims of sexual harassment using the hashtag #MeToo. With a handful of fellow Beihang graduates, she formed a group on WeChat, a messaging app, to discuss the abuse they had suffered. Ms Luo decided to take her case to the university. For three months, the college remained silent while Mr Chen began his own campaign, warning possible accusers not to let themselves

Banyan | Hard prong, soft prong

China is getting tougher on Taiwan's government. It is also luring its people



WHEN is a country with its own territory, laws, elected government and army not a country? Answer: when China deems it so. In recent days Chinese officials have ordered foreign businesses, including airlines operating flights to China, to “correct” websites that list Taiwan as a country, as well as remove images of the island-state’s flag. Censors even shut down the Chinese website of Marriott, one of the world’s biggest hotel chains, for a week as punishment for categorising Taiwan as a country in a customer questionnaire (the firm caused additional offence by putting Hong Kong, Macau and Tibet in the same category, which—to be fair to China—they are not).

China’s rabidly nationalist netizens have even called for a boycott of Marriott. But more than losing business, foreign operators in China fear running foul of sweeping new cyber- and national-security laws. Among much else, these prohibit anything deemed to “damage national unity”. The apologies issued by some operators were party-speak. Marriott said, “We absolutely will not support any separatist organisation that will undermine China’s sovereignty and territorial integrity.” Delta airlines apologised for hurting the feelings of the Chinese people. Zara, a European fashion chain, even promised a “self-examination”.

For Taiwanese, it is more proof that China is out to squeeze them until the pips squeak. The Communist Party has never ruled Taiwan, but considers it a sacred mission to bring the island under its control. China threatens force should Taiwan formally declare that it will remain independent for ever. The party views even “peaceful separation” as an abomination.

China mixes bullying with blandishments. The bullying, of which the move against foreign websites is part, is meant to shrink Taiwan’s diplomatic space and exert psychological pressure. Since Tsai Ing-wen became the island’s president in May 2016, China has shut down high-level contacts across the Taiwan Strait that had burgeoned under her predecessor, Ma Ying-jeou. Unlike his Kuomintang (KMT) party, with its historical roots in China, Ms Tsai’s ruling Democratic Progressive Party aspires in its charter to formal independence. The president herself, a pragmatist, has made plain her goodwill, by promising from the start that she will not rock the cross-strait boat. The independence clause lies dormant. She blocked attempts to expand a new referendum

law to allow plebiscites on matters of sovereignty, including on Taiwan’s official name (the Republic of China).

But for China none of this is good enough. It views the referendum law as a step towards a vote on independence. It has even attacked laudable new legislation aimed at redressing human-rights abuses that occurred during the years of KMT dictatorship. China sees the bill as an attempt to erase all sense of a Chinese identity among Taiwanese: in those days, the KMT was proud of its Chinese nationalism, even though it hated the Communists. Above all, China is furious with Ms Tsai for refusing to acknowledge the “1992 consensus” between the two sides: that both Taiwan and the mainland belong to a single China, and that they agree to disagree what exactly China means.

So Taiwan is in the doghouse. Some policymakers were relieved that China’s leader, Xi Jinping, did not suggest he would get even tougher with it when he spoke at a big party gathering in October. Even so, his uncompromising remarks about Taiwan drew the longest applause of anything he said. Soon after that meeting, he told President Donald Trump that Taiwan (not North Korea’s nukes) was the most critical issue in Sino-American relations. Mr Xi talks of China’s “great rejuvenation” by 2049. That surely implies the return of Taiwan to the fold by that date.

The pressure continues, then. On the diplomatic front, the 20-strong band of countries that recognise Taiwan is bound to be whittled down further, following Panama’s switch to China last year—Honduras, Palau and St Lucia could be next. Earlier this month China reneged on an agreement with Taiwan by announcing four new commercial air routes that run either close to the median line dividing the Taiwan Strait or close to Taiwan’s main offshore islands. Taiwan described this unilateral move as a threat to air safety and to the island’s security. But it is powerless. Taiwan is not a member of the International Civil Aviation Organisation, whose Chinese head previously ran the civil-aviation authority that declared the opening of the air corridors.

China has been flexing military muscle, too. Since 2016 its warplanes have carried out “island-encircling” patrols. China’s state media have published images of these, with Taiwan’s mountains in the background. A recent exercise in northern China involved storming a full-sized mock-up of Taiwan’s presidential palace.

Come on over sometime

All this is out of the old playbook. Mr Xi’s innovation is to single out young Taiwanese and to pile on the blandishments. Colleges offer Taiwanese teachers better pay than they could get in Taiwan. Chinese provinces are opening research centres aimed at young Taiwanese. In the southern city of Dongguan, Taiwanese tech entrepreneurs can get free startup-money and subsidised flats. Over 400,000 Taiwanese now work in China. The young in particular are crossing the strait in droves.

Lin Chong-pin, a Taiwanese scholar and former senior official, calls this Mr Xi’s “soft prong”. In some respects it seems to be reshaping attitudes towards China. It does not help Ms Tsai that she has failed to make much progress on her promise to create more opportunities for the young. Taiwan’s economy remains sluggish. The young think older generations get the better deal. But she gets the blame for tricky cross-strait relations more than Mr Xi does. A recent poll even shows Taiwanese feeling more warmly towards Mr Xi than to Ms Tsai. They do not admire China’s political culture. But Mr Xi may be nurturing a reluctance among young Taiwanese to bite the hand that feeds them. ■



The safety net

Working for it

WASHINGTON, DC

Some states will soon attach conditions to health insurance for the poor

KENTUCKY, a poor, rural state nostalgic for coal, has never been quite sure of its politics. For three years it was the darling of Obamacare. Governor Steve Beshear, a rare Appalachian Democrat, complied with the reform by creating a statewide health-insurance exchange and expanding Medicaid (government-subsidised coverage for the poor and disabled). Between 2013 and 2015, uninsured rates for poor adults fell from 40% to 9%—the biggest improvement in the country. But now that the state is under new management—the Republican governor, Matt Bevin (pictured above), is a Tea Party favourite—Kentucky may soon be notable in health-policy circles for a new reason: it wants to become the first state in history to require some Medicaid recipients to work.

Other states with Republican governors, including Indiana and Arkansas, hope to follow. Before long, the health-care safety nets in these states may look very different from those in Democratic ones—and indeed from those in other rich countries, where the poorest citizens receive health care with no strings attached.

The Trump administration approved Kentucky's sweeping plan—which Mr Bevin called “the most transformational entitlement reform...in a quarter of a century”—on January 12th. The state will receive an exemption from federal rules governing how Medicaid works. Such waivers are supposed to allow states to test

experimental programmes “while preserving or enhancing the quality of care furnished”. Yet Kentucky expects its plan to reduce the number of Medicaid recipients by 15%, suggesting that the administration is bending the rules a little.

The third freedom

When the reform comes into force in July, able-bodied adults enrolled in Medicaid risk losing their insurance if they do not fulfil a “community engagement” requirement—20 hours of work, job-seeking or volunteering each week. A thicket of regulations will determine precisely who must comply; those in school or taking care of a family member will be exempt. The state expects the new mandate to affect 350,000 Kentuckians, half of whom already have jobs, and estimates that it will shed 95,000 from its Medicaid programme. The impact could be higher because prospective enrollees will be deterred by the sheer complexity of the new rules, argues Sara Rosenbaum of George Washington University. Already, people need a lot of nudging to enroll. Of the 285,000 non-elderly Kentuckians who are still uninsured, 43% are actually eligible for Medicaid but have not signed up.

Adding work requirements to America's safety net is not a new idea. The previous overhaul of America's cash-benefits programme, in 1996 under President Bill Clinton, instituted a work requirement,

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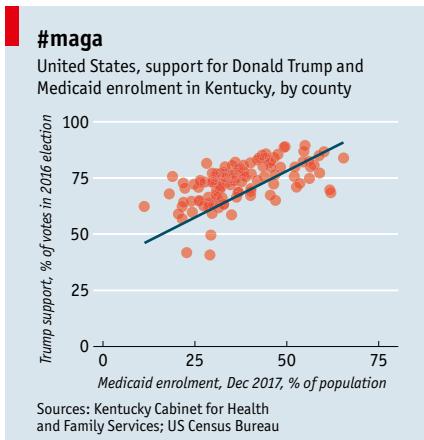
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along with a time limit, on Temporary Assistance for Needy Families (TANF), the re-branded government scheme. The theory was that TANF would serve the truly needy, while the lazy would progress into lives of self-sufficiency. For about a decade this looked like a great success. The number of claimants plunged by 50% in four years. Over the longer term, the results looked less good. Short-term increases in employment did not seem to translate into marked improvements in income.

Requiring work, volunteering or study in exchange for Medicaid has never been attempted before, though. And there is some evidence that, rather than discouraging work as many Republicans claim, Medicaid incentivises toil. After Ohio expanded its Medicaid programme, three out of every four unemployed enrollees said that getting coverage had made it easier to seek work. International comparisons do not support Republicans' argument, either. Many countries with universal access to health care have a higher proportion of working-age people in employment than America does. (A likelier problem is that taking away benefits as people earn more disincentivises job advancement.)

Republicans have sought to shrink welfare programmes for decades, often saying that they are unaffordable. But their reasons for reforming Medicaid seem to be more about morality than money. Mr Bevin says that the savings made do not matter. His office adds that the rationale behind the plan was—confusingly—to promote “better health outcomes”. A spokesman for Rand Paul, Kentucky's libertarian Republican senator, says that “work should not be seen as a punishment, but as an opportunity”. Paul Ryan, the House Speaker, has warned of the dangers of turning the safety-net into “a hammock that lulls able-bodied people to lives ➤



► of dependency and complacency".

Yet it is not true that most, or even many Medicaid claimants are shirkers. Just 36% are non-disabled adults, and 60% of that group already work. Those who are not working and not disabled do not seem to be lying about in hammocks: 36% say they are ill, 30% take care of a family member, 15% are in college, and so on. At most 10%, or 1.4% of all enrollees, could be said to lack any good reason for not working. "I don't need added pressure to get a job, the pressure to survive is already enough," says Tajah McQueen, a caterer in Louisville who lost her job on December 28th and applied for Medicaid soon afterwards. She already pays \$400 a month for her student loans, \$2,000 for her mortgage and takes care of a two-year-old daughter.

To weed out malingerers, Kentucky is proposing to build an unwieldy administrative apparatus. This bureaucratic leviation will enforce regulations seemingly

designed to catch out the maximum number of recipients. The state will begin by collecting premiums, capped at \$15 per month. This would seem minimal, except that to qualify for Medicaid as a single person requires an annual income of less than \$16,640. For Kentuckians who gained coverage under the Medicaid expansion, non-payment of these premiums for two months results in a six-month lockout on coverage—only to be restored after payment and attendance of a "health-literacy" class. When Indiana set up a similar programme, 55% of people had missed payments within the first 21 months, leaving them with inferior coverage or none at all. Participants must also document their work on "at least" a monthly basis. Because most working Medicaid recipients are in low-paying industries with erratic scheduling, such as retailing, agriculture or construction, they may not fulfil the 20-hour requirement in a week. Someone who temporarily makes too much money—more than \$320 a week as a single person—may risk getting the boot.

Of the ten rural counties in the country with the highest share of adults enrolled in Medicaid, six are in Kentucky. These areas are also the Trumpiest. There is a remarkably strong correlation in Kentucky between Medicaid enrolment and support for Republicans (see chart). During the 1990s, racial animus, especially the notion that lazy blacks were crowding the welfare rolls, was shown to be especially powerful in shaping attitudes to the safety net. Yet the people most likely to suffer from these new efforts at reform are the poor whites who helped send President Donald Trump to the White House. ■



Mr Murray in his element

idents has been a fondness for coal and steel, where brawny men do essential work and are threatened not by shifting economics, but by greenies and weenies who want to shut them down. Mr Trump and Mr Murray both want environmental rules rolled back—Mr Murray because it would be good for his bottom line, and Mr Trump because a second consistent aim of his presidency is to reverse anything done by Barack Obama. It is doubtful whether policy shifts alone could revive coal mining, but the attempt to do so says much about how vested interests operate in this administration.

Mr Trump played a hard-nosed businessman on TV, but Mr Murray is the real thing. When he was nine, his father was injured in a mining accident and left paralysed. Soon afterwards he began mowing neighbours' lawns to support his family, and then went down the mines himself several years later. He broke his neck, twice. Gradually he worked his way up the ladder of the North American Coal Corporation, becoming the company's boss in 1983. Forced out in 1987, Mr Murray bought a mine in eastern Ohio, and then spent the next two decades snapping up others. Today Murray Energy owns 12 mines and manages another four, as well as transport terminals, barges, oil-and-gas wells and factories that make mining equipment.

These days coal barons are like newspaper barons: however rich and successful, they are shackled to a dying industry. Mr Murray contends that the declining use of coal—today it generates 30% of America's electricity, down from more than half in 2000—imperils energy security. Only coal and nuclear power, he argues, can provide a "reliable, resilient, secure electric power grid". If coal falls below its current level of 30%, he warns, "the lights will go out and ►

Coal

Minding Grandma

ST CLAIRSVILLE, OHIO

Bob Murray, the coal baron with the president's ear

TRADITION dictates that bad children get coal in their Christmas stockings. But the elaborate Christmas display in the headquarters of Murray Energy Corporation, America's biggest privately owned coal firm, suggests otherwise. At its centre are two cherubic children pulling a wagon loaded with coal, and looking pleased with their haul. The other distinctive feature in the building's lobby is a plethora of pictures featuring Bob Murray, the company's founder and boss, with President Donald Trump. Mr Murray was a vocal and generous backer of Mr Trump; today he has the president's ear. He sent the administration an "Action Plan" with 16 detailed poli-

cy requests, many of which the administration is on track to fulfil. Mr Trump nominated Andrew Wheeler, a lobbyist for Murray Energy, to the number-two position at the Environmental Protection Agency (EPA). A few weeks after a meeting with Mr Murray, Rick Perry, the energy secretary, ordered a study that became the basis for his proposal to subsidise coal and nuclear plants.

Mr Murray's clout may stem in part from the hundreds of thousands of dollars he has given to Mr Trump and his inaugurations committee. But he was pushing on an open door. Among the few consistent themes from this most inconsistent of pres-

► Grandma will freeze in the dark."

Mike Jacobs, an energy analyst at the Union of Concerned Scientists, says that will happen "only if grid operators stop doing their jobs". Rather than simply buying coal from companies like Murray Energy, as they did for decades, grid operators today have more choices. Natural gas—the most widely used fuel for electricity generation—and renewables have been snatching coal's market share. Fracking has made American natural gas abundant and cheap. The cost of renewables, especially wind and solar, is also falling. These two trends have caused coal's decline.

But Mr Murray principally blames "the regulatory rampage of the Democrat party", driven by the party's professed belief in climate change—which, like Mr Trump, he considers "a hoax". It has been perpetrated, he contends, by "developing countries of the world to get American dollars...[by] radical environmentalists...liberal elitists [and] Hollywood characters. I don't refer to them as 'people'." Hillary Clinton talked about climate change not out of environmental concern, he says, but because wind-turbine- and solar-panel-makers gave "hundreds of millions [to] the Clinton campaign and Clinton Foundation." All he wants, he says, is to "get the government out of picking winners and losers in the electric power grid". Yet, by some amazing coincidence, his action plan—in addition to cutting the EPA staff by half, repealing the Clean Power Plan (an Obama-era scheme to reduce greenhouse-gas emissions from power plants), and ending other environmental rules—urged the administration to fund clean-coal technology and coalminers' pensions. ■

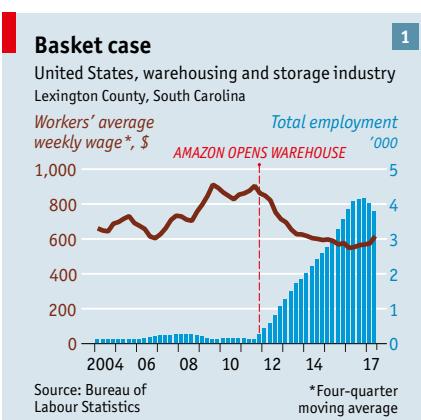
Amazon

Unfulfilled

Is the world's largest online retailer underpaying its employees?

WHEN Amazon announced in 2010 that it would build a distribution centre in Lexington County, South Carolina, the decision was hailed as a victory for the Palmetto State. Today the e-commerce giant employs thousands of workers at the centre. Just 3.5% of the local workforce is out of work. Alas, the influx of jobs has not boosted wages for the region's forklift drivers and order-filers. In the years since Amazon opened its doors in Lexington County, annual earnings for warehouse workers in the area have fallen from \$47,000 to \$32,000, a decline of over 30% (see chart 1).

Lexington County is not alone. Since Amazon opened a warehouse in Chester-



field, Virginia, warehouse wages in the region have fallen by 17%. In Tracy, California, they have dropped by 16%. Flat or falling industry wages are common in the cities and towns where Amazon opens distribution centres, according to an analysis by *The Economist*. Government figures show that after Amazon opens a storage depot, local wages for warehouse workers fall by an average of 3%. In places where Amazon operates, such workers earn about 10% less than similar workers employed elsewhere.

About 44 cents out of every dollar spent online in America flows to Amazon, according to eMarketer, a research firm. The firm's success can be attributed in part to speed and convenience. To get orders to customers as quickly as possible, the company relies on a vast network of warehouses the size of aircraft carriers where the company stores its products and processes orders. Amazon operates more than 75 "fulfilment centres" and 35 sorting centres in America, manned by 125,000 full-time workers.

To keep costs in check, Amazon must not only maintain dozens of warehouses, but run them efficiently. Whereas traditional shop workers might remain idle for hours at a time, Amazon's workers—the "stowlers" that stock inventory, the "pickers" that pluck items from shelves and the "packers" that box them up for shipment—are constantly moving. Pickers are equipped with hand-held devices that show them what each item looks like, where it may be found, and how to get there as quickly as possible. As they navigate row after row of shelves, timers count down the seconds needed to retrieve each item. To meet performance targets, pickers must collect as many as 1,000 items and walk up to 15 miles in a single shift.

According to available data from the Bureau of Labour Statistics (BLS) for 35 counties, warehouse workers in counties where Amazon operates a fulfilment centre earn about \$41,000 per year, compared with \$45,000 per year in the rest of the country, a difference of nearly 10% (see chart 2). The BLS data also show that in the ten quarters before the opening of a new Amazon cen-

tre, local warehouse wages increase by an average of 8%. In the ten quarters after its arrival, they fall by 3%.

Why would Amazon pay its employees less than other firms in the industry? Michael Mandel, an economist at the Progressive Policy Institute, a think-tank, says it may be because the company's warehouses are in areas that have been "left behind". But on most economic measures—including wages, unemployment and poverty—counties with Amazon warehouses are no different from the rest of the country. In fact, they are generally better-off. Perhaps, suggests David Autor, a labour economist at MIT, Amazon's workers are young and inexperienced. There is some evidence for this. Amazon's employees tend to be younger—data from the Census Bureau suggest that nearly half of its warehouse employees are under 35. Job tenure at the company is typically just one year, according to PayScale, a research firm.

Another possible explanation for Amazon's pay is its reliance on unskilled workers with minimal qualifications. David Neumark of the University of California, Irvine, who has written about the impact of Walmart's growth on retail wages, says Amazon's highly automated warehouses may not require as many workers who can, say, operate a pallet jack. Staff benefits may also play a role. Amazon offers its full-time employees health care, retirement savings plans and company shares. Such generous perks may explain why the company pays below-market wages.

New research offers yet another possibility. An NBER working paper by José Azar of the IESE business school, Ioana Marinescu of the University of Pennsylvania and Marshall Steinbaum of the Roosevelt Institute finds that a relatively small number of employers account for a large share of job opportunities in many American communities. In places where such labour-market concentration is highest, wages tend to be lower. These findings suggest that if Amazon is the only major employer in the cities and towns where it operates, the company can offer wages that are well below those of its competitors. ■

One-click dropping

United States, warehousing and storage industry
Workers' average weekly wage*, \$



Kansas and Missouri

In a state

CHICAGO

Two midwestern governors have some trouble governing

ONE is struggling to stay in his job, the other is scrambling to leave it. Eric Greitens, the Republican governor of Missouri, is fighting for his political life after a television station in St Louis revealed an extramarital affair, as well as allegations of blackmail and violence, less than three hours after he gave his state-of-the-state address on January 10th. Sam Brownback, another Republican, announced six months ago that he was stepping down as governor of Kansas to become President Donald Trump's ambassador-at-large for religious freedom, but his nomination has not yet been confirmed by the Senate and so he has remained as governor. Both are in an embarrassing limbo.

For Mr Greitens, the uncertainty over his political future is more painful because he was just starting out in politics. The 43-year-old former Navy SEAL, Rhodes scholar and White House fellow, who had never before run for office, was the surprise winner of Missouri's gubernatorial election in 2016, trouncing Chris Koster, the state's attorney-general. Conservatives admired Mr Greitens for his promises to clean up public life, and to pass right-to-work (rtw) legislation that prevents unions from requiring workers to pay union fees. His vows to cut taxes, to protect fetuses and to defend gun rights were popular too (he is often pictured clad in military fatigues, shotgun in hand). Governors in other states sought the support of this photogenic rising Republican star. Bruce Rauner, the governor of Illinois, featured Mr Greitens in one of his campaign ads. Kim Reynolds, the governor of Iowa, invited him as a keynote speaker to a fund-raiser.

In his home state, however, Mr Greitens has fewer political friends and allies. Denouncing lawmakers in Missouri with his attacks on "career politicians" who have "turned Jefferson City into a corrupt, do-nothing embarrassment" did not help. He is known for berating state senators in private meetings and he publicly ridiculed two Republican state senators who seemed to stand in the way of his efforts to bring a steel mill to Missouri. His non-profit organisation, A New Missouri, ran ads attacking Rob Schaaf, a Republican state senator who criticised Mr Greitens's use of "dark money", or campaign donations from undisclosed sources. The ads even disclosed Mr Schaaf's mobile-phone number.

"There is real animosity between the governor and some Republican lawmak-



Greitens, contrite

ers," says John Hancock, a former chairman of the GOP in Missouri. No Republican in the legislature defended Mr Greitens the day after the news about his extramarital affair (which he admits) and the allegations of blackmail (which he denies) were aired on television. "Stick a fork in him," tweeted Senator Schaaf. On January 16th four Republican members of the state house called for Mr Greitens's resignation. "They have thrown him to the wolves," says Patrick Miller at the University of Kansas. A website called ericgreitensresign.com is collecting signatories.

Meanwhile, in neighbouring Kansas,

the *Kansas City Star*, has called for Governor Brownback's resignation "for the good of the good people of Kansas". In anticipation of his ambassadorial role Mr Brownback started to hand responsibilities to his likely successor, Jeff Colyer, a plastic surgeon who is lieutenant-governor. Mr Colyer announced a new cabinet appointment and was widely expected to be in charge at the start of this year. Yet Mr Brownback refuses to go. On January 9th the governor made his state-of-the-state address. Having already created a hole in the state's budget with huge tax cuts, he called for an extra \$600m in school funding without explaining where the money would come from. "Nobody knows who exactly is in charge of the state," says Mr Miller of the University of Kansas.

Few doubt that Mr Brownback, who served in the Senate for 14 years and as state governor since 2011, will eventually be confirmed as Mr Trump's ambassador. All 75 senators nominated to ambassadorships were subsequently confirmed by the Senate. As for Mr Greitens, opinions on whether he can stay in his job are divided. "If criminal evidence of blackmail emerges, he is done," says David Kessler, a former chief-of-staff to Mr Brownback. If not, "I absolutely think he will survive it," says Mr Hancock, the former chairman of Missouri's Republican Party. Mark Sanford was able to remain governor of South Carolina after a very public revelation of an extramarital affair. He is now a humble congressman. Redemption is possible, but until his private life became political, Mr Greitens seemed on course for much more than that. ■

The Iran nuclear agreement

Trump card

Donald Trump gives his European allies 120 days to get a better deal

ON JANUARY 12th President Donald Trump declared that if the "disastrous flaws" in the nuclear deal with Iran are not fixed within 120 days, he will pull America out of it. He renewed the presidential waiver that lifts nuclear-related sanctions on Iran, but signalled that this was a final reprieve rather than a change of heart.

Mr Trump says he wants a new agreement to modify the pact of 2015 that curbed Iran's nuclear programme, known as the Joint Comprehensive Plan of Action (JCPOA), in return for limited relief on sanctions. Among Mr Trump's demands are ending the expiry clauses in the agreement that, for example, allow Iran after 15 years to enrich uranium beyond the 3.67%

normally required for commercial power production; a ban on ballistic-missile testing; and unconstrained access for International Atomic Energy Agency inspectors to any military site, regardless of whether there has been any indication of nuclear activity there.

Mr Trump has now twice refused to recertify that Iran is in compliance with the deal (a requirement every 90 days under legislation passed under the Obama administration), despite all the evidence suggesting that it is. Without a desire on the part of Congress to get involved, and there has been little sign of that, decertification is more a gesture of defiance than a mortal threat to the JCPOA. If, however, Mr Trump

► unilaterally reimposes sanctions, America, as one of six signatories to the deal along with Britain, France, Germany, Russia and China, would be in clear breach of its commitments. This, in turn, would release Iran from its obligations: allowing it to reinstate, if it chose, those nuclear activities banned under the terms of the JCPOA.

This is an unfolding nightmare for the Europeans. They remain firmly committed to the painstakingly negotiated deal (as are Russia and China), convinced that its benefits vastly outweigh its flaws. The day before Mr Trump's announcement, at a meeting in Brussels of the British, German and French foreign ministers that was attended by their Iranian opposite number, Javad Zarif, they reiterated their unwavering support for the JCPOA. They pointed out that nobody opposed to the deal has produced a better alternative. They do not deny that, in an ideal world, the things Mr Trump is insisting on would be nice to have. But they firmly reject the idea that a superior deal would have been possible if only they and the Obama administration had been tougher on the Iranians.

Even with an international sanctions regime throttling the life out of the Iranian economy and the possibility of war still rumbling, the diplomats who were there believe that the Iranian negotiating team could not have been pushed further without being repudiated by hardliners at home, including the supreme leader, Ali Khamenei. With no international support for the reimposition of nuclear-related sanctions, the Europeans regard it as fantasy to suppose that the Iranians would now bow to demands from Mr Trump that relate more to rash campaign promises than real-world diplomacy.

The president has nonetheless made it clear that he expects America's European allies to help him get what he wants. "If other nations fail to act during this time," he declared, "I will terminate our deal with Iran." Both the French and the British, eager to show willing, say they too are keen to discuss follow-on agreements with Iran about missile development and regional interference. But they maintain that any such talks should be open-ended and not linked to the JCPOA, which is achieving exactly what it set out to do.

It is far from clear how this will play out. In particular, nobody knows whether Mr Trump's national-security team, who also want to preserve the deal, can persuade the president to accept some face-saving compromise in which more sanctions are targeted on individuals connected to the missile programme and support for terrorist groups, while the Europeans undertake to try to tweak the nuclear deal over time. Or whether Mr Trump will be quite happy to blow the deal up, blaming the spineless Europeans for siding with Iran. The latter looks more likely. ■

Nuclear fears

Thinking the unthinkable

How to increase your chances of surviving an atomic blast

THE alerts mistakenly sent to residents of Hawaii, warning them that a missile was on the way, were a reminder of an era when terror was measured in kilotons. In the 1950s and 1960s public-service broadcasts informed Americans about what to do in case of a nuclear attack. Since then, with nuclear conflict seeming less likely, such knowledge has seemed esoteric, like taking an interest in Brutalism or taxidermy. Here is a reminder of something we hope you will never need to know.

If a nuclear bomb exploded in an airburst, around 90% of people would die instantly near the centre of the blast: a roughly 1.9km (1.2-mile) radius for a 300-kiloton (kt) device—the estimated force of the weapon North Korea tested in September. Within a 15-square-kilometre area, at least half the population would die more slowly, from radiation and burns. Those who make it through the blast or are farther away can take steps to increase their chance of survival.

An explosion would generate a fireball of light many times brighter than the sun. Do not look at it or you may go partially blind. Instead, do as the cold-war safety film featuring Bert the Turtle advised: duck and cover. Lie down, ideally underneath something. This is to prevent serious burns from a thermal pulse, or heatwave, lasting several seconds that will sear through the area, setting off fires.

It is also to avoid shattered glass and flying debris as a blast wave, with hurricane-strength winds, follows.

The energy from the fireball would draw a column of dust and debris three miles into the atmosphere for over ten minutes; its top will flatten into the cap of the mushroom cloud. During that time, blast survivors need to find shelter. Radioactive fallout—highly contaminated debris that settles on surfaces—follows. It is most lethal just after the blast.

The ideal shelter is below ground and well-sealed. If you are in a building above ground, go to its centre, preferably avoiding the ground or top floors. With luck your shelter has bottled water and non-perishable food; a radio and batteries for emergency information; wet-wipes and plastic bags for personal sanitation; and your identification documents. Assume mobile phones do not work. Distance from the blast is a matter of luck. Surviving thereafter is mostly a matter of finding shelter, says Alex Wellerstein of the Stevens Institute of Technology in New Jersey. After about two days the worst of the radiation will have decayed. It may be safe to go outside.

The best step, though, is not to have a nuclear missile come your way at all. Which is why some in the Trump administration argue for a strike on North Korea soon; and why most other people think that would be insane.



Toons you can use

Lexington | Stranger danger

Hostility to immigration used to be found in both parties. No longer



ONE moonlit night 13 years ago Jennifer crossed into Texas, squeezed into a car footwell. Her mother had made the clandestine journey from their native Guatemala, looking for work to help pay for Jennifer's leukaemia treatment, five years earlier. Having established herself in Maryland, cleaning houses and caring for children, she wanted her son and two daughters—including Jennifer, by then six and cancer-free—with her. "All I remember is staring at the moon," Jennifer recalls. "So long as I could see it, I thought we'd be OK."

Now in her last year of high school in Maryland, Jennifer is the commander of her school's air cadets and has been offered a place by six colleges. Whether she will be able to join the air force, as she would like, or study for a degree, or even remain in America is unclear, however. She is one of the 700,000 beneficiaries of an Obama-era programme, known by its acronym **DACA**, that shields illegal immigrants brought to America as children from deportation; but which President Donald Trump has ended. The programme is due to lapse on March 5th, leaving its beneficiaries, known as "Dreamers", liable for expulsion. This would be so obviously counter-productive that only a seriously dysfunctional government could countenance it. In other words, Jennifer is right to be worried.

Mr Trump says he is legally compelled to axe **DACA**, which most Republicans regarded as an act of executive overreach, and wants Congress to pass a law to protect the Dreamers. Yet he also sees that as an opportunity to extract support for his restrictionist agenda from the Democrats, who are dedicated to saving the Dreamers and whose votes are needed to do so. So Mr Trump is demanding billions of dollars for his promised border wall, as well as changes to legal immigration, which he and other Republican hawks want to cut by half. The Democrats say: no way. And with a rare moment of leverage looming for the minority party, in the form of a spending bill required to keep the federal government running beyond January 19th, they are demanding that the fate of Dreamers should be secured first. That seems ambitious. Though the Dreamers will probably be saved eventually—because around 85% of Americans want them to be—the stand-off has degenerated into an ugly row over Mr Trump's reference to Haiti and African countries, at a bipartisan meeting on immigra-

tion, as "shitholes". Moreover, in any event, the farrago will have sucked up vast amounts of congressional time, caused needless anxiety to those affected (including, Jennifer estimates, a third of her school's 200 air cadets) and perhaps a government shutdown costing billions in lost economic activity.

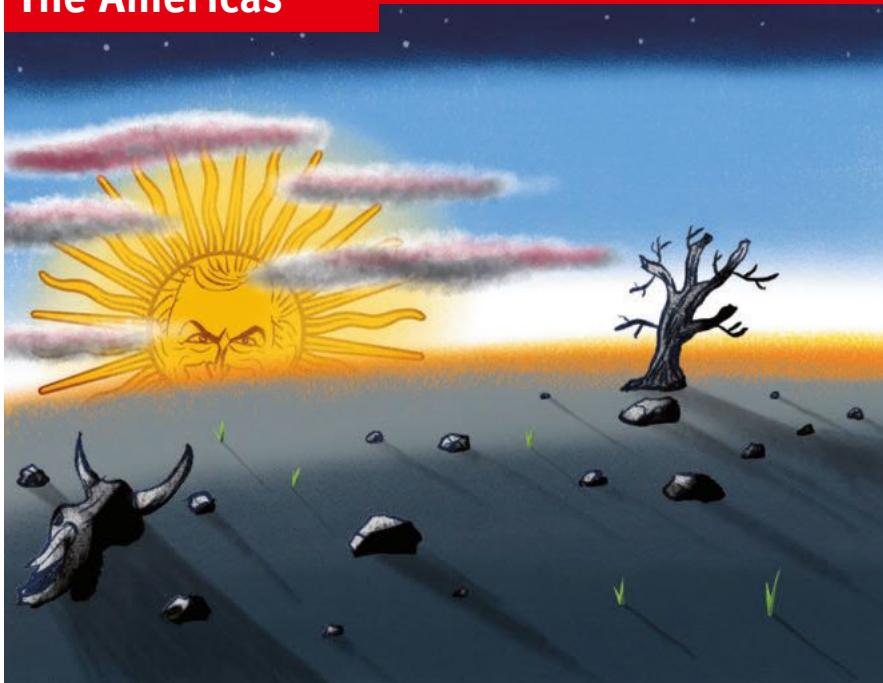
That America is in a fix over immigration is perhaps unsurprising. Through its history, periods of high immigration have always provoked a backlash—thus, the restrictive measures passed in the early 1920s after an influx from southern and eastern Europe, and again in the early 1960s, to expel thousands of low-skilled Mexicans. It is a cycle as American as the opportunity the country otherwise affords immigrants. After another great in-wash of Hispanics, peaking during the late 1990s at around 750,000 arrivals a year, a repulse was inevitable. Only this time it is different. Anti-immigration movements have in the past been as much within the parties as between them, the backlash having traditionally been led by left-wing unions and right-wing nativists. Yet this row is partisan, making it symbolically important to the parties, liable to get personal, and correspondingly intractable. For the same reasons, the political discussion of immigration has become increasingly removed from reality. Employment in low-skilled jobs will grow faster over the next decade than the number of native workers. By leaving millions of long-stay immigrants in the shadows, America is inflicting a vast opportunity cost on itself. Moreover, perhaps in part as a response to Mr Trump, immigration is becoming much less unpopular.

In both parties, fundamental forces have shaped this political change. Only a decade ago, Republican leaders such as George W. Bush enthused about immigration. Yet they were out of touch with the nativism of many Republican voters. That sentiment, which Mr Trump divined and has exacerbated, has now infected the party to such a degree that hostility to immigration is the surest indicator of Republican support. The arrival of many Hispanics in Republican states which had previously seen little recent immigration, such as Alabama and Arkansas, is one reason for this. Another is the electoral migration of working-class whites from the Democrats—bringing with them the left's traditional fear for the effect of immigration on native workers' wages. In addition, Republicans' fears are driven, opinion polling and Mr Trump's rhetoric suggests, by ethnocultural anxiety which, in a country turning rapidly browner, cannot easily be assuaged.

In with the out crowd

Meanwhile, the Democrats, who until a decade or so ago were similarly divided on immigration, are now all for it. In 2006, 40% of Democrats were in favour of a border wall; now less than 10% are. This is in part because the party has to some degree replaced its lost whites with Hispanic voters. It also represents a more profound cultural shift, driven by a cosmopolitan relish for diversity and zeitgeisty aversion to chauvinism, such that even white Democrats now feel markedly less chary towards immigration than they did. To be pro-immigrant is becoming even more inherently Democratic than to be agin immigration is Republican.

This is unhelpful for anyone who wants to improve America's immigration policies. And that includes the public at large, which is to the centre of both parties on the issue. Surveys suggest that Americans chiefly want better border security, a deal to legitimise undocumented immigrants and a more meritocratic visa regime—an appealing mix, drawn from the left and the right. It is, for the same reason, almost unimaginable. ■



Argentina's economy

Getting warmer

BUENOS AIRES

Mauricio Macri's gamble on gradualism is working, so far

AT THE height of summer, workers bundled up in blue snowsuits are hauling boxes of ice lollies in and out of freezers at a small factory near Buenos Aires, Argentina's capital. The lolly-maker, Guapaletas ("pretty popsicles"), is almost exactly the same age as the business-friendly government of Argentina's president, Mauricio Macri, who was elected in 2015. His victory was a "relief" for the company's founders, says Federico Manzuoli, who is one of them. On a visit to the factory last March, Mr Macri praised its franchise business model and its pistachio-flavoured lollies.

Mr Manzuoli has much to be grateful for. Mr Macri promised to open up Argentina's isolated economy and end controls imposed by his populist predecessors, Cristina Fernández de Kirchner and her husband, Néstor Kirchner, who governed for nearly 13 years between them. Under Mr Macri, Guapaletas has better access to credit, says Mr Manzuoli. A new online platform, Export Easy, makes it simpler to get export licences. Guapaletas started selling through three shops in Argentina and has now expanded to 69. It plans to start exporting to Chile, Colombia, Paraguay and Uruguay in March.

But Mr Manzuoli's confidence is tinged with unease. Mr Macri's reforms have run into resistance. A protest against his plans to reduce spending on pensions led to the

firing of tear gas and rubber bullets and tied up traffic in Buenos Aires on December 14th, delaying deliveries by two lolly-laden lorries. After a fast start, Mr Macri has slowed the pace of reforms. If he cannot finish the job, Mr Manzuoli fears, Argentina's economy will not prosper.

After taking office in December 2015, Mr Macri floated the peso, scrapped most taxes on exports and reduced energy and transport subsidies in an effort to restrain a rising budget deficit (see chart on next page). He introduced targets for public borrowing, settled a long-running dispute with foreign creditors, which restored Argentina's access to international capital markets, and gave his blessing to inflation targeting by the central bank.

The economy is now moving in the right direction. It has recovered from a recession that began in 2015 and is expected to grow 2.5% this year. Inflation has fallen by more than a third from its peak of around 40% in July 2016. The IMF predicts that the primary budget deficit (excluding interest payments on debt) will shrink from 4.8% of GDP in 2016 to 1.9% by 2020.

Last October, Cambiemos, Mr Macri's party, won a decisive victory in legislative elections, giving the government the courage to continue reforms, albeit at a cautious pace. In November it signed a deal with provincial governors in which they

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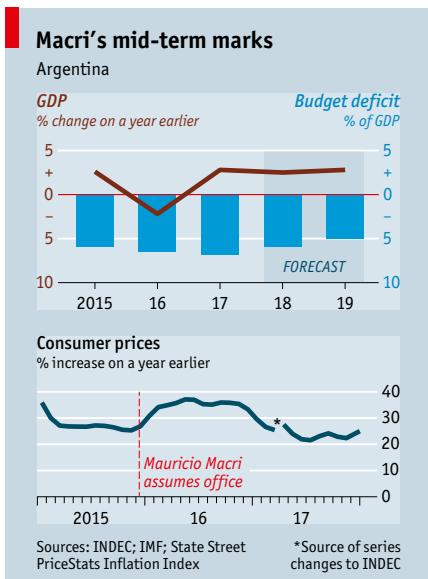
promised to reduce their budget deficits (eventually). Despite the delivery-disrupting demonstration in December, congress changed the way pensions are indexed to inflation to make them more affordable. It cut taxes to encourage companies to give formal jobs to the 30-40% of workers who are paid off the books.

This month Mr Macri allowed the expiration of a 16-year-old economic-emergency law, which gave the president special powers over debt, taxes and the exchange rate. Its demise is supposed to be a quiet signal that the ruinous decades of populism and instability are over, and that Argentina means to reclaim the European-level prosperity it enjoyed a century ago.

A balancing act

With the government still knee-deep in the mess made by the Kirchners and their predecessors, that goal seems far away. Midway through his first term, Mr Macri has barely begun to solve some of the biggest problems that enterprises face, points out Gabriel Brener, the boss of Cher, a chain of clothing shops. Decades of protection have sapped the competitive energies of Argentine industries. Trade barriers are seven times higher than the average for emerging markets, according to the IMF. Mr Macri's government scrapped a system that subjected all imports to licences, but left them in place for about a fifth of imports. Despite the recent tax cut, high taxes on investment and labour and burdensome rules continue to discourage firms from growing, constrain their productivity and keep workers in low-paid informal jobs. Labour productivity has hardly grown since 1980.

Courts are corrupt and schools are mediocre, Mr Brener complains. Unions are beholden to their bosses rather than to ➤



► their members. (This month police arrested Marcelo Balcedo, head of a union for workers in education and child services, on suspicion of money-laundering and tax evasion; at his mansion in Uruguay they found a half-million dollars in cash and a small zoo. He denies the allegations.) Mr Brener wants the president to say more about how he will deal with these issues.

But Mr Macri has put off some of the hardest decisions for his second term, which he hopes to secure in elections to be held in 2019. His advisers say that the reforms so far are just a "first draft" of the changes he will eventually bring about. The labour reform that he plans to enact this year, which will make it easier to sack workers and hire part-timers, is a timid version of the overhaul Argentina needs. Improvements to education, more ambitious tax and pension reforms and a shake-up of the judiciary will also have to wait.

To give himself a chance to write the second draft, Mr Macri is pursuing policies that seek to balance economic stability with the need to placate groups that could disrupt his presidency and thwart his re-election. Argentina pays an economic price for this caution in the form of high interest rates, weak exports and a rising debt burden. If Mr Macri misjudges, and lets the price rise too high, he could undermine the economic revival that he has promised to bring about.

His main macroeconomic decision has been to reduce the budget deficit gradually rather than abruptly. The word "adjustment" is taboo, says an official in the treasury department. The pension reform, which provoked shoving on the floor of congress as well as clashes with police outside it, is expected to save the government the equivalent of 0.5% of GDP this year. That is a good start, but the government has to go further, for example by making sure that contributions cover a bigger pro-

portion of benefits, argues the IMF. Mr Macri did not offset the corporate tax cut with revenues from other sources.

His reluctance to slam on the fiscal brakes has shifted responsibility for controlling inflation, still a painful 25%, onto the central bank. Its high interest rates have slowed economic growth and encouraged foreign investors to buy Argentine bonds, drawing in capital that has pushed up the value of the peso. That in turn has made exports less competitive and widened the current-account deficit. A relatively strong currency has discouraged foreign investors from risking money in job-creating enterprises or the infrastructure that Argentina desperately needs. The IMF has urged the government to set a more ambitious fiscal goal of eliminating the deficit before interest payments by 2019.

Rather than do that, the government has decided to accept a higher inflation rate than it had planned. On December 28th the treasury announced that the central bank's inflation target in 2018 would be 15% rather than 8-12%, which means that interest rates can be lower than they would have been. The peso quickly dropped by 4% (though it has since recovered a bit).

The central bank's original target was too ambitious, so it makes sense to revise it (even the new one may be hard to achieve). But there is a cost. Inflation hurts the poor most. Some economists worry that the government is teaching people to expect higher inflation, which often causes it to happen. The central bank shares that worry. On January 9th it lowered rates by 0.75 percentage points, a bit less than markets had anticipated, to 28%.

Although orthodox economists grumble about Mr Macri's gradualism, Argentine investors seem to endorse it. Private investment is recovering after a decline in 2016, though it is still lower than it should be. It rose 16% last year and is expected to grow by 14% in 2018. Foreign investors often follow the lead of local ones, points out Dante Sica of Abeceb, an economic consultancy. Before Cambiemos's election victory in October, the rate of return demanded by foreign investors in Argentine infrastructure and energy was double what projects in other Latin American countries paid, Mr Sica says. It has since dropped to the same level.

Investors are betting that Mr Macri and his party can win again in national elections in 2019. There is a good chance of that, in part because more voters still blame the Kirchners for Argentina's economic plight than blame Mr Macri. He will then have a chance to use the final term he is allowed in office to modernise Argentina's economy. Mr Manzuoli, sitting beside menus that display Guapaletas's 41 flavours, sounds more optimistic than fearful. Mr Macri "showed that it was possible to have a normal country". ■

Mexico

Burying the Hairy Hand

MEXICO CITY

The macabre is as Mexican as guacamole

AS MIDNIGHT neared, five nights a week Mexicans with a taste for the macabre would switch on their radios to hear the latest spooky story, called in by their fellow listeners. There was the tale of the bloodied boots, which kept reappearing in a family's basement, driving the wife to seek psychiatric treatment. Once, the station that carried the show, XEDF-FM, mysteriously went off the air during a devil-worshipper's phone-in. Most famous of all was the story told by Josué Velázquez, who said he had suffocated his grandmother to keep his end of a bargain with the devil (doctors said she had died of natural causes). Juan Ramón Sáenz, the best-known host of "La Mano Peluda" ("The Hairy Hand"), listened with apparent credulity to about half the yarns broadcast over its 22-year history; some were chillingly believable.

The show had a cult following, especially among late-shift workers and nocturnal taxi drivers. But Grupo Formula, XEDF's owner, decided to bury it; the last episode aired on January 12th. After decades of success, the show "no longer had the same impact", says a person familiar with the thinking that led to the decision.

People liked the stories, some of which could not possibly be real, because they came from the mouths of ordinary folk who undeniably were, reckons Ricardo Farias, a film director. Listeners believed the tales, or pretended to. When Sáenz died suddenly in 2011, days after a reunion with Mr Velázquez for "Extranormal", a television programme involving visits to haunt-



What to wear when listening to the radio

►ed houses, many *pelumaniacos* were convinced that he had been cursed.

The show's popularity testifies to Mexico's love of all things supernatural. "Mexican culture is very mystical," says Ricardo Vázquez, a director of programming at tv Azteca, which broadcasts "Extranoormal". That programme began airing in 2007 after Laura Rivas, a medium with a five-minute horoscope segment on a morning show in Guadalajara, one day started interpreting the dreams of those who called in. "We realised when she started talking about ghosts, or dreams, or something paranormal, the ratings went up," says Mr Vázquez.

"Extranoormal" has nearly 4m viewers.

Some people think the demise of "The Hairy Hand" shows that Mexicans are becoming less interested in eerie entertainment. Macabre movies have also entered a dead zone. More than 5m people thronged cinemas to see the four Mexican-made horror films released in 2007, according to the Mexican Institute of Cinematography. In 2017 the three scary flicks released attracted just 250,000 people.

But other signs suggest that Mexicans' fondness for morbidity is alive and well. The Day of the Dead, a holiday on which they wear ghoulish costumes and visit the

graves of loved ones, remains as popular as ever. Last year Mórbido Fest, a horror-film festival, held its tenth and biggest edition, so the genre may not be dead after all.

Some famous Mexican film directors, including the winners of two of the past five Golden Globe awards for directing, began by working on "La Hora Marcada", a horror show on television. After getting his Golden Globe on January 7th for "The Shape of Water", Guillermo del Toro was asked why he has such an affinity for themes of fantasy and terror despite his cheerful demeanour. He immediately replied: "I'm Mexican." ■

Bello | The threat of violence in Venezuela

Armed action against the dictatorship is risky and ill-advised, but it has started

WHAT should be done when a regime remains in power by dictatorial means while pitching its people into penury? That is the question that Venezuela's opposition has been grappling with since it won a legislative election in 2015, only to see Nicolás Maduro's government use its puppet courts to strip power from the legitimate parliament.

The opposition has tried two strategies. One was sustained protest. That was met with violence: about 120 people died in protests last year, many at the hands of the security forces. Despite the protests, Mr Maduro created a new, hand-picked assembly to replace the parliament. (The opposition boycotted a vote in July that was intended to give this new body a figleaf of respectability.)

The second track has been to try to negotiate with the regime for a free and fair presidential election due later this year. In theory the two strategies are not incompatible, but in practice pursuit of both has divided the opposition (which has paid a high price for its failure to forge a single party with a single leader). Those splits and the regime's refinement of fraud and clientelism—votes for food and cash—allowed Mr Maduro to win the recent regional and municipal elections.

In talks with part of the opposition this month in the Dominican Republic the government has been uncompromising. It has barred the two most popular opposition leaders from running for president. It shows no sign of agreeing to a non-partisan electoral authority or to the international election monitoring that the opposition demands. In desperation, the opposition may settle for much less.

Venezuela is not standing still. Living conditions continue to deteriorate. On top of shortages of food and medicines and rampant crime, the country has now



entered hyperinflation. The central bank has stopped publishing regular statistics. According to an estimate by the finance committee of the national assembly, prices rose by 2,616% in 2017, and by 85% in the month of December alone, as the government finances itself by printing money. (Most economists define hyperinflation as being 50% or more per month.) Despite regular increases, the minimum wage has lost most of its value.

In the 1970s Venezuela was the richest country in Latin America. Partly because of a fall in the oil price in 2014, but mainly because of the anti-market policies of Mr Maduro and his predecessor and mentor, Hugo Chávez, the economy this year will be a third smaller than it was in 2013. (In acknowledgment of that decline, and of the poor quality of Venezuela's data, this week we have replaced the country in our statistics pages with Peru, whose economy will soon be bigger. We will continue publishing statistics on Venezuela on our website.)

Venezuela's desperate plight is prompting some desperate thinking. Warning of impending famine, Ricardo Hausmann, a Venezuelan economist at Harvard Univer-

sity, this month called for the parliament to appoint a new president who would call for international military action to overthrow the regime.

This is a bad idea, and unlikely to come about. No Latin American government will back it. Nor, probably, will Donald Trump, though he has mused about it. And it risks large-scale bloodshed: Venezuela has a well-equipped army. At least some of its forces would fight, as would pro-regime militias.

More likely is guerrilla action by Venezuelans. In a small way, this has begun. On January 15th the security forces cornered Óscar Pérez, a dissident police captain who last month led a raid on a National Guard armoury, making off with a cache of weapons. Mr Pérez tried to surrender, but was summarily killed along with six followers. This contrasts with the leniency shown to Chávez: the democratic government that he tried to overthrow in 1992, in a coup attempt that left 67 people dead, not only spared his life but pardoned him after just two years in jail.

Mr Maduro's ruthlessness betrays insecurity. His regime may have crushed the opposition for now, but it is under strain. The country has seen another round of looting and protests over food shortages. A fall in oil output is offsetting the recent increase in its price. Financial sanctions imposed by Mr Trump have made it hard for Mr Maduro to raise money abroad. There are reports of sympathy for Mr Pérez among the security forces.

In one respect Mr Hausmann raises a valid point. Latin America should not stand idly by in the face of an unprecedented and entirely man-made calamity in Venezuela. The region could put more diplomatic and financial pressure on the regime. There is no guarantee of success—but the alternatives are worse.



Protests in Tunisia

Democracy and its discontents

ETTADHAMEN

Tunisians are losing faith in the ballot box

DESPITE his best efforts, when President Beji Caid Essebsi visited Ettadhamen ("solidarity") on January 14th, he did not engender much harmony. Protests had broken out a week earlier across Tunisia, many of them in places like Ettadhamen, a working-class suburb of Tunis, the capital. Though peaceful during the day, they turned ugly at night, with rioters burning police stations and trashing a supermarket. Hours after Mr Essebsi left Ettadhamen, riots erupted yet again, leaving the streets dotted with spent tear-gas canisters.

The unrest was sparked by a package of tax increases, affecting dozens of consumer goods, that took effect on January 1st. Fuel prices, which are heavily subsidised, were also raised. The government argues that it needs to shrink the budget deficit of 6% of GDP, and that many of the austerity measures are aimed at the rich—wine prices, for example, rose sharply. But so did the prices of basic necessities, such as bread and phone cards.

Hoping to head off further unrest, the government announced that it would spend an extra 100m dinars (\$40m) on welfare payments this year. Pensions are also set to grow, along with health-care benefits for the unemployed. Poor families will receive at least a 20% increase in aid—though for many, that will mean just \$13 more per month. Even the larger stipends are still below the 240 dinars that economists call a subsistence monthly wage. "It's laughable," says Sami Bechini, a retired civil servant. "They would need to double my

pension for me to feel comfortable."

Although the concessions failed, coercion was effective. Police arrested more than 800 people, among them bloggers and activists, and the army was deployed in some outlying areas. For now, at least, the protests have died out. Even at their peak they drew at most tens of thousands of supporters. They were a far cry from the enormous demonstrations that toppled Zine el-Abidine Ben Ali, the longtime dictator, in 2011. Still, the unrest is a symptom of a much deeper problem.

Seven years after the revolution, many Tunisians are losing faith in a democratic transition that was meant to bring wider prosperity. A poll by the International Republican Institute, an American pro-democracy group, found that most Tunisians think the country is going in the wrong di-

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rection (see chart). Asked whether prosperity or democracy was more important, almost two-thirds chose the former.

In interviews it is not uncommon to hear nostalgia—if not for Mr Ben Ali then for his predecessor, Habib Bourguiba, who ruled for 30 years until 1987. Many invoke the memory of the bread riots in the 1980s, which were caused, like the recent protests, by a cut in subsidies linked to talks with the IMF. The riots ended when Bourguiba reversed the cut. "The virtue of dictatorship is that there's an authority to the state. It's bad, but it works," says Sihem Bensedrine, who heads the national truth and dignity committee. "People think democracy equals chaos."

Tunisia held free and fair parliamentary elections within a year of Mr Ben Ali fleeing. Ennahda, an Islamist party, won a plurality in the legislature and formed a coalition. Then it did something more important: it stepped down in 2014 after a series of political assassinations plunged the country into crisis. When Nidaa Tounes, a bloc of secular parties, placed first in the subsequent election, Ennahda joined its coalition. Though Freedom House downgraded Tunisia in its latest survey of world liberty, it is the only Arab country to be rated as "free".

Rather than advance the democratic transition, though, political elites are stalling it. Four years after it adopted a new constitution, parliament has yet to appoint a constitutional court. Lawmakers cannot agree on which judges to name. Nor has Tunisia held local elections, originally planned for 2016 and then postponed four times. They are now tentatively scheduled for May. Nidaa Tounes fears a thumping by the better-organised Ennahda. Both parties have an eye on the national election in 2019. Yet good local governance is vital in a country with deep disparities between the impoverished interior and the comparatively prosperous coast.

Something's not right here

Tunisia, "Which direction would you say things are going in our country overall these days?"
% responding



► Mr Essebsi and Rachid Ghannouchi, the head of Ennahda, act as a kind of ruling duo, with support from the powerful trade unions. Yet beneath those two ageing leaders, the political landscape is increasingly fractious. Nidaa Tounes lost its plurality in 2016, when about two dozen of its MPS broke away to form an anti-Islamist bloc. Ennahda, for its part, has upset its largely working-class voters by sitting in a government that raised taxes, lowered subsidies and froze public-sector recruitment. "It lost us votes," says Mr Ghannouchi. "We've placed all our bets on an alliance with our adversaries from yesterday."

A poorly attended by-election in December, for Tunisian expatriates in Germany, saw a blogger with no party affiliation win a seat. In polls, the most trusted politician is often neither Mr Essebsi nor

Mr Ghannouchi but the young prime minister, Youssef Chahed. He was a middling member of Nidaa Tounes before he was catapulted to the premiership in 2016. Now he is working on his own political movement ahead of elections next year.

Until then, though, Mr Chahed will be the public face of painful economic reforms. Public-sector wages chew up almost 14% of GDP; inefficient state-run firms have too many workers (and not enough revenue). Both must shrink. The government needs to do a better job of selling these changes. In the short term, handouts can help to blunt some of the backlash. But eventually it needs to show progress, or wider unrest looms. "We've had nine governments in seven years, and the economic results have been the same with each one," says Mr Ghannouchi. ■

Israel's mismanaged capital

Grants and absolution

JERUSALEM

A messy row over the Holy City's finances

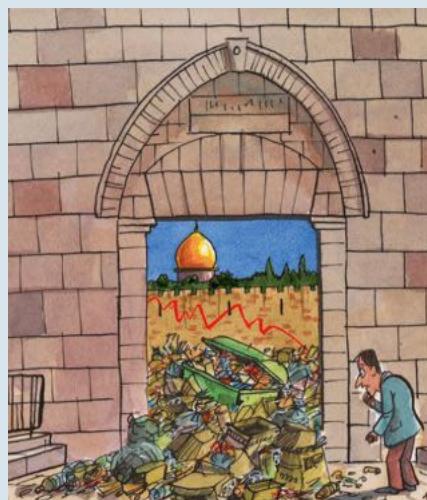
EARLIER this year residents of Jerusalem woke up to find piles of rubbish strewn across roads, markets and other public spaces. Municipal workers striking against job cuts announced by the city had not simply stopped collecting refuse; they dumped lorry-loads of it.

Jerusalem has attracted a lot of attention since President Donald Trump announced in December that America would recognise it as Israel's capital and move its embassy there. Yet for all the fuss over the holy city's international status, its management and finances are a mess. Its streets are often filthy (even when city workers are not striking) and its pavements are crumbling—visible indicators that it spends a quarter less per person on services for residents than Israel's other large cities.

Over the past four years the central government has tripled its grants to Jerusalem. This year it proposes to give the city 800m shekels (\$233m)—14% of its operating budget. But its mayor, Nir Barkat, wants 1bn shekels.

The mayor's critics say that his administration is bloated by cronyism. He has failed to put Jerusalem's finances on a sound footing. Tax collection, already lax in ultra-Orthodox and Palestinian neighbourhoods, has not increased in six years. Although other local authorities in Israel receive grants to balance their books, Jerusalem gets four times more than its share according to a formula based on population and wealth.

To be sure, Jerusalem has structural problems that cannot be blamed on the mayor. It is divided principally between



the Palestinians, who live in cramped and run-down neighbourhoods in the east (and get shoddier services), and the ultra-Orthodox, many of whom live off benefits and study the Torah instead of working. These communities make up two-thirds of the city's 900,000 residents, and most of its poor.

The Jerusalem Institute for Policy Research reckons that 56% of children in Jerusalem are below the national poverty line, compared with 31% nationally; among Palestinians in Jerusalem the figure is 86%.

Israel calls Jerusalem its "eternal and undivided capital". But nine years under Mr Barkat have left it broke and its people divided, hardly a desirable record for a politician who wants to stand for leader of the ruling Likud party.

The war in Syria

Rebels on the slide

BEIRUT

The government is closing in on one of the rebels' last strongholds

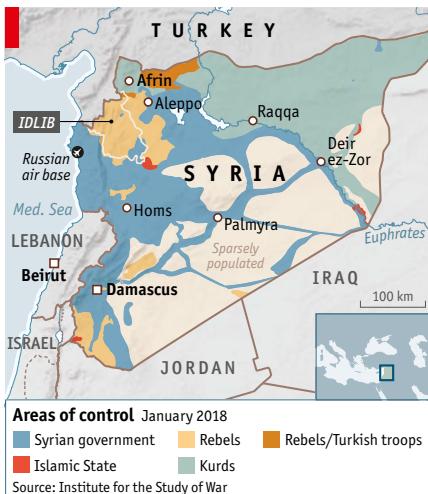
IN THE spring of 2015 the rebel takeover of Idlib province in north-western Syria seemed to signal the beginning of the end for President Bashar al-Assad. Yet Idlib's fall may have saved him. Fearful of losing his close ally, Russia's president, Vladimir Putin, decided to join the fray. Within months of Idlib's capture, Russian aircraft were battering rebel lines.

Russia's entry into the war proved a turning-point. Forces loyal to Mr Assad have since beaten back the rebels on every front, boxing them into ever-shrinking pockets of territory. In December Mr Assad's men turned their guns on Idlib, the last province under complete rebel control. It may now provide the backdrop for the end of the uprising.

For a time it had seemed as if Idlib, a province of 2.6m people, might escape the fighting. It is dominated by rebels, including Hayat Tahrir al-Sham (HTS), a group linked to al-Qaeda. But a ceasefire hashed out in September between Turkey, which has backed the rebellion, and the regime's allies, Iran and Russia, dampened the violence. Turkey sent troops to the province in October to monitor the truce, which excluded HTS. Russian military police were supposed to follow. Both countries had agreed to curb HTS's power in the province (see map on next page).

As part of the deal, Turkey was to have forced the rebels it backs to hand over parts of eastern Idlib to the regime. In return, the Turks won Russian approval to enter Idlib and to set up bases around the Kurdish-run enclave of Afrin, which lies near the Turkish border. Turkey views the Kurds who rule that area, and who have seized a quarter of the country since the start of the war, as a branch of the Kurdistan Workers' Party (PKK), a group it has fought for decades and calls terrorists. Turkey repeatedly says it will not allow the Kurds to form a "terror corridor" on its border.

But the Syrian regime and its Russian backers have grown frustrated with Turkey's failure to uphold its end of the bargain. HTS fighters refuse to leave eastern Idlib. So in December Mr Assad's forces, with Russian air cover, pushed eastwards along a railway line, shrinking the rebels' enclave as they captured a string of villages. The regime is close to retaking a large air base and may press on to seize a strategic road running through Idlib and linking some of Syria's biggest cities. More than 200,000 people have fled the violence. ►



► Turkey fears the fighting could drive many Syrians across its border to join the 3.4m refugees it already harbours.

The incursion could derail the rapprochement between Turkey and Russia, casting doubt on Russia's ability to mediate an end to the war. Relations between the two countries, which back opposing sides in the war, had begun to warm. Turkey had agreed to cut back its support for the rebels in return for Russia's assent to a Turkish military operation in 2016 that split the Kurds' territory in two. More recently, the two countries had worked together to create four "de-escalation" zones where rebels and the regime's troops were supposed to stop killing each other. The agreement was meant to pave the way for Russian-led peace talks.

Since Mr Assad's forces entered Idlib, however, Turkey has sounded less happy with Russia's vision for post-war Syria. In December President Recep Tayyip Erdogan called Mr Assad a terrorist and said the Syrian president had no role in Syria's future, a view at odds with Russia's. Mr Erdogan's comment implied a warning to Russia that he could scuttle Russian-led peace talks, should the Kurds be allowed to take part. On January 13th Turkey raised the stakes by announcing that a ground operation to seize Afrin, where Russian troops are based, would begin "in the coming days".

This may mess up Russia's plans to host a peace conference in the Black Sea resort of Sochi later this month. Russia has already asked various Kurds to the talks, which have been postponed twice, but has steered clear of asking any from the Kurdish party that runs the area that includes Afrin, in order to allay Turkish concerns.

Western governments and Syria's opposition leaders see the Sochi conference as Russia's attempt to undermine UN-sponsored peace talks in Geneva that have gone nowhere, snagged on Mr Assad's fate. But the more territory he captures, the less willing he will be to negotiate an end to his own rule. ■

An army that marches on its stomach

The very hungry caterpillars

Spodoptera frugiperda has taken Africa

AFRICA has been invaded on quiet wings. First they landed by ship in the west. Then they spread across the continent, wreaking havoc as they went. Now, two years later, the invaders are worrying officials in almost every sub-Saharan country. It's not the French, British or even the Chinese. This time it's a simple American moth, the voracious fall armyworm, that has marched through Africa's fields and is threatening to cause a food crisis.

When just a hungry caterpillar, the fall armyworm will happily munch on more than 80 plant species. But its favourite is maize—the staple for more than 200m sub-Saharan Africans. The UN's Food and Agriculture Organisation (FAO) estimates that sub-Saharan Africa has about 35m hectares of maize grown by smallholders, and that almost all of it is now infested or at risk of infestation.

If the pest is not controlled, it could gobble up as much as 20% of the region's total maize crop. Some countries may be particularly hard hit. The Centre for Agriculture and Biosciences International (CABI), an association of agricultural research centres in 12 countries, thinks that big producers such as Nigeria or Tanzania could lose more than half their maize harvest.

Originally from the Americas, these worms were a plague there for hundreds of years. Yet American farmers have beaten them back with the help of genetically modified plants and advanced pesticides. By contrast, the worms are meeting little resistance in Africa. They were first officially detected in Nigeria in January 2016. Now they can be found in 43 other African countries (see map).

Two factors explain their rapid spread. The first is biology. Africa already has its own variety of the worm, which farmers can control. But the foreign species mi-



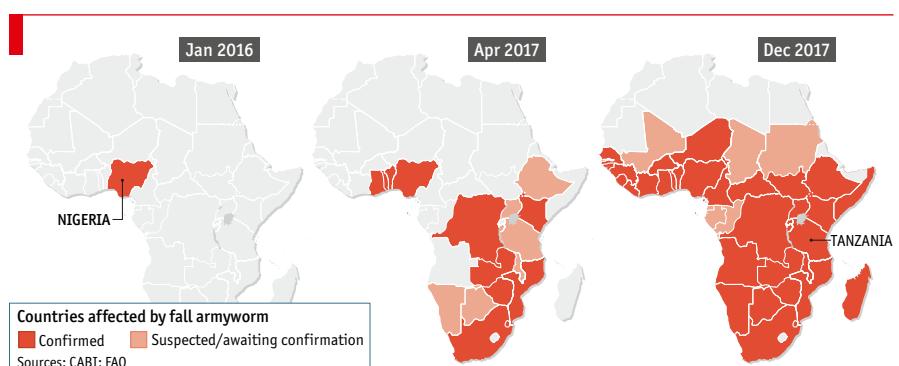
On Friday he ate a field of maize

grates and reproduces much faster. After it turns into a moth, it can fly as far as 100km (60 miles) a night. During her ten days of adulthood, a female moth can lay up to 1,000 eggs.

The second is that most of Africa's farming is done by smallholders who use outdated techniques and whose yields are already low. The worm "is coming on top of other constant threats faced by farmers, including drought, new crop diseases, and low soil fertility," says Joe DeVries of the Alliance for a Green Revolution in Africa.

Yet labour-intensive farming also offers opportunity. Experts fret that if farmers use too much cheap pesticide to kill the worms, they may end up poisoning their crops. Allan Hruska of the FAO hopes instead to teach farmers to use some of the techniques that smallholders in the Americas have long used. These include mixing crops, encouraging natural predators and patrolling fields to crush the eggs by hand.

Better still would be to copy America's commercial farmers, who plant GM crops that are largely resistant to the worm. Almost all African countries apart from South Africa have formally or informally banned GM crops, following iffy advice from ecowarriors. Lifting these restrictions would lead to fewer hungry caterpillars and fewer hungry people. ■



Long walk to financial ruin

Keeping up with the Khumalos

JOHANNESBURG

Household debt is hobbling the black middle class

SOUTH AFRICANS have dubbed this month "Janu-worry". After Christmas and the summer holidays come the bills. A popular classified-advertising website is full of pleas for help. "Mashonisa [loan shark] urgently needed," says a typical post. "No scammers." Radio call-in shows offer catharsis and survival tips.

The rest of the year is tough on pocketbooks too. South Africans are the world's most avid borrowers, according to the World Bank. A study published in 2014 showed that 86% had borrowed money in the previous year (see chart).

Most borrow from friends or family, but an astonishing 25m out of about 37m adult South Africans owe money to financial institutions or other corporate lenders (such as utilities or shops that allow them to buy now and pay later). To put that in context, fewer than 10m people are formally employed (although many more work on farms or in the informal economy, where statistics are not reliable). Small wonder that barely half are keeping up with their repayments, according to the National Credit Regulator, a government agency.

Some of this overstretching stems from aspiration. Since the end of apartheid in 1994, a black middle class has rapidly emerged. Many people are eager to show that they have arrived, by flaunting a car, a new suit or a smartphone. But not all can keep up with the Khumalos.

Economic growth is slow, and unemployment is either 28% (by the official measure) or 37% (by a more realistic estimate). Black South Africans with jobs often have to support a huge number of unemployed relatives. (This is colloquially known as the "black tax".) The first person in a family to attend university or get a good salary is expected to pay for the schooling of younger relatives, and to foot the bill for funerals and other wallet-draining events. Deduct all this from a pay cheque and there may not be enough for groceries. "South Africans are borrowing for everyday needs," says John Manyike, head of financial education for Old Mutual, an insurer.

Many South Africans are ignorant of the basics of personal finance, a trait that transcends income levels. Neil Roets, who heads Debt Rescue, a debt-counselling firm, says new clients are first asked for their household budget. Most do not have one. "We get people coming in who earn very big salaries...and have never learned how to work with money," Mr Roets says.



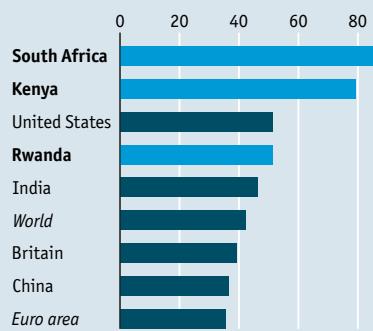
Buy now, default later

The previous financial woes of Jacob Zuma, South Africa's spendthrift president, have been well documented. When he was drowning in debt in 2005, and dependent on benefactors, he even received help from Nelson Mandela, who gave him 1m rand (\$148,000 at the time).

For those with fewer rich friends than Mr Zuma, there are illegal loan sharks. Many of their customers have jobs, but get turned down by legal lenders because of their poor credit scores. This does not bother the *mashonisas*, who are adept at collecting bad debts. Not all use threats of violence. Some keep identification documents and bank cards as collateral. Others

Hey big borrower

People aged 15 and over who have borrowed money* in the past year, 2014, % of total



illegally hold electronic payment cards linked to the social security system. This lets them tap borrowers' government welfare grants each month.

Legal lenders sometimes misbehave, too. Shoprite, one of the country's biggest retailers, was fined 1m rand in September for "reckless lending", after it failed to check properly whether consumers could afford to repay their loans. Cash Paymaster Services, a private company controversially given a government contract to manage welfare payments, has been accused of pushing loans and other financial products to welfare recipients and then deducting onerous repayments.

Lenders insist that they are righting one of the wrongs of apartheid, when black South Africans were not allowed to borrow, by bringing people into the financial system. They have a point. But little of the money they lend is invested in a business or in acquiring valuable skills. With interest rates high and financial literacy low, many loans lead to financial ruin. They may even widen the gap between rich and poor, since people who besmirch their credit records by missing payments on small loans will then struggle to get mortgages or business loans from banks.

Reckless lending also affects economic growth. Absenteeism rises alongside financial distress, since employees who have to service big loans sometimes cannot afford the minibus to work. Workplace fraud and theft also tend to increase when staff are indebted. Some debtors quit their jobs so they can crack open their pension pots to fend off creditors—and then reapply for the same position, says Mr Manyike.

Debt can even cause social instability. The often violent strikes at platinum mines that broke out in 2014, which slowed the national economic growth rate, were partly born of debt. Miners' take-home pay was falling because lenders were getting court orders instructing their employers to deduct loan repayments directly from their salaries. In Marikana, where in 2012 police shot dead 34 miners after a lengthy strike, many workers had been caught in a nasty cycle of unsecured short-term loans.

There are, however, some encouraging signs of changes in consumer behaviour. The 2017 TransUnion Consumer Credit Index, which measures borrowing and repayment, notes a "marginal" improvement in the level of indebtedness. But it also warns that high unemployment and stagnant wages will keep households under pressure. Better regulations to clamp down on unscrupulous lending are being drafted. A sprightlier economy would help even more. Growth is expected to limp in at just 1.1% this year, after a recession in 2017. It needs to pick up quickly to help households and the state itself—public debt has climbed above 50% of GDP—pay down some of their crushing debt. ■



France's En Marche!

What's it for?

PARIS

The political movement that Emmanuel Macron rode to power needs a new role

WHEN Emmanuel Macron was elected French president in May last year, the party he founded felt “orphaned”, says Gilles Le Gendre, deputy leader of its parliamentary group. Those who had worked tirelessly as volunteers for his improbable political adventure were thrilled, to be sure. But they also felt as if they had “lost a father”. En Marche! began life less than two years ago with a forceful leader but no money and no deputies. After Mr Macron stepped into the presidency, it secured those, but lost its boss.

The transformation of a political movement based on grass-roots volunteers into a formal political party has turned into a curiously difficult exercise. En Marche! campaign headquarters used to be a thriving hub. Young people in hoodies huddled over laptops. Empty takeaway boxes were strewn in corners. But the moment Mr Macron was elected, members of his young campaign team disappeared to jobs in government or at the Elysée presidential palace. Julien Denormandie, a co-founder of En Marche!, became a junior minister. Ismaël Emelien, another co-founder, went to advise the president. Benjamin Griveaux, the campaign spokesman, is now the government's spokesman. Others, passed over for top jobs, drifted back to academia

or business.

At the same time, many of the enthusiasts who set up local support committees for Mr Macron went on to stand for parliament, under the banner of La République en Marche (LRM). The National Assembly is today packed with LRM deputies, who occupy 62% of all seats when combined with their friends from a centrist party, MoDem. Teachers, businesspeople, farmers: many deputies had no experience of politics, and had to bury themselves in the rules of parliamentary procedure. Few have time to worry about the party itself.

As a parliamentary party, LRM was accused of arrogance by some, incompetence by others. “At first, everybody wanted to do everything: join every group, speak in every session,” says Hervé Berville, a Rwandan-born deputy from Brittany. “Now we’ve learned to prioritise.” Deputies are better shepherded now that their parliamentary leader, Richard Ferrand, an old ally of Mr Macron’s, is properly back in the job after being cleared in a judicial investigation. Above all, the former grass-roots activists—or *marcheurs*, as they liked to call themselves—have turned into a loyal legislative army for the government.

As a result, though, the movement in Paris has become something of an empty

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shell. LRM now enjoys public subsidy, thanks to its electoral success last year, and has rented new premises in the capital’s heart. Yet it is groping about for a role. Policy debates take place inside government ministries and at the presidency, or within the parliamentary group, not the party. En Marche! has no director of studies, nor a policy publication. It does not see itself as a think-tank, or generator of ideas.

This is partly deliberate. En Marche! is a movement, not an old-style party. Mr Macron “wanted to turn the structure upside down, and have a headquarters lite,” explains Amélie de Montchalin, a 32-year-old LRM deputy. The president wants to focus on keeping the promises in his manifesto, not dreaming up new measures. Theorising about the new alignment of French party politics, it seems, or the future role of the state, can be left to others. But if the party has been drained of its expertise and ideas, an existential question arises: what is En Marche! now for?

Many roles or none

Some see it as a megaphone for the government. “We said it, we’re doing it,” for instance, is an initiative designed to publicise the laws that have been passed, and match them to promises made. Another job is to act as talent scout for future campaigns. Christophe Castaner, who became LRM’s leader late last year, this month launched a mentoring service for people in the regions with ideas about how to improve public life. At the previous elections to local government and the European Parliament, En Marche! did not exist. Now it aims to build a network of people it can train as future candidates, and topple the ossified parties, ►

► just as it did at the national level.

Neither of these roles, though, quite meets the aspiration of those on the ground who thought they were joining a radical citizens' movement which would be "neither on the left nor the right" and would conduct politics differently. These were people drawn into politics for the first time, and who want to feel that their voice still counts. The party is consulting grassroots supporters on policy matters, such as an upcoming reform of vocational-training schemes. But legislation is moving fast and the real decision-making takes place inside government.

In its short life, LRM has been through plenty of teething trouble. Not all its new deputies have turned out well. One had to leave the party after getting into a street

fight. Perhaps En Marche!'s toughest job is to manage the tension between the needs of policymakers in government and the hopes of civic activists on the ground.

En Marche! is trying to keep the founding spirit going. New ideas, says Ms de Montchalin, "should not just come from the Paris elite". The party is experimenting with services that look like a cross between citizens' advice and the collaborative economy. It has set up online educational tools. It runs a social platform to promote local volunteering and community work. "En Marche! can't just be a party like any other," insists Mr Berville. At a time of political disillusion, it is an intriguing ambition. But the more the party settles into power, and the longer it stays in office, the harder this may prove to be. ■

It was an illustration of what some in the CDU/CSU have dubbed the "dwarfs' rebellion". As SPD leaders and MPs have fanned out around the country to make the case for a repeat of the grand coalition (*Grosse Koalition*, or "GroKo") that governed Germany from 2013 until the election, they have met resistance from members fed up with compromises and defeats. Three state branches, including that in Berlin, formally oppose the idea. So do the Young Socialists, the party's youth wing, whose leader, Kevin Kühnert, has undertaken a rival tour of local groups, complete with "No GroKo" placards. On January 21st delegates gather in Bonn to decide whether to endorse formal talks with the CDU/CSU. If they opt not to, it could spell a new election—and even prompt Mrs Merkel to throw in the towel.

The SPD has never been enthusiastic about another spin with the chancellor. Its leaders ruled it out within minutes of polls closing on September 24th, but were enticed back to the table in November when coalition talks between the CDU/CSU, the pro-business Free Democrats and the Greens collapsed. The outline of a new GroKo deal was relatively unambitious. The CDU/CSU gets new limits on immigration. The SPD gets somewhat expanded child-care and, in a concession to its Europhilia, commitments to euro-zone integration richer in rhetoric than in substance.

Nonetheless, the paper opens the door, albeit in vague terms, to a euro-zone budget and to a "European Monetary Fund" rooted in European law. That "signals a readiness to talk", adds Lucas Guttenberg of the Delors Institute, a think-tank, providing a basis for an agreement with Emmanuel Macron (particularly if the SPD takes the finance ministry). On January 17th a group of 14 French and German economists published proposals for such a deal, including common deposit insurance and reformed fiscal rules. "We should not just wait until the next crisis," said Marcel Fratzscher, one of the authors, cautiously deeming the preliminary coalition paper "encouraging".

The SPD has no good options. Another coalition with Mrs Merkel could see the party lose yet more support. A minority CDU/CSU government would, in effect, give the SPD the responsibility of not bringing down the government but little influence over it. And at the current rate—the SPD fell to a record low of 18.5% in a poll published on January 15th—a new election might cost it seats without changing the basic coalition arithmetic.

Even if formal talks are approved, a further barrier remains: any final agreement must be approved in a full ballot of members. SPD leaders are raising expectations that the deal would improve on the preliminary paper. But that looks doubtful. The dwarfs may have their way yet. ■



Germany

The dwarfs' uprising

KASSEL

SPD members could yet block another coalition deal with Angela Merkel

BUNDLED up in woolly jumpers and scarves, the mostly grey-haired crowd filed into the civic centre in Schauenburg, a small central German town, toasted the new year with foaming glasses of beer and exchanged genial gossip. It was hard to believe that they might hold the fate of the world's most powerful woman in their hands. But they might indeed. Like their comrades across the federal republic, these ordinary members of the centre-left Social Democrats (SPD) have the final say on whether to give Angela Merkel a new majority to govern. And they were sceptical.

Timon Gremmels, the party's local MP, took to the stage to try to sell the deal.

"Clearly, mistakes were made during the campaign," he conceded; a nod to the party's record-low 20.5% score at the election in September. He also regretted the meagre substance of a preliminary coalition blueprint agreed on January 12th between SPD leaders, Angela Merkel's centre-right Christian Democrats (CDU) and their Christian Social Union (CSU) partners: "There are things missing from the discussion paper that I regret." Heads began to shake, eyes to roll. Grimacing, Mr Gremmels ploughed on as disgruntled murmurs took hold, spread across the room and then drowned him out. A solitary listener clapped.



Russia

Pot shots

MOSCOW

A Chechen human-rights defender faces implausible drug charges

OYUB TITIEV suspected the day would come. As head of the Chechen branch of Memorial, a Russian human-rights group, his activities angered the region's authorities. His predecessor, Natalia Estemirova, was kidnapped and murdered in 2009. No-one has been punished for the crime. Mr Titiev (pictured) received death threats himself. He warned friends and colleagues that he could be arrested any time. "They'll plant drugs," he told a friend.

Mr Titiev's fears were justified. On January 9th Chechen police arrested him, claiming to have found some 180 grams of marijuana in a plastic bag inside his car. He was charged with drug possession and faces up to ten years in prison. Mr Titiev reported that officers threatened reprisals against his family if he did not plead guilty. The arrest looks like an attempt to force Memorial to cease its work in the region, where it has long documented torture and disappearances. On January 17th the Memorial office in neighbouring Ingushetia was burned down.

The Chechen authorities have a history of using fabricated drug cases to deal with critics. Ruslan Kataev, another human-rights activist, was arrested on drug charges in 2014, and released only late last year. Some two years later, Zhalaudi Geriev, an independent journalist, was sentenced on similar grounds; he remains behind bars. Both men were tortured in custody, says Human Rights Watch. The charges against Mr Titiev would be comical were they not so sinister. Friends and colleagues note

Poland

Patriotic smog

WARSAW

Why 33 of the 50 most-polluted towns in Europe are Polish

THE spa town of Rabka-Zdroj, in southern Poland, has been known as a treatment centre for children since the 19th century. These days it also has terrible air. In January 2017 the level of benzo(a)pyrene, a carcinogenic compound, was found to be 28 times normal limits. If this goes on, Rabka-Zdroj could lose its spa-town status, which needs to be renewed every ten years. Air pollution is "our silent enemy", says Zbigniew Doniec of the town's Institute of Tuberculosis and Lung Diseases.

Rabka-Zdroj is hardly alone; across swathes of Poland, winter means smog. An astonishing 33 of Europe's 50 most-polluted towns are in Poland, as ranked by the World Health Organisation in 2016. Among them is Katowice, which will host the next UN climate summit in December. Coal heating in houses is largely to blame; to save money, people burn waste coal and slurry. (Defying the law, others simply burn rubbish.) In small towns, dark fumes rise from chimneys, giving the cold air a toasty edge. On bad days, officials in Warsaw advise residents to stay indoors and keep their windows closed. *Gazeta Wyborcza*, a newspaper, recently gave its readers a

free smog mask.

The governing Law and Justice (PiS) party champions the coal industry, which employs some 90,000 Poles. "Coal is the foundation of our energy sector and we cannot and do not want to abandon it," said Mateusz Morawiecki, the prime minister, in his inaugural speech to parliament on December 12th. His new programme for Silesia, a densely populated industrial region in southwest Poland, includes two new coal mines. As Warsaw seeks to wean itself off Russian gas, coal is presented as the patriotic alternative.

Smog has become a household word, and officials are starting to take it seriously. Emissions standards for coal heaters were tightened in October. Some regions are going further—an "anti-smog" law adopted in 2015 enables them to make their own rules on household heating. On November 30th 2017 the regional assembly in Wroclaw, a city in western Poland, voted to ban the most-polluting types of coal. Some towns already offer subsidies to help people swap their ageing coal burners for cleaner alternatives. Yet without firm action in Warsaw, Poles are in for more smoggy winters.

that the 60-year-old Mr Titiev, a devout Muslim, neither drank nor smoked and began most days by running.

Russia's federal authorities have limited influence over Chechnya's internal affairs. The Kremlin depends on the Chechen leader, Ramzan Kadyrov, to preserve stability in the turbulent republic. Mr Kadyrov, in turn, is allowed to run the republic as a private fiefdom, with his own army.

Mr Kadyrov has been the target of particular criticism in the West for alleged human-rights abuses. He was recently added to America's "Magnitsky List" in connection with his alleged involvement "in disappearances and extrajudicial killings", including an anti-gay purge that swept the republic in early 2017. That led to Mr Kadyrov being banned from Western social networks such as Facebook and Instagram, which he used to communicate with millions of followers. The ban greatly irritated the Chechen leadership. The speaker of parliament, Magomed Daudov, described human-rights activists as "enemies" with "foreign bosses" and added: "If only Russia hadn't had a moratorium [on the death penalty], we could've just bid these enemies of the people 'salaam alaikum' and been done with them." ■

The Czech Republic

Taking back the castle

PRAGUE

A rare victory for liberals in central Europe

AS DEMOCRATIC checks and balances buckle in Poland and Hungary, the Czech Republic has seemed to many like the next central European country in line to succumb. Andrej Babis, a billionaire businessman, became prime minister after winning October's general election despite facing fraud charges. He now collaborates closely with his country's pro-Russian though largely ceremonial president, Milos Zeman. Liberals fret that the pair pose a growing challenge to the rule of law and to the Czech Republic's pro-Western orientation. But Czech voters and institutions appear to be pushing back.

Although Mr Zeman came top in the first round of the country's presidential election, scoring 38.6% of the vote on January 12th-13th, he fell well short of a majority. The runner-up, Professor Jiri Drahoš, a ►

► soft-spoken political novice who previously led the Czech Academy of Sciences, won a larger-than-expected 26.6%, which puts him in a good position to displace the incumbent in the run-off at the end of the month. Three days later, on January 16th, parliament rejected Mr Babis's attempt to form a minority government. As the leader of the largest party, he was invited to try to do so by the president, though he controls just 78 of the 200 parliamentary seats, lacks a coalition partner and is accused of fraud in connection with EU subsidies for a development project. All told, the presidential second round, on January 26th-27th, is shaping up as a referendum on the direction of the country, if not the entire region.

In September MPs voted by 123 to four to strip Mr Babis of his immunity from prosecution on the fraud charges, but because parliament was then dissolved for the October election, they must now do so again. In noticeable contrast to Mr Zeman, Mr Drahos has called on Mr Babis to give up his immunity voluntarily, and prove his innocence. On January 16th Mr Babis obliged. With police and prosecutors pressing the case, the *Hospodarske Noviny* newspaper recently leaked a report from EU investigators accusing Mr Babis of "numerous breaches of national and EU legislation".

Mr Drahos is poaching supporters from Mr Zeman; exit polls found that 14% of Mr Zeman's voters from 2013 opted for Mr Drahos from a field of nine first-round candidates. "Incompetence, corruption and vulgarity have streamed from Prague Castle for nearly five years," Mr Drahos told *The Economist* during the campaign. Mr Zeman is noted for his diatribes against the EU, and for his love of Vladimir Putin (odd in a country that Russian troops invaded in 1968 to crush local hopes of liberty).

These days, Mr Zeman looks frail in his rare public appearances. Confronted by a topless protester from Femen, a radical feminist group, as he cast his vote, a dishevelled Mr Zeman had to steady himself on a nearby table. His election slogan, "Zeman znovu" (Zeman Again), is hardly inspiring, and there have been reports that he has cancer (which his office denies) to go with his diabetes.

This leads many voters to question whether Mr Zeman still has the fortitude to guide the country and match wits with the wily Mr Babis. Opinion polls have long shown Mr Drahos defeating Mr Zeman in a head-to-head contest, and the candidates who finished third to sixth in the first round (with a combined 32.5% of the vote) have all pledged to support the former chemist in the run-off. While still too early to count out Mr Zeman, not to mention his allies in the media and in Moscow, victory for Mr Drahos would be a breath of fresh air in a region where liberal values have more recently been stifled. ■

Turkey

Checking up on the imams

ISTANBUL

A body once meant to keep an eye on political Islam is boosting it

TURKEY's directorate of religious affairs, known as the Diyanet, has a knack for odd and outrageous pronouncements. The body had already made it known that celebrating the new year, playing the lottery, feeding dogs at home, and purchasing Bitcoin were incompatible with the principles of Islam; men should not dye their moustaches, nor couples hold hands. (Divorcing one's spouse by text message, however, is OK.) But when the Diyanet declared, in a glossary entry spotted on its website at the start of this year, that according to Islamic law girls as young as nine were able to marry, the ensuing outcry was bigger than in recent memory. Some critics called for the institution to close. The Diyanet protested that it was only cataloguing, not endorsing, principles laid down by Islamic jurists, and soundly condemned child marriage in a sermon. (The legal age in Turkey is 18.) The offending post was taken down.

To critics of the Diyanet the incident, the latest in a series of controversies, offered yet more evidence of the directorate's transformation. Over the past decade, and especially amid the purges that followed a coup attempt in 2016, Turkey's president Recep Tayyip Erdogan and his Islamist-rooted Justice and Development (AK) party have tightened their grip on state institutions, restricting dissent within and without. The Diyanet has been no excep-



Let no man dye his moustache

tion. Designed as a check against political Islam, the directorate has become one of its main platforms.

In constitutional terms, Turkey is a secular country. But whereas in most places this implies the separation of religion and state, in Turkey it means state control over religion. Enter the Diyanet. The brainchild of modern Turkey's founding father, Kemal Ataturk, and his supporters, the directorate replaced the office of the Sheikh ul-Islam as the country's main religious authority on March 3rd 1924, the day parliament abolished the Ottoman caliphate. A bureaucratic behemoth, the Diyanet employs all of Turkey's imams, organises Koran courses for children, issues its own, non-binding interpretations of Islamic norms, and pens sermons to be read in the country's 90,000 mosques.

For most of its history, the Diyanet has accommodated the politics of the secular establishment, embracing a version of Islam at ease with modernity, and keeping fundamentalism at bay. (Support for sharia in Turkey is considerably lower than in most of the Muslim world.) Under AK, however, it seems less bound by secular norms than ever before. "The Diyanet of today has a more Islamist, more Arab worldview," says Mustafa Cagrici, the mufti of Istanbul from 2003 to 2011. Much of this has to do with the influx of hardline interpretations of Islam from abroad and Turkey's budding relations with foreign Islamist groups.

Despite a few early signs to the contrary, the moderate, critical current within the Diyanet has folded under increasing pressure from hardliners. In 2004 the Diyanet announced a project to verify and reinterpret the *hadith*, or the collected words and acts of the Prophet Muhammad, in a modern light. Following grumblings by powerful Islamic brotherhoods and conservatives inside AK, the fruit of the Diyanet's labours, a seven-volume study far less ambitious than its designers intended, took a decade to appear, and did so to minimal fanfare. Asked if a similar project might even be started today, Mr Cagrici throws back his head. "No way," he says. The Diyanet is bigger (it employs 117,000 people) and wealthier (its budget has grown at least fourfold since 2006) than at any time in its history, but it is also more firmly under the government's thumb.

For almost a century, the Diyanet has walked a fine line to help safeguard Turkey's identity as a country that is both Muslim and secular. By starting to endorse a reading of Islam that is at odds with what are still the laws of the state it serves, it now appears to be veering off course. Turkey is not about to become a theocracy. But the heterodox, tolerant Islam that has set it apart from much of the Middle East is under threat. Despite its original purpose, the Diyanet is not helping. ■

Charlemagne | Money talks

The EU's budget may soon be weaponised



AH, THE European Union. The finest dispute-resolution mechanism mankind has concocted. The ultimate triumph of bureaucracy over the battlefield. Where else can dozens of governments of varying size, wealth and temper manage their disputes so effectively, quietly grinding out compromises that are greater than the sum of their parts? For that is how it works, is it not?

No, it is not. At least not when the EU's budget is involved. In a few months the club's governments will begin formal talks on the next "multiannual financial framework" (MFF), a drab formulation that conceals the diplomatic rancour its negotiation will spawn. The sums are not large: this year the EU will spend €145bn (\$177bn), about 1% of its GDP. But the means of the MFF's construction guarantee that blood will be spilled. Within countries there are prime ministers to mediate spending disputes among squabbling department heads, but the EU has no *primus inter pares*; the budget must be approved unanimously by its leaders. It will cover five, or perhaps seven, years, from 2021. Because the EU may not rack up deficits or raise substantial funds itself, every negotiation becomes a zero-sum game between rich and poor member states. One former ambassador recalls the fierce atmosphere surrounding EU budgetary negotiations. The friendly diplomats he had got to know over trade and agricultural negotiations were transformed overnight into crazed money-grubbing vampires with euro signs for eyes.

Every European budgetary negotiation is unhappy in its own way. This year's, though, promises a singular pageant of misery, for three reasons. First, the departure of Britain, one of the largest contributors, will leave a €12bn hole in the annual budget. This will have to be made whole by spending cuts, extra demands on wealthy countries or a mix of the two, as suggested by the European Commission (which will issue a budgetary proposal for governments to discuss in May). Second, new money must be found for areas in which the EU wants to do more, such as migration and security—which could mean that less goes to "cohesion" funds for infrastructure in eastern Europe. Third, and knottiest of all, some governments are warming to the idea of weaponising the budget to resolve some of the EU's most intractable disputes.

One problem is how to manage what officials call the "internal dimension" of immigration: sharing refugees among EU

countries to lessen the burden on front-line states like Italy and Greece, as well as the common destinations of Germany and Sweden. Many countries, particularly in eastern Europe, see refugee quotas as an attack on their sovereign right to determine who may live on their territory. This tiresome issue has consumed the EU for more than two years. It has brought forth legal proceedings, umpteen recalibrations of quota formulae and a string of bad-tempered summits (the most recent in December). Nothing has worked. The threat to withdraw subsidies from countries that refuse to take in refugees has loomed since 2015; it is now in full view. The Dutch coalition agreement, signed in October, explicitly commits the new government to that goal.

A second difficulty concerns the rule of law. Attacks on the judiciary and other independent institutions, especially in Poland and Hungary, have forced the EU to confront the impossible question of how to deal with governments that violate their EU treaty promises to uphold the independence of institutions. The commission, in its role as guardian of the EU treaties, has opened proceedings against the Polish government under Article 7 of the Lisbon treaty, which in extremis could see Poland stripped of its voting rights by the other governments. The political and legal obstacles to that look insurmountable. But Poland receives more support from the EU budget than any other member. Why not hit it in the pocket?

Both issues furrow brows, but the second poses the harder questions. The migration row is a legacy of the crisis of 2015-16, a squabble over a relatively small number of refugees that governments may yet be able to resolve. The rule-of-law questions are trickier. The French and German governments have different visions for the EU, but on "values" the pair seem as one: commitment to the rule of law is not up for negotiation. Emmanuel Macron, France's president, made the case as part of a speech expressing his vision for Europe in September. He has since attacked countries that use EU subsidies to fund tax cuts. (His target appeared to be Hungary.) Germany treads more carefully where Poland is concerned, but last week's preliminary coalition agreement between its two largest political parties said delicately that the rule of law inside the EU should be "enforced more consistently than has been the case".

In your head, they are fighting

It is hard to see what could do the enforcing except the budget. Several European commissioners, including Günther Oettinger, who oversees the MFF, have suggested linking payments to assessments of the rule of law. The idea has been discussed in capitals across the EU, including Berlin. To withhold funds from countries with compromised judiciaries or bent administrations is no punishment, the argument runs; merely the prudent management of taxpayers' money.

That thesis clearly will not fly in those countries which stand to lose out. Some other governments are wary, too. None wishes to find itself next in the line of fire. It is hardly clear how such budgetary sanctions would work, and who would police them. But in unguarded moments, some officials note that money has a way of reaching the parts that political pressure or legal threats cannot. Either way, the stage is set for a bitter row. Last week Sigmar Gabriel, Germany's foreign minister, said that there were no winners or losers from the EU budget, only "beneficiaries". Coming from the biggest contributor to the pot, the sentiment was laudable. The coming debate will show it to be nonsense. ■



The collapse of Carillion

Cleaned out

The mega-contractor's demise reveals an outsourcing model in need of a revamp

LABOURERS building the new Midland Metropolitan Hospital in Birmingham got a rude shock when they arrived for their morning shift on January 15th. They were told to go home; they had been laid off. Meanwhile, in Oxfordshire, the county council was putting the fire brigade on standby to serve school meals. Such were just a few of the immediate consequences of the collapse that morning of Carillion, Britain's second-largest construction firm, with debts of about £1bn (\$1.4bn) and pension liabilities of almost as much again.

The total cost in lost jobs and business has yet to be counted. But another casualty of the company's capsize may be the business model that went so badly wrong there, and which plenty of other firms in the outsourcing industry share.

Carillion employed 43,000 people worldwide, almost half of them in Britain. It began as a construction company, building everything from the doughnut-shaped headquarters of GCHQ, Britain's signal-intelligence agency, to hospitals and football stadiums. It later began providing all manner of services for both the public and private sectors, dishing up meals in schools, maintaining bases for the Ministry of Defence, and much else. Many of its projects were commissioned under the Private Finance Initiative (PFI), in which contractors foot the cost of building and are repaid by the government over several decades. Almost all the work that Carillion won was

outsourced to subcontractors, who would often sub-subcontract it in turn.

The platoons of small firms that did most of Carillion's work will thus be most affected by its demise. Rudi Klein, head of the Specialist Engineering Contractors' Group, representing thousands of engineering firms, estimates that Carillion owed about £2bn to 30,000 or so firms. That does not include the unknown cost of retentions, the cash that Carillion was holding back until companies had finished the job. Many will never get their money, damaging Britain's slender supply chain. At least the government has stepped in to protect those doing public-sector work; Carillion had about 450 government contracts, constituting about a third of the company's revenues in 2016.

But it was this work that contributed to Carillion's undoing, highlighting the basic flaw in its business model. Construction is a perilously low-margin business to begin with. To expand the business and keep enough cash rolling in to pay creditors and shareholders, Carillion's bosses bid ever more aggressively for public-sector contracts, especially in the wake of the financial crash in 2008, when such work was scarce. That is when three big deals were signed that have gone sour: to build hospitals in Liverpool and Birmingham, together worth £685m, and for a share in a £550m roadbuilding contract in Aberdeen.

All three projects hit snags common to

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the building trade. In Liverpool, for instance, workers found asbestos on site and cracks appeared in the new building. Under the terms of the deals, Carillion had to absorb the extra costs, on projects that were barely profitable in the first place. The company also ran into trouble in Qatar, where it got into a dispute over a payment of £200m that it was owed for work on the 2022 World Cup. The result was a profit warning last July, after the company admitted to unexpected over-runs of £845m, which sent the share price tumbling. Carillion continued to win business, notably from the government, which awarded it a contract for £1.4bn of work on the HS2 railway even as investors bet on the firm's collapse. But after more profit warnings, the banks refused to lend it any more.

Public-sector tenders are supposed to consider the quality of bids as well as the price, but in practice contractors have found that "bidding at a low price is usually the best way to win," says Peter Kitson, a lawyer at Russell-Cooke. Companies bank the upfront payments and hope they can make money by charging for the extra work that nearly always comes with infrastructure projects. If, as happened to Carillion, extra costs arise, the deal can quickly become loss-making.

But Carillion's management was also culpable. The firm expanded too fast, acquiring businesses that it did not understand. It paid £306m for Eaga, for instance, a supplier of green-energy products, only months before the government cut subsidies that homeowners got for installing solar panels. As Carillion was failing and its pension fund slipping into deficit (see next story), shareholders continued to receive dividends and the firm's boss trousered a £1.5m pay package. Even the Institute of Directors, a business lobby, condemned Carillion's board for rewriting company rules ➤

► to protect executives' bonuses if the company failed. On January 17th the Insolvency Service said that it was stopping all further payments.

Who wants to be a Carillion heir?

Shares in its rivals, such as Serco and Kier, rose after the firm imploded, on the expectation that they would pick up some of Carillion's business. Yet many of the problems that sank the company are common to the outsourcing industry. Interserve, which has an annual turnover of £3bn, issued two profit warnings last year, following technical problems at a waste-to-energy plant in Glasgow. Not long ago Balfour Beatty, Britain's largest construction firm, issued seven profit warnings in the space

of two-and-a-half years, after accepting too much work at low margins. Construction News, a trade paper, found that last year Britain's ten largest builders made a combined pre-tax loss of £53m; the average pre-tax profit margin was -0.5%.

And now there is intense pressure on outsourcers to change their ways. The government has launched an inquiry into the Carillion saga. It may also re-examine its procurement processes. On January 18th the National Audit Office published evidence that PFI is a pricey way to fund infrastructure, and that it does not reliably bring benefits. Carillion's competitors may be glad to have seen off a rival, but they are operating in a troubled industry that is under more scrutiny than ever before. ■

The Guardian

Back in black

The relaunched newspaper's bosses are bullish about breaking even

ON JANUARY 15th the *Guardian* showed off its new, trimmer look, shifting from its idiosyncratic "Berliner" format to a tabloid shape with a redesigned logo in sober black type. But the more dramatic makeover is of the financial books of Guardian Media Group (GMG), publisher of the Sunday *Observer* and the daily *Guardian*, which may find its news operation in the black next financial year. A newspaper business that two years ago was beset with existentially worrying losses appears on the verge of breaking even.

The turnaround is partly due to steep cost-cutting, which is a dog-bites-man story in journalism. But the *Guardian* would manage the feat while still giving away news free online, and that is a story worth telling.

In January 2016 David Pemsel, the new chief executive of GMG, and Katherine Viner, the new editor-in-chief of the *Guardian*, informed staff that GMG's endowment fund, meant to ensure the financial security of the paper in perpetuity, had lost £100m (\$140m) in just half a year, taking it to £740m. Mr Pemsel was advised by industry peers to trim costs and put online news behind a paywall. He and Ms Viner cut costs by 20%, or more than £50m. Alan Rusbridger, Ms Viner's predecessor, had led the newspaper to global relevance with a large online readership. But he spent profligately. In two years GMG has reduced its headcount by 400, to about 1,500.

Yet unlike a growing number of newspapers, the *Guardian* has not put up a paywall. Instead it has pursued a membership model, asking online readers to contribute whatever they like. About



No longer red all over

600,000 now do, with recurring payments or one-off amounts. American readers tend to choose the latter option, Ms Viner says (Donald Trump's inauguration was a big day for donations). GMG says the total figure amounts to tens of millions of pounds per year. Ms Viner says revenue from readers (including 200,000 print subscribers) now exceeds revenue from advertisers.

The result is steadily declining operating losses: from £69m two years ago to £45m last financial year and, Mr Pemsel says, less than £25m in the year that ends on April 1st. He predicts breaking even next year. Ditching its own printing presses and going tabloid will help, saving several million pounds a year. The *Guardian* may now physically resemble more of its peers, but its turnaround story remains idiosyncratic.

Pensions

A big hole

Carillion could be the biggest claim yet on the pensions-insurance scheme

THE collapse of Britain's second-biggest construction company may mean that many of the firm's workers lose their jobs. But the pension rights of Carillion's 20,000 Britain-based employees should largely be preserved, thanks to the Pension Protection Fund (PPF), a private scheme funded by a levy on member companies. When a firm with a salary-linked pension scheme goes to the wall without enough assets to carry on paying pensioners, the PPF steps in to bail the workers out.

Those already in retirement get their pensions met in full, although future increases may be lower than the inflation rate. Those who have yet to reach retirement age, meanwhile, receive 90% of their benefits, up to a cap of around £35,000 (\$48,000) a year. None of this applies to workers with a defined contribution pension, where benefits are not promised by the company; their pension pots will be completely untouched.

Carillion has a complex structure covering 14 different pension schemes. If all of them end up with the PPF, the fund may be on the hook for almost £900m. That would be the biggest single claim yet on the scheme, which was set up in 2005. Fortunately the PPF's most recent annual report says that it is 122% funded, by its own calculations, with £6.1bn in reserves.

Nevertheless, it still faces some tricky long-term questions. As of November 2017, the schemes that it covers had a collective deficit of £103.8bn. In its latest financial year, the PPF raised £585m from its levy, and paid out £661m in compensation. Modern companies in fast-growing industries like technology tend not to offer schemes linked to a worker's final salary; the companies covered by the PPF tend to be in older industries, some of which (retailing, for example) are in decline. Over time, the pool of contributing companies will shrink.

There is no imminent problem. The scheme had accumulated £28.7bn in assets as of March 2017, and buoyant markets will have pushed that figure higher by now. But a recession that drove a lot of companies to the wall and sent markets lower would make the PPF's finances look less rosy. Carillion's collapse, like the fall last year of BHS, a big retail chain, raises questions about whether the pensions regulator should be tougher with companies and stop them from accumulating deficits on this scale. ■

Bagehot | Still special?

This is a bad time for the Anglo-American relationship to be under strain



THE opening of the new American embassy should have been the highlight of London's diplomatic season. The American president himself had been lined up to cut the ribbon on the billion-dollar building. The media had been primed to produce articles about the embassy's clever features (a reflective pool that doubles as a defensive moat!) and eye-catching design. But then Donald Trump pulled out of the ceremony on the grounds that the new embassy was in an "off location", and, prompted by Emmanuel Macron's offer to lend Britain the Bayeux tapestry, the media shifted its attention to the wonders of the *entente cordiale*.

It is tempting to see the embassy fiasco as a metaphor for the state of Anglo-American relations. The special relationship is more important now than it has been since the fall of the Berlin Wall. The obvious reason for this is Brexit: there would be no better way to get Britain's post-European future off to a good start than to strike a trade deal with the world's biggest economy. There is also a subtler reason. Britain and America are both liberal champions that have been shaken by populism. Strengthening their ties, which were forged in wars against Nazism and then communism, is a good way of reminding both countries of their common liberal heritage.

But at the same time the special relationship has never been more imperilled. It was shaken by the Iraq war, which associated the relationship not with national liberation but with lies, incompetence and strategic disaster. Now it is being rattled again by the accidental axis of Donald Trump and Jeremy Corbyn.

Ever since Theresa May barged her way to the front of the queue of foreign leaders waiting to pay court to the newly elected president, holding his hand and promising a state visit with all the trimmings, Mr Trump has been nothing but trouble. He has promised to provide the prime minister with her all-important trade deal, but has done nothing to turn hot air into boring old policy. He has thrown a succession of verbal hand-grenades that have forced Mrs May to put the state visit on the back burner, retweeting inflammatory videos endorsed by the far-right Britain First and insulting everybody who lives south of the River Thames, which includes the author of this column. The special relationship makes sense only if it is undergirded by shared values. Yet Mr Trump has made such a habit of trashing liberal val-

ues that 75% of Britons don't trust his handling of world affairs.

As for Mr Corbyn, who hopes to lead Labour into office by the end of the year, his foreign policy might be summed up by the phrase: "Whatever America is for, I'm against it." He has fulsomely supported anti-American leaders such as Venezuela's Hugo Chávez and Cuba's Castro brothers. He has made a habit of appearing on anti-American television stations such as Russia Today and Iran's state news channel. His chief adviser, Seumas Milne, devoted much of his journalistic career at the *Guardian* to fulminating against American imperialism.

What can be done to revive the special relationship in such difficult circumstances? Part of the answer lies in patience. However large they loom today, Messrs Trump and Corbyn will eventually be gone. Part of it lies in workarounds—that is, dealing directly with sensible people like H.R. McMaster, America's national security adviser. And part lies in opportunism. The relationship's friends need to seize on whatever shows it in a good light, in order to counteract the damage that is being done. But the most important answer lies in realism.

One problem for the special relationship is that people expect too much from it. Tony Blair was only the most recent prime minister who persuaded himself that he could act as Greece to America's Rome. He ended up acting not as a Platonic guardian but as a rather tawdry cheerleader. Right-wing Tories such as Liam Fox, the secretary for international trade, want to use America as a counterbalance to Euro-socialism and to use a trade deal with America as a building block for the "Anglosphere". But American trade negotiators are some of the toughest in the business. And the United States is a global power with an increasingly diverse population. America means a lot more to Britain than Britain means to America.

The speciapest ever, I guarantee it

But it is also dangerous to expect too little. Since the Iraq debacle, it has been fashionable to argue that the special relationship is a dangerous illusion sustained by Britain's nostalgic desire to punch above its weight and America's liking for yes-men. This is mistaken. The Anglo-American relationship is special because it is both deeper and broader than almost any other bilateral one. Deeper because America has borrowed so much from Britain, from common law, to joint-stock companies, to a version of the English language. Broader because the countries have intimate relations on every front, from economic, to cultural, to military. The intelligence relationship is particularly close, with the two countries sharing sensitive information and co-operating on new threats such as cyber-terrorism. The flap over Mr Trump's no-show is actually proof of the closeness of the relationship. The president is upset about the delays to his visit because he is fixated on a theme-park view of Britain as a land of royal pageants and golf clubs. The British public are adamant that he shouldn't come because they see American politics as an extension of their own.

The proper way to deal with the special relationship is not to romanticise or rubbish it, but to re-galvanise it. It has been repeatedly reinvented as communism, and then terrorism, took over from Nazism as the main threat to the world order. It needs to be updated once again. The British and Americans must recognise that they share common histories and ideals that are far too deep to be dislodged by a pair of popinjays. And they must realise that they have a common duty to cherish those ideas for a world in which authoritarian populists are on the march. ■



Ending civil war

When the shooting stops

BOGOTÁ, GANTA AND KILINOCHCHI

Countries emerging from conflict have to strike grubby deals if peace is to hold

AS A child soldier in Sierra Leone in the 1990s, Eric Wolo smoked a brown powder that made him dizzy during the day, and took cocaine that kept him awake at night when he had to keep watch. When he returned to his home country, Liberia, in 1999, as a rebel fighter in its second civil war in ten years, he took up "Italian white", a low-grade heroin. Four years later he handed in his AK-47 for \$150 and training in how to grow rice and vegetables. But he never became a farmer. When asked, he starts by saying he gave all \$150 to his girlfriend to start a business. Then he admits he bought drugs with the money. He now ekes out a living finding passengers for cars going from Ganta, on Liberia's border with Guinea, to the capital, Monrovia.

Since the late 1980s there have been more than 60 "disarmament, demobilisation and reintegration" (DDR) programmes like Liberia's, aimed at stopping civil wars reigniting, in dozens of countries. The idea is simple. Part fighters from their weapons. Discharge them from their militias. Help them into civilian life with money and training—or, in the case of children, school.

Aid donors have usually been willing to help pay for the schemes, often as part of a peace deal overseen by the UN. In 2008, the most recent year for which there are comprehensive data, 15 DDR programmes were under way. Their budgets (which cov-

ered more than one year) came to \$1.6bn.

But the execution is fraught with difficulty. Combatants can be hard to identify. They may be rejected by their families and former neighbours. Their physical and psychological scars may leave them in need of long-term support. If militias are kept together, with former commanders overseeing who takes part and handing out funds, groups can more easily remobilise. But if groups are disbanded, and participation is individual, they may splinter into gangs of drug-traffickers or mercenaries.

Swords into ploughshares

That Liberia is at peace and able to hold a credible election for president is impressive. George Weah, a former footballer, takes office on January 22nd in its first democratic transition since 1944. Almost 250,000 people were killed in its two civil wars. A DDR scheme after the first failed, but one after the second has helped keep the peace. A UN peacekeeping force with a large Nigerian contingent disarmed former combatants and put their weapons beyond use. Liberians still appreciate the role DDR played. But their gratitude is fading, as its limitations become clear.

Many ex-fighters are far from being upstanding members of society. Plenty were unwilling, or perhaps unable, to return to communities they left as children. Like Mr

Wolo, many work erratically, in low-skilled jobs. Others do not work at all. Groups congregate to take drugs on the fringes of towns and Monrovia's slums. William Teage, the chairman of Congo Community on the outskirts of Ganta, where Mr Wolo lives, says its biggest problem is drugs. He estimates that a tenth of the 2,000 residents are ex-combatants. "I have a very negative view concerning [the DDR process]," he says. "It was meant to rehabilitate people. But it did not go on that well."

A country that has just ended a civil war has a 40% chance of falling back into conflict soon afterwards, says Paul Collier of Oxford University. The risk falls by about a percentage point for each year of peace. Finding ways to lower that risk became even more urgent with the upsurge in internal conflicts that followed the end of the cold war. When the Soviets and Americans stopped funding client states, many belligerents sought other revenue streams, for example smuggling diamonds out of west African war-zones, says Sebastian von Einsiedel of the University of the UN in Tokyo. Such groups were more likely to splinter, because subgroups could fund themselves. The rise of jihadist groups has further complicated matters. Their ideological motivations mean they are harder to negotiate with, and less likely to disarm in return for cash or in-kind benefits.

But even as DDR has got harder, no less is being asked of it. Some successes, and a lack of alternatives, meant it came to be used in circumstances where it was almost bound to fail. The UN attempted a DDR scheme in Haiti in 2004 to disarm drug-traffickers rather than fighters; almost no weapons were handed in. In 2015, 1,775 child soldiers in South Sudan were demobilised, but after it spiralled back into civil ►

► war the following year, many rearmed.

Modern DDR programmes were designed in the 1980s and early 1990s for the aftermath of independence wars in southern Africa and civil conflicts in Central America. The belligerent groups were relatively disciplined and hierarchical. More recent schemes have often had to deal with loosely structured outfits. That complicates the most basic task: deciding who should be allowed to take part.

If a weapon must be handed in, fighters who do not have their own will be excluded. Ask only for small arms or some ammunition, and chancers will try their luck. Sometimes, leaders are called upon to identify their underlings. This does not necessarily help. "Nearly every commander I've come across had an interest in making the number bigger," says Paul Jackson of Birmingham University.

Only 150 rounds of small-arms ammunition were needed to take part in Liberia's second DDR programme. The UN had expected to demobilise 38,000 fighters. In the end the number was more than 100,000—four times as many as the number of weapons handed in. Men were bussed in from Sierra Leone. Children who had not fought were signed up, with commanders taking a cut of the \$300 payout. A police ammunition store in Freetown, Sierra Leone's capital, was raided for ammunition to hand in in Liberia, says Desmond Molloy, who worked on Sierra Leone's DDR scheme. Riots broke out when at least 12,000 people demanding payment turned up at a centre outside Monrovia. The programme had to be suspended for four months and money flown in from a UN mission in Freetown.

Though DDR is more likely to succeed if the fighting has already stopped, in Colombia it was used with some success as a military tactic. Alvaro Uribe, the president from 2002 to 2010, made a big push against the FARC, a left-wing guerrilla army that had been fighting state forces since 1964. His government encouraged deserters, realising they could provide valuable intelligence. Captured fighters could choose between prison and DDR. But the continuing fighting complicated matters. Some former guerrillas returned to the FARC after failing to find jobs at the end of their programme.

A weakened FARC negotiated a peace deal, which took effect in December 2016. Last August FARC leaders stood with the president, Juan Manuel Santos, and UN representatives, under the scorching sun of the arid north-eastern province of La Guajira, watching the last of their arsenal being carted away. Under the terms of the agreement, the FARC was allowed to organise the reintegration of its fighters collectively. That has helped it transform into a political party: it is putting forward candidates for elections this year.

Many ordinary citizens resent seeing former fighters transformed into political

leaders. But the evidence suggests that, when they are, the peace is more likely to hold. Conflict breaks out again in just 21% of cases where peace deals contain provisions for participation in elections, compared with 56% where there are none, according to Aila Matanock of the University of Berkeley, California.

One reason is that politicking may enable mid-level commanders to find an influential role. Individual DDR programmes often lump them in with the rank and file. (The top brass will have ensured special treatment for themselves.) In Liberia Anders Themner of the Nordic Africa Institute, a think-tank based in Uppsala, Sweden, met two ex-commanders with similar backgrounds, both of whom had the chance to mobilise their former fighters as mercenaries in Ivory Coast in 2011. Only one did so. The other saw no need, having become a political power-broker.

The FARC has set up a co-operative to handle the 8m pesos (\$2,900) available to each member as startup capital. But its leaders complain they need land to start suitable projects, for example ecotourism ventures, even as the government is confiscating land that FARC leaders held illegally. The impasse, and frustration with the slow pace of reintegration, mean many former guerrillas are leaving the transition camps. According to some estimates only half of the former combatants once living in the camps in Antioquia province remain.

Many have moved to areas with available land to farm. Others have returned to their families. They may not be a problem: research elsewhere shows that former fighters who maintain links with their communities find it easier to reintegrate. But around 1,000 have either refused to disarm or abandoned DDR to join gangs, some of which reportedly offer triple the

two-year government stipend of \$5,400.

In Sri Lanka, the biggest problem has been that the government did not really care much about reintegration. In 2009 its army defeated the Liberation Tigers of Tamil Eelam (LTTE; also known as the Tamil Tigers). It was the brutal culmination of 26 years of civil war. The Tigers were trapped in designated no-fire zones, where they were bombed with the civilians they had taken as human shields. The 11,000 surviving fighters, and another 1,000 or so who had surrendered, were forced into rehabilitation, beginning in 2010.

But the programme mainly consisted of a year of internment and indoctrination. Still constantly monitored, the former fighters are isolated from their communities and struggle to find work, since potential employers fear attracting attention from the authorities. Though the army claims it provided training and psychological help, former Tigers say that these mostly focused on attempts to end their devotion to the LTTE. "We were not treated like normal human beings," says one, who lives in Kilinochchi, a former stronghold of the Tigers in the north of Sri Lanka. "They tried to make us regret having been with the LTTE. But they couldn't do it."

The training was often pointless or inappropriate. "Someone [who] used to farm ten or 11 acres, they teach to make handicrafts with coconut shells," says Vettichelli, who spent 18 years in the Tamil Tigers. She is now studying to become a counsellor and is scathing about the gender stereotypes in the Sri Lankan army's vocational programmes. "For a woman who has the courage and stamina to keep a gun on her shoulders and shoot enemies, they try to teach her beauty culture and make-up."

Many ex-fighters clearly require long-term support. But DDR schemes can rarely give it. They are generally run by ex-military types, not specialists in economic development or counselling. And a long-running programme risks turning into a protection racket. In 2009 the Nigerian government offered militants sabotaging oil production in the Niger Delta a monthly stipend of 60,000 naira (about \$400 at the time) to disarm. But when payments were slashed in 2016 they returned to blowing up pipelines and other infrastructure. The cut was reversed and attacks subsided.

Bribery or death

At the heart of any DDR programme is a bargain: disarm, cause no more trouble—and you will benefit. Sometimes combatants will pocket the cash and hold themselves ready to remobilise at a moment's notice. Those who do stand down may be unfit to aid in their country's reconstruction. Civilians may resent the fighters at whose hands they suffered being paid off. But even a very grubby deal is worth striking if it helps secure lasting peace. ■



Surplus to requirements



Computing geography (1)

Life on the edge

Computing is emerging from centralised clouds and moving to the “edge” of local networks and devices

CONNECTED devices now regularly double as digital hoovers: equipped with a clutch of sensors, they suck in all kinds of information and send it to their maker for analysis. Not so the wireless earbuds developed by Bragi, a startup from Munich. They keep most of what they collect, such as the wearers’ vital signs, and crunch the data locally. “The devices are getting smarter as they are used,” says Nikolaj Hviid, its chief executive.

Bragi’s earplugs are at the forefront of a big shift in the tech industry. In recent years ever more computing has been pushed into the “cloud”, meaning networks of big data centres. But the pendulum has already started to swing: computing is moving back to the “edge” of local networks and intelligent devices.

As with the rise of the cloud in the early 2010s, the shift will cause upheaval. Many startups will try to ride the trend, as will incumbents such as hardware makers. But the real fight will be over who colonises the edge and, in particular, which firms will control the “internet of things” (iot), as connected devices are collectively called. Will Amazon Web Services (aws), Microsoft and other large cloud providers manage to extend their reach? Or will the edge be the remit of a different set of firms, including makers of factory equipment and other sorts of gear?

Since emerging in the 1950s, commer-

cial computing has oscillated between being more centralised and more distributed. Until the 1970s it was confined to mainframes. When smaller machines emerged in the 1980s and 1990s, it became more spread out: applications were accessed by personal computers, but lived in souped-up PCs in corporate data centres (something called a “client-server” system). With the rise of the cloud in the 2000s, things became more centralised again. Each era saw a new group of firms rise to the top, with one leading the pack: IBM in mainframes, Microsoft in personal computers and Aws in cloud computing.

Better technology is one reason why computing is again becoming more distributed. Devices at the edge, from smartphones to machinery on the shop floor, are becoming more intelligent. Equipped with powerful processors, they can now tackle computing problems that a few years ago needed a fully loaded server. As for software, its increased flexibility means it can function well on the edge. Many applications are now “virtualised”, meaning they exist separately from any specific type of hardware: code can thus be packaged in digital “containers” and easily moved around within data centres—and, increasingly, closer to the edge.

Demand for computing at the edge is growing, too, often for non-technical reasons. Many countries have laws that re-

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quire data to stay within their borders or even within the walls of a company. Firms want to use data but, worrying about leaks, often prefer to keep their own information inhouse. Consumers, for their part, care about privacy, which Bragi hopes to address with its self-sufficient earplugs.

The dominant narrative in the tech industry—that most data are best crunched centrally in the cloud—is also undermined by the fact that many new applications have to act fast. According to some estimates, self-driving cars generate as much as 25 gigabytes per hour, nearly 30 times more than a high-definition video stream. Before so many data are uploaded, and driving instructions sent back, the vehicle may well already have hit that pedestrian suddenly crossing the street.

Changing economics are another consideration. The faster adjustments can be made—for instance, to optimise the operations of a machine in a factory—the bigger revenue gains tend to be. That means data are often best analysed as they are captured, which needs to be done locally. The costs of transferring, storing and processing data in the cloud can be avoided too.

Car-boot brains

These constraints explain why services using artificial intelligence (ai) are increasingly split in two, much like client-server applications, explains Pierre Ferragu of Bernstein Research. The algorithms of autonomous cars, for instance, are first trained in the cloud with millions of miles of recorded driving data; only then are they deployed on powerful computers in the boot, where they steer the car by interpreting live data. Similarly, many video cameras used for surveillance now ship with face-recognition software trained in the cloud, as does Apple’s latest iPhone ➤

► model. In November, Google announced an addition to TensorFlow, its AI technology, which allows developers to deploy algorithms to mobile devices.

But in many cases even the training of algorithms must happen locally for AI applications to make commercial sense, argues Simon Crosby, chief technology officer of Swim, a startup. For instance, sending the four terabytes of data generated daily by traffic lights at intersections in Palo Alto, in Silicon Valley, to a cloud provider for processing would cost thousands of dollars a month. Swim has built a system that does the equivalent job for few hundred dollars by learning from the data on the fly as they are generated.

Although a shift to the edge is now generally acknowledged to be under way, opinions are divided over how it will change the technology industry. Nobody expects the “end of cloud computing”, to quote the provocative title of a podcast by Peter Levine of Andreessen Horowitz, a leading Silicon Valley venture-capital firm. He himself predicts that centralised clouds, in particular those of Amazon, Google and Microsoft, will continue to grow.

But smaller and more local data centres are springing up everywhere. Firms such as EdgeConneX and vXchnge have built networks of urban data centres. Vapor IO, a startup, has developed a data centre in a box that looks like a round fridge and can be quickly put in any basement. Makers of telecoms equipment, including Ericsson and Nokia, as well as network operators, talk a lot about “mobile edge computing”, which amounts to putting computers next to wireless base stations or in central switching offices. Some also speculate that one reason why Amazon last year bought Whole Foods, a chain of grocery shops, for nearly \$14bn, was to accumulate property for local data centres.

Computer makers see the shift as a chance to regain lost territory. Dell EMC and HP both want to sell more gear to firms keen to crunch data locally. But they are limited in how far they can move to the edge, says George Gilbert of Wikibon, a consultancy. These firms know how to sell commodity hardware to IT departments, but most IoT gear will be more customised, requires special software and is sold to people managing machinery. Cisco, which sells all kinds of internet equipment, seems well placed.

Big cloud-computing providers are also trying to colonise the periphery. In May Microsoft changed its slogan from “mobile first, cloud first” to “intelligent cloud and intelligent edge”. It sells services that dispatch software containers with AI algorithms to any device. AWS’s portfolio now includes a service called Greengrass, which turns clusters of IoT devices into mini-clouds. In buying the Weather Company for \$2bn in 2015, IBM wanted weather

data, but also thousands of “points of presence” for edge computing.

Whoever prevails, computing will become an increasingly movable feast, bits of which can be found in even the smallest devices. Processing will occur wherever it is best placed for any given application. Data experts have already started using another term: “fog computing”. But the metaphor is a bit, well, foggy. Better, and more poetic, would be “air computing”: it is everywhere and gives things life. ■

Computing geography (2)

Great cloud of China

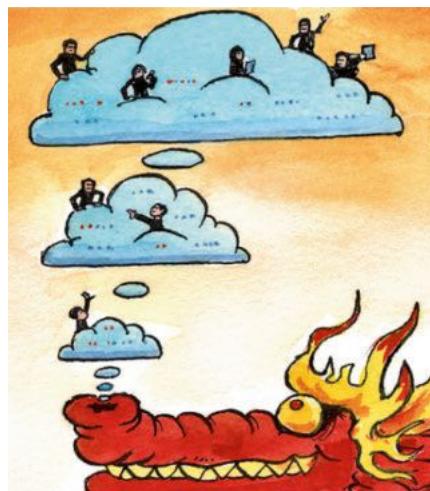
SHANGHAI

Chinese tech companies plan to steal American cloud giants’ thunder

WHICH of the world’s tech giants boasts the fastest-growing computing cloud? Many would guess either Amazon or Google, which operate the world’s largest networks of data centres, but the correct answer is Alibaba. In 2016 the cloud-computing business of the Chinese e-commerce behemoth grew by 126%, to \$675m. Growth is unlikely to slow soon. Simon Hu, president of Alibaba Cloud, wants it to “match or surpass” Amazon Web Services (AWS) by 2019.

That is a stretch: AWS is estimated to have generated revenues of about \$17bn in 2017. But Alibaba’s cloud (known locally as Aliyun) is one of a thriving group: China’s cloud-computing industry as a whole is growing rapidly. Even more intriguing than its speedy expansion is the fact that China’s cloud is different to that of Western firms in important ways.

The technology that China’s cloud-computing providers use is not so dissimilar. Indeed, the fact that Western tech firms have released much of the necessary code



as open-source software made it easier for them to get going. “That brought us to the same starting-line,” says Xilun Chen, the chief executive of EasyStack, which builds clouds for many Chinese firms.

What varies is how the technology is used—a result of the respective roots of cloud computing. In the West the first customers were startups and only later, bigger firms. In China the cloud grew out of consumer services, including Taobao, Alibaba’s e-commerce marketplace, and the online games offered by Tencent, the second-biggest online firm. As a result, many cloud services are not yet ready for complex, mainstream corporate applications, says Evan Zeng of Gartner, a research firm.

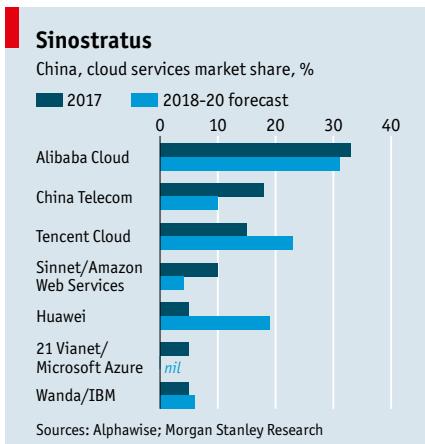
As these services develop, however, there is huge potential. In the West almost all firms have long had sophisticated in-house information-technology systems, which many are hesitant to abandon. In contrast, the IT of most Chinese companies is underdeveloped. “They can jump directly to the cloud,” says Ji Xinhua, the founder and chief executive of uCloud, a smaller but fast-growing cloud provider.

Another divergence stems from regulation. Whereas in the West organisations such as government agencies and financial firms often share data centres with other customers, in China there are separate “industry clouds”. Banks, for instance, are encouraged to sign up for services provided by outfits such as CIB FinTech, a spin-off from China’s Industrial Bank, because it reflects the latest regulations and makes things “more convenient” for regulators, in the words of its boss, Chong Chen.

And whereas AWS, Microsoft and Google already rule the Western roost, the eventual cloud leaders in China are as yet unknown. Alibaba, China Telecom and Tencent are ahead (see chart on next page), but that could change, says Mr Zeng. Huawei, a maker of telecoms gear, has ambitious plans. Smaller players, such as uCloud, may catch up.

Whichever firm ends up leading, Chinese and Western cloud providers are bound to run into each other—though not so much in their home countries as in such places as Europe and India. AWS and its main rivals have been busy building data centres abroad for some time, including in China. But Alibaba and Tencent are catching up. Alibaba, for example, operates a dozen computing plants abroad and will open another one this month in India, near Mumbai. “We have taken on Amazon on all fronts,” says Alibaba’s Mr Hu.

On the face of it, Western clouds should be able to stay ahead. They are still far bigger and have a technological edge, for instance in specialised chips to crunch reams of data for artificial-intelligence services. The reluctance to use Chinese technology is growing, and not just in America. But the Chinese competitors have some advan-



tags of their own. They can rely on a huge home market in which foreign rivals are unlikely to make much headway, not least because of regulation. Laws force foreign cloud firms to have a Chinese-owned partner to operate local data centres. This adds complexity and puts them at a disadvantage. What is more, many subsidiaries of Chinese firms in other countries are likely to opt for a Chinese cloud.

And then there is geopolitics. Alibaba, in particular, will make a special effort, because it sees its cloud as part of China's Belt and Road Initiative, President Xi Jinping's ambitious infrastructure plan to connect his country with other parts of Asia, Europe and Africa. Mr Hu recently said that it is this initiative which made him confident that his firm will be able to surpass AWS. Perhaps, one day, the plan will be renamed "One Belt, One Road, One Cloud". ■

Japan's SoftBank

Funding a Vision

TOKYO

Masayoshi Son considers floating his telecom firm's most reliable business

AT AN investor briefing in 2015, Masayoshi Son, chief executive of SoftBank, flashed up a picture of a goose. The company is like the bird of legend that produces golden eggs, he explained. In his quest to encourage more laying, Mr Son has taken SoftBank well beyond its telecoms business. The firm also manages the world's largest tech-investment fund, the \$100bn Vision Fund, which has a slew of wealthy backers, including Saudi Arabia's Public Investment Fund and Apple.

Using both the firm and the fund, Mr Son has acquired stakes in tech companies at a frenetic pace, by one count opening his chequebook once every four days on average in 2017. Such shopping sprees do not come cheap. SoftBank is one of Japan's

most highly leveraged companies, with debt exceeding ¥15trn (\$139bn), not least because of its purchase in 2013 of a controlling stake in Sprint, an American mobile-network operator.

News reports this week suggest SoftBank is now hatching a plan to raise ¥2trn by floating 30% of its Japanese telecoms business, SoftBank Corporation, on the stockmarket later this year. (The company says that listing is one of the options it is considering but no decision has yet been made.) If the IPO went ahead, it would be Japan's largest since SoftBank's rival, NTT DoCoMo, went public 20 years ago.

With 39m subscribers, SoftBank Corporation is the third-largest provider in Japan, catering to a quarter of the market. It is past the phase of straightforward growth. Prices came under government scrutiny in 2015, squeezing profits across the industry. SoftBank's subscriber numbers have been flat; a new competitor, in the form of an e-commerce company, Rakuten, will further threaten market share. But the business still accounts for over two-thirds of the group's operating profits.

Investors appeared to approve of the idea of a float, with SoftBank's share price rising by 6% on the announcement. The IPO offers a way to raise capital without further straining the firm's balance-sheet. But few expect that Mr Son will use the money actually to pay down much debt; some will probably go into topping up the Vision Fund, which has yet to close and which has raised \$93bn of a planned \$100bn. Mr Son has said before that he would like to run such a fund once every few years. The aim, Mr Son says, is to own bits of companies that will power the global race to develop ever more capable artificial intelligence. He has poured money into everything from driverless-vehicle technologies and e-commerce platforms to agricultural technology.

Mr Son may also be hoping that floating the telecoms business shrinks the discount on SoftBank's shares. Its market capitalisation is less than the sum of its holdings—notably its 30% stake, worth \$140bn, in Alibaba, a Chinese e-commerce giant. An IPO could make valuing the group easier, but it will remain a complicated structure. There is also a risk for minority investors in SoftBank Corporation, who could find themselves at odds with the majority-owner.

Even if investors in SoftBank approve of the idea, they will worry about whether the money will be well spent. With the Vision Fund, Mr Son is piling into a crowded tech market where valuations are frothy. And glittery though the investments may seem, not everything he touches turns to gold. His reputation as a dealmaker mainly rests on his early bet, in 1999, on Alibaba. Mr Son wants to plump the goose; shareholders can be forgiven for carefully inspecting the nest. ■

Television sports rights

Keepy uppy

A weak European market for football rights suggests a lower value for sport

FOR years the cost of rights to broadcast major sports in America and Europe has trended in one direction—up. This gravity-defying law shapes the economics of modern sport: as television operators bid ever more substantial sums, teams take in more revenue and star-player salaries (and transfer fees) climb higher. In 2017 that trajectory continued as broadcasters splurged on rights for Champions League football matches for 2018-21.

This year gravity is reasserting itself. Top-flight football rights are out for tender in two major European leagues—England and Italy—and are expected to be put up for sale this year in France and Spain, too. Analysts expect relatively small increases in pay-outs (though Spain's La Liga boss predicts a 30% rise)—and possibly a decline in Italy. "The happy days are over," says Claire Enders of Enders Analysis, a research firm.

The chief problem is fundamental weakness at the bidding companies. In England, where bids for televising the Premier League for three years (from 2019) are due at the end of February, competition between BT and Sky Plc nearly trebled rights costs this decade to £1.7bn annually (see chart on next page). But since the end of 2016 both have seen declines in subscribers to their high-priced packages, according to analyst estimates, as customers opt for cheaper internet-video services like Sky Now, Netflix and Amazon Prime. In December BT and Sky announced a cross-platform wholesaling agreement that will further depress bidding competition. (International TV rights sales will help boost ►)



Might Paul's wages fall?

► the league's coffers somewhat).

In France, Ligue 1 bosses had hoped for a significant bid from SFR, Altice's French telecom business, to challenge market leader Canal+, owned by Vivendi, when they call for bids. The current contracts, worth €727m (\$889m) annually, run to 2020. But Altice's share price has lately plunged and the firm is selling assets; an expensive football bid looks unlikely.

In Italy, Mediaset Premium, one of two incumbent broadcasters (along with Sky), declined to bid for renewal last year, forcing Serie A to regroup for a new round of bidding, due by January 22nd. Mediaset, controlled by the Berlusconi family, has pledged to reduce football costs. Enders Analysis reckons it may go for a smaller package of games; Sky knows the market is soft. The league may struggle to match its current take of €990m per year.

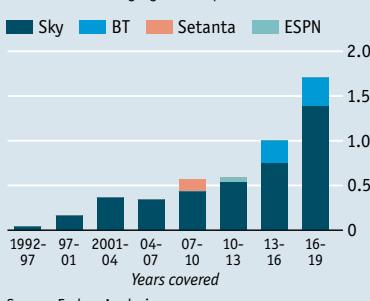
In each market the value proposition of sport is in question. Football has been an important way to get consumers to sign up for TV bundles, yet high rights fees have dragged down earnings. Fans can get football highlights—ie, the goals—at no charge on social media, or watch pirated streams.

Might all that also portend trouble for the biggest sports media market, America? Disney's sports channel, ESPN, has lost millions of subscribers in recent years due to cord-cutting (people dropping pay-TV). Viewership of pricey cable channels is in structural decline, as people spend more time on services like Netflix (or gawping at their phones). Live sport is still seen as a linchpin of pay-TV, a way to draw and keep customers, as it has been in Europe.

The appetite for sport in America is more diverse, which allows networks to build fuller schedules of fixtures, improving the appeal of pay-TV. The demand from viewers has been sufficient to sustain multiple bidders for rights, and to attract interest from new players such as Amazon. The contracts are longer, helping networks build long-term businesses (the next big rights renewal, for American professional football, is not until 2022). Still, Europe's auctions suggest the economics of televised sport may slowly be recalibrated. ■

Goal driven

English Premier League football
Cost of broadcasting rights, £bn per season



General Electric

Regrets are not enough

After a huge loss on old reinsurance contracts, GE contemplates a break-up

DECISIONS made long ago, and often long since forgotten, can come back to haunt. General Electric (GE), an American industrial conglomerate, has discovered that to its chagrin. On January 16th the company said it would have to take a \$9.5bn charge (before tax) on old reinsurance contracts in its financial arm, GE Capital—despite exiting the insurance business in the mid-2000s. The firm also said it would have to set aside up to \$15bn of additional reserves for GE Capital over seven years. The conglomerate had already been struggling, with its share price down by over 40% in the past year. News of the latest hit, which the company's chief executive, John Flannery, called "deeply disappointing", sent its shares plunging by a further 3% on January 16th alone.

The issue at hand concerns reinsurance contracts in GE Capital's American life-and health-insurance portfolio. Jack Welch, an idolised former GE boss, had massively expanded the firm's financial arm in the 1980s and 1990s, including into insurance. Mr Welch's successor, Jeff Immelt, who took over at the company in 2001, bought and sold a huge number of businesses during his tenure. Even before the 2007-08 financial crisis, which prompted the firm massively to pare back GE Capital, it had already spun out much of its insurance business into Genworth Financial, an American insurance company which listed in 2004 in the biggest initial public offering of that year, and sold the rest of it to Swiss Re, a reinsurer, in a deal worth \$6.8bn, in 2006.

Mr Immelt conceded at the time of the insurance sale that the business had always been a "tough strategic fit" for GE because of its low returns, volatility and need for capital. But a number of substantial life-and health-reinsurance liabilities, notably those related to long-term care insurance (which pays for products such as nursing-home care for the elderly), were left out of both the 2004 listing and the Swiss Re deal, although GE Capital did at least stop issuing new contracts.

That in the 12 years since then the firm appears to have done little about this residual portfolio seems an odd omission. The risk, after all, was well known. Other firms had problems with policyholders living longer and incurring higher medical costs than insurers had built into their initial assumptions; the long-term care market as a whole in America has run into trouble.



Flannery kitchen-sinks it

One Pennsylvania insurer, Penn Treaty, was liquidated in 2017 after being left with just \$500m in assets to cover a projected \$4.6bn in claims.

Opportunities for GE to offload legacy risks were plentiful. Ever more firms have become willing to acquire legacy insurance liabilities at the right price—not just large reinsurers like Swiss Re, but other investors, too. The Hartford, a large American insurer, in December sold its legacy life and annuity unit to a consortium of half a dozen investors, providing it with a full exit and a lump sum of money upfront, though it still had to take an overall (one-off) loss. At GE, the scale of the problem seems to have only been recognised after Mr Flannery, who started in the top job in August, commissioned a review involving outside experts in the autumn.

The reinsurance charges, then, are best viewed as the most serious revelation yet to emerge from Mr Flannery's housecleaning at GE. That process may be a prelude to more radical reforms than those Mr Flannery announced last year. Then he proposed refocusing the firm around three core business areas—aviation, power and health care—and a divestment of \$20bn in assets (out of total assets of \$365bn), along with other tweaks such as changes to the board of directors. Now he is veering towards more dramatic moves, raising the possibility on an investor call this week of full or partial spin-offs "in any one of [GE's] units". GE executives reportedly consider some form of break-up probable, though that would not prevent a large sum of capital being tied up at GE Capital for the foreseeable future. Stockmarket analysts are divided over whether such spin-offs would add much to GE's total valuation. Come what may, paying close attention to existing assets and liabilities would help. ■

Bamboo in China

Watching grass grow

HONG KONG

Innovative materials made from bamboo are helping a new industry to sprout

FANNING out from the sodden delta of the Yangtze, and southward to the flanks of the Nanling mountains, over 6m hectares of emerald bamboo groves—one-fifth of the world's reserves—flourish in China. Giant pandas nibble the softest shoots. Around 40bn pairs of disposable chopsticks are made from bamboo twigs annually in China, for use with everyday meals. Steel scaffolding is still often shunned for bamboo on skyscrapers under construction in even the ritziest parts of Hong Kong. The history of the grass is colourful, too. Before paper, Chinese wrote on bamboo slips; they used bamboo tubes for irrigation, and later stuffed them with gunpowder to ignite muskets.

Yet for all its importance and abundance bamboo is “China’s forgotten plant”, says Martin Tam, an expert in Hong Kong. To demonstrate its potential, he greets visitors with a can of bamboo juice, proffers a bamboo business card, and gestures to a bamboo armchair near his desk. He says the plant should be “green gold”, for it is one of the world’s swiftest growers, gaining up to 1m a day, and can be harvested in under ten years, half the time it takes for the softest woods to mature. Its tensile strength is greater than that of mild steel. It withstands compression twice as well as concrete, and needs next to no watering, pesticides or fertilisers.

But the hard work begins after it is cut. Though it thrives in steamy, rain-drenched areas, bamboo products require a lot of treatment to withstand sunshine and moisture, as they still contain sugar and water. A string of lacquers, resins, waxes, bleaches and preservatives are required to stave off termites and decay. As a result, manufacturing has remained labour-intensive, crude and small-scale, says Mr Tam. Factories nestle in bamboo groves. Margins are low. Toothpicks, matchsticks, incense sticks, mats and baskets are still among the plant’s most common offshoots. Selling “poor man’s timber” to Chinese is hard. In Shengzhou, among the most prolific regions in Zhejiang province in eastern China, about 95% of bamboo handicrafts are exported.

But the material’s prospects are improving. One reason is environmental awareness. Chinese firms account for 90% of the international export market for laminated bamboo flooring, the appeal of which has grown as Western consumers go green. In 2016 factories churned out 116m square me-

tres of it. The International Bamboo and Rattan Organisation, an intergovernmental body based in Beijing, says the renewable, low-carbon alternative to plastics and timber is now “part of China’s environmental leadership bid”. Bamboo releases lots of oxygen into the air, swallowing four times as much carbon as some trees. Since 2012, Chinese companies can offset their carbon emissions by buying credits in bamboo plantations.

At a forum last May on President Xi Jinping’s “Belt and Road” initiative for better infrastructure, a private company from Zhejiang province was invited to display bamboo strong enough to build storm-drainage pipes and shock-resistant exteriors for bullet-train carriages. The Chinese state is giving generous subsidies to farmers. The annual value of the bamboo industry has grown 500-fold since 1981, to \$32bn; in three years China plans to boost this to \$48bn, and to have 10m employed.

Heats shoots and leaves

Technology is also changing things. Bamboo is finding its way into a range of new plywoods and plastics. Bamboo powder, produced during manufacturing, has mainly been used to fuel factories. Now it is being combined with resins to make new materials. Leftover plastics recycled from air-conditioning and suitcase factories are mixed with bamboo powder to make outdoor decking for the likes of Ver-

dee, a fashionable bamboo-flooring and homeware store in Hong Kong.

Taohuajiang, one of a handful of big companies in the industry, wants to get more high-tech. Based in Hunan province, Taohuajiang was listed in June 2016 on the NEEQ, a Chinese startup exchange. Its net profit, of 4.6m yuan (\$700,000) in 2016, came mainly from selling bamboo flooring and beams. Recently it patented a carbonisation process, done through successive heatings, that ensures bamboo cannot corrode. Peng Jian of Taohuajiang is confident that the “magic grass” could end up replacing steel, timber and plastic (though as yet his new eco-friendly material is two-and-a-half times the price of steel, too heavy to substitute for wood in furniture and cannot be bent like plastic).

Mr Peng’s bamboo composites have, however, been used in everything from railway sleepers to manhole covers. BMW and Lexus, both carmakers, are among his traders’ clients, as they consider replacing plastic and wood in car interiors. A German marine-floorings firm wants to apply his bamboo composites to cruise decks. A Canadian company in the space industry is using them in its telescopes.

Other bits of the bamboo industry face harder times. As scaffolding, it has been phased out in much of mainland China as a potential safety and fire hazard. Hong Kong still latches together about 5m bamboo poles a year at its construction sites. They are three times quicker to erect than steel rods and cost a fraction of the price. But the number of workmen trained on bamboo is dwindling. At WLS Holdings, among the oldest bamboo-scaffolding firms on the island, losses have grown. The firm’s problems go deeper than bamboo, but its fading fortunes capture something. As one part of the industry wilts, another looks about to shoot up. ■



A bamboo spider rides high

Schumpeter | Mad men

Warning: counting on too many advertisements may be bad for your health



IMAGINE a world in which you are manipulated by intelligent advertisements from dusk until dawn. Your phone and TV screens flash constantly with commercials that know your desires before you imagine them. Driverless cars bombard you with personalised ads once their doors lock and if you try to escape by putting on a virtual-reality headset, all you see are synthetic billboards. Your digital assistant chirps away non-stop, systematically distorting the information it gives you in order to direct you towards products that advertisers have paid it to promote.

Jaron Lanier, a Silicon Valley thinker who was an adviser on "Minority Report", a bleak sci-fi film, worries that this could be the future. He calls it a world of ubiquitous "digital spying". A few platform firms, he fears, will control what consumers see and hear and other companies will have to bid away their profits (by buying ads) to gain access to them. Advertising will be a tax that strangles the rest of the economy, like medieval levies on land.

It may sound outlandish, but this dystopia is increasingly what stockmarket investors are banking on. The total market value of a basket of a dozen American firms that depend on ad revenue, or are devising their strategies around it, has risen by 126% to \$2.1trn over the past five years. The part of America's economy that is ad-centric has become systemically important, with a market value that is larger than the banking industry.

The biggest firms are Facebook and Alphabet (Google's parent), which rely on advertising for, respectively, 97% and 88% of their sales. But the chunky valuations of America's giant TV broadcasters imply that their ad revenues will fall very slowly, or not at all. Startups that rely on advertising, such as Snap, are floating their shares at prices that suggest huge growth. Large deals, too, are being justified by potential ad revenues. Microsoft's \$26bn acquisition of LinkedIn in 2016 was partly premised on "monetising" its user base through adverts. The main reason AT&T says it wants to buy Time Warner for \$109bn is to create a digital ad platform linking AT&T's data to Time Warner's TV content.

The immense sums being bet on advertising raise a question: how much of it can America take? A back-of-the-envelope calculation by Schumpeter suggests that stock prices currently imply that American advertising revenues will rise from 1% of GDP today, to as much as 1.8% of GDP by 2027—a massive jump. Since

1980 the average has been 1.3%, according to Jonathan Barnard of Zenith, a media agency, and in the past few years the advertising market relative to GDP has been shrinking.

There are reasons why it might go on a tear, points out Rob Norman of GroupM, another media agency. In the old days adverts in *Time* magazine or on billboards in Times Square were big-ticket items that only giant firms could afford. But tech platforms have done a brilliant job of persuading smaller companies to spend money targeting customers. Facebook has 6m advertisers, equivalent to a fifth of all American small firms.

Adverts could become even more effective at identifying customers and enticing them to spend money, using troves of data that have been gathered to anticipate their needs. As commerce shifts online, firms will cut back on conventional marketing (for example, the fees that consumer goods and food firms pay to Walmart to ensure products are displayed prominently on its shelves), freeing up budgets to spend more on digital ads.

Yet there are two logical limits to the size of the advertising market. First, the irritation factor, or how much consumers can absorb without being put off. In the analogue era the rule of thumb was that ads could comprise no more than 33-50% of TV or radio programming, or of a magazine's pages, says Rishad Tobaccowala, of Publicis, an advertising firm. The digital world is already showing signs of saturation.

More people are using ad-blocking software. Tech brands that eschew bombarding customers with ads, such as Apple and Netflix, are wildly popular. The drive to lift user "engagement" on social-media platforms by showing sensational content, in turn boosting the number of ads that can be sold, has prompted a backlash. On January 11th Facebook said it would show users fewer posts from "businesses, brands and media". Time spent online by the typical American is growing at about 10% a year, less than the 15-20% ad-sales growth that many digital firms expect.

The second limit on the size of the advertising market is how much cash all other firms, in aggregate, have at their disposal to spend on ads. In theory they could spend more and more until their overall returns on capital drop below the cost of capital, compromising their financial viability. Remarkably, expectations for ad revenues are now so bullish that they imply that this boundary will indeed be tested.

Commercial breaking-point

Imagine if advertising spending really did rise to 1.8% of GDP in America by 2027. Most firms' costs would have to rise, cutting total corporate profits (excluding those of ad platforms) from about 6.5% to 5.7% of GDP, the kind of drop normally associated with a recession. Alternatively, imagine if the firms in the S&P 500 index (excluding ad platforms) bore all the additional cost of the advertising boom. Their combined return on capital would drop from the present 10% to 8%, at or just below their cost of capital. America Inc would go from being the world's greatest profit machine to flirting with Japanese-style financial-zombie status.

That does not seem realistic. More probably, hopes for a new age of advertising nirvana are too optimistic. Perhaps the ad sales of conventional media firms (which are about half of the total, with TV dominating) will drop fast rather than merely stagnate. Or perhaps digital firms will struggle to increase ad sales at compound annual rates of 15-20% or a decade, as their valuations imply. Expectations for both groups are surely too high. In the advertising world, and on Wall Street, something does not add up. ■



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The oil price

Crude thinking

High oil prices are mostly a reflection of a healthy global economy, not a threat to it

PERHAPS the most vexing thing for those watching the oil industry is not the whipsawing price of a barrel. It is the constant updating of theories to explain what lies behind it. In March 2014, when the price of a barrel of Brent crude was in three figures, the then boss of Chevron, an oil giant, observed that the scarcity of cheap oil meant "\$100 per barrel is becoming the new \$20". Two years later, when the oil price slumped below \$28, the talk was of a global oil glut caused by the furious efforts of the OPEC cartel to regain market share. Now that oil prices have tested \$70, analysts are again scratching their heads.

In "1984", George Orwell coined the term "doublethink", the ability to believe two contradictory things. Oil analysis seems to require similar cognitive gymnastics. Three big questions arise. First, why has the oil price more than doubled in the space of two years, against all expectation? Second, why has this surge been met with cheers from global stockmarkets and not concern for the world economy? Lastly, where might the oil price eventually settle?

Start with the journey to \$70. The slump in prices two years ago was in part a response to weak demand—with the fragility of China's economy a big concern—and in part to abundant supply. Few believed then that OPEC would, or even could, cut output. Saudi Arabia, the world's largest oil exporter, appeared to have every reason not to. Plentiful oil supply would check

the growth of the shale-oil industry in North America. It would also stymie Iran, its bitter rival, which was back in the market following the lifting of sanctions.

Yet demand recovered quickly. China pepped up its economy with faster credit growth and other fillips to spending. Commodity prices surged. Within months clear signs of a broad-based global economic upswing were palpable. And OPEC proved better able to curb production than anyone had imagined. A deal reached in November 2016 to restrict output had little immediate effect but by late last year started to pay off. Oil stocks fell, notably in America (see left-hand chart). Demand was outstripping supply. Prices duly rose.

It is still surprising they have risen so far. Higher prices are often blamed in part on the messy politics of the Middle East. The usual worries are there but "there has been no impact on physical supply," says Martijn Rats of Morgan Stanley. Shale was also seen as the oil industry's flexible response to price signals. Too high, and the wildcatters in Texas would drill for fresh supply. But small producers are showing a new restraint, because their financiers want greater focus on profits and less on output. And it takes several months from drilling wells for oil to come on-stream.

The financial markets show little sign of anxiety about the oil-price surge. Stockmarkets remain buoyant, which is itself another puzzle. Since the oil shocks of the 1970s, markets have associated a sudden run-up in oil prices with economic calamity. The world is both producer and consumer of oil, so in principle the overall effect of oil-price increases is neutral. But in practice, the net impact had been to reduce global demand, because oil exporters in the Middle East tended to save a big chunk of the windfall income they gained at the ►

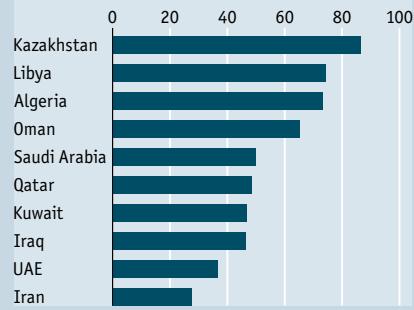
Stocks and shares

Crude oil

United States, stocks, barrels, bn



External breakeven price, 2016, \$ per barrel



► expense of oil consumers in the West.

Over time, however, the rich world has become less reliant on oil. Demand in America peaked in 2005, for instance. Meanwhile, oil exporters became ever more dependent on high oil prices to pay for lavish government budgets and imported consumer goods. Most of the big oil producers in the Middle East need an oil price above \$40 to cover their import bill (see right-hand chart on previous page).

In this new arrangement, dearer oil is both far less damaging to rich-world consumers and soothes the strained finances of the big oil exporters, not just in the Mid-

dle East but in Africa, too. For all the other trouble-spots, investors seem to find the world economy a safer place. And they have other reasons to feel cheery. The shale industry means that dearer oil is a shot in the arm for investment in America, which adds to GDP growth. And a rising oil price is taken as a sign of healthy growth in China, the world's biggest oil importer.

Beneath the dramatic ups and downs in the oil price and its changing influence on the world economy are some big themes: the rise of the shale-oil industry and how OPEC responds; the dependence of the big oil exporters in the Middle East on high oil

prices; the peak in oil demand in America and eventually elsewhere. These forces will have a big say in where oil prices eventually settle.

How they will play out is the subject of a new paper by Spencer Dale, chief economist of BP, another oil giant. The critical change in the oil market, he argues, is from perceived scarcity to abundance. When oil was considered scarce and expensive to find, it seemed wise to ration it. It was more like an asset than a consumer good: oil in the ground was like money in the bank. But new sources of supply, such as shale oil, and improved recovery rates of exist-►

Buttonwood | The hedge-fund delusion

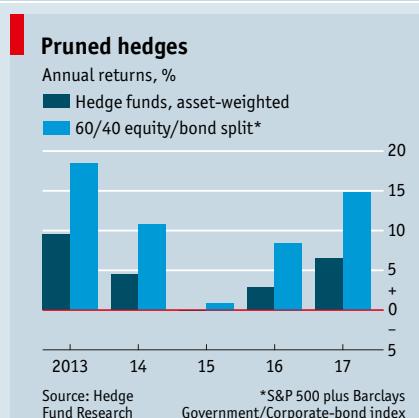
Hedge funds do not offer the answer to pension-scheme deficits

HEDGE-FUND managers may be feeling quietly smug about their performance in 2017. They returned 6.5% on average, according to Hedge Fund Research, a data provider, their best year since 2013.

But those returns do not really suggest that they are masters of the investing universe. The S&P 500 index, America's main equity benchmark, returned 21.8%, including dividends, last year. More tellingly, a portfolio split 60-40 between the S&P 500 and a mixture of government and corporate bonds (an oft-used benchmark for institutional portfolios) would have returned 14.8%. Last year was the fifth in a row when hedge funds underperformed the 60/40 split (see chart).

That ought to be a salutary lesson for those institutions who think that backing hedge funds is the answer to their prayers. Despite the highs recorded by stockmarkets, many employers are struggling to fund their final-salary pension promises. In 2016 the average American public-sector plan was just 68%-funded, according to the Centre for Retirement Research at Boston College. In the private sector, multi-employer pension plans, covering workers in industries like mining and transport, have liabilities of \$673bn and assets of just \$2.2bn. Worse still, the insurance scheme established to back those schemes is on course to run out of money by 2025, according to the Pension Benefit Guaranty Corporation.

It is hard to cut workers' benefits and painful to increase contributions. Schemes hope to square the circle by earning a high return from their assets; 7.5% is a common target. But bond yields are very low and equities are trading at very high valuations by historical standards. The temptation is to turn to "alternative assets"—a category that includes property, private equity and hedge funds.



The first two offer a genuine alternative. Property generates a stream of rental income and the hope that capital values will keep pace with inflation. Private equity is, in part, a bet that unquoted firms can generate higher returns than listed ones because they have more freedom to invest for the long term.

But what about hedge funds? A lot of funds specialise in equities or corporate bonds—the same assets that institutions own already. In some other categories, such as macro funds or merger arbitrage, returns are entirely dependent on the manager's skill. Recent years do not suggest that hedge-fund managers display enough skill, on average, to offset their high fees.

Clients may think they will be able to pick the best hedge-fund managers, not the average ones. But one group of professionals—fund-of-fund managers—tries to do just that. They did manage to pip the average asset-weighted return of hedge funds in 2017, but failed to do so in any of the previous four years. If the experts cannot manage to pick the winners, why should a pension fund or endowment be able to manage the feat?

Another justification for placing money with hedge funds is that they are less likely to lose lots of money in a downturn. That argument was somewhat dented in 2008, when the average hedge fund lost 19%. In any case, pension funds and endowments are investing for the long term; they ought not to be that bothered by short-term volatility.

The Centre for Retirement Research conducted a study* of the effect of investing in alternative-asset categories on state and local-government pension-plan returns in the 2005-15 period. It found that schemes that placed an extra 10% of their portfolio in private equity and property had marginally increased the return on their portfolios (by around a sixth of a percentage point). But investing in commodities or hedge funds had reduced returns, with the latter knocking half a percentage point off the total.

Some investors have seen the light. CalPERS, a public-pension fund in California, announced that it was pulling out of hedge funds in 2014. But Prequin, an information provider, estimated last year that pension funds accounted for 42% of all money flowing into the global hedge-fund industry. North America provided the bulk of the money, with 776 pension schemes investing from that region alone.

Who knows what those schemes are trying to achieve? A few of them may be lucky enough to pick the best performers in the industry. But if they think, in aggregate, that their strategy will reduce their funding deficits, then they are suffering from a delusion.

* "A First Look at Alternative Investments and Public Pensions" by Jean-Pierre Aubry, Anqi Chen and Alicia Munnell, July 2017

ing reserves, along with the emergence of mass-market electric vehicles, have changed the reckoning. There is a fair chance that much of the world's recoverable oil will never be extracted, because it will not be needed. It thus makes sense for the five big producers in the Middle East (Saudi Arabia, UAE, Iran, Iraq and Kuwait), which can extract oil for less than \$10 a barrel, to undercut high-cost producers and capture market share while the demand is there. The financial logic has changed to "better to have money in the bank than oil in the ground," notes Mr Dale.

Does that mean oil prices are poised to

plummet? Probably not, unless shale producers ramp up output again. The peak in global oil demand might be decades away, argues Mr Dale, and it will not tail off sharply. And for now, the big oil exporters cannot sustain very low oil prices for long. Their "social cost" of production, taking in government spending reliant on oil revenue, is about \$60 a barrel on average. Sustaining an oil price close to the cost of extraction will require reforms, which do not usually happen quickly. Translated into doublespeak: oil prices are too high; but they may not fall, in large part because big oil producers have got used to them. ■

currencies room to run. Its regulators know the dangers. One of the biggest scandals in bitcoin's short history was the collapse of Mt. Gox, a Japan-based exchange, in 2014. And officials have not minced their words, with Haruhiko Kuroda, governor of the Bank of Japan, warning that the bitcoin rally in late 2017 was "abnormal".

But rather than throttle virtual currencies and the innovations they might spawn, the government has let them develop, within parameters. Last March it passed the "virtual-currency act", declaring that they are assets and can be used for payments. The financial-services authority has granted licences to 11 exchanges, to reduce the risk of fraud. Zennon Kapron, a Shanghai-based analyst of digital currencies, says that some of China's leading crypto-coders are now moving to Japan.

South Korea was initially hands-off in its regulations. But alarm has mounted about the speculative fervour. So intense is the demand that South Koreans pay a "kimchi premium" of roughly 40% for their bitcoins (not easily arbitrated away because of capital controls). On January 11th the justice minister said crypto-currency exchanges would be banned. Their devotees responded with a petition urging leniency, which swiftly collected more than 200,000 signatures.

Faced with this backlash, the government appeared to soften its stance, saying a ban was just one idea. Other incoming measures are less potent: investors will have to pay taxes on capital gains and register trading accounts under their real names. But just as crypto-markets had recovered their poise, South Korea's finance minister said this week that the ban was still very much on the table, calling it a "live option". The collapse resumed.

Virtual currencies have bounced back from past sell-offs, but this has been a big one. At one point bitcoin was down about 50% from its highs in December. Believers in virtual currencies say that one of their selling points is freedom from government meddling. In Asia, the cutting edge of the crypto-world, it is governments that are making—and breaking—their fortunes. ■

Digital currencies

The crypto sun sets in the East

SHANGHAI

The threat of tough regulation in Asia sends virtual currencies into a tailspin

IT HAS been another week of vertiginous swings in the prices of bitcoin and other crypto-currencies. This time, the moves have mostly been downwards, with some days seeing falls of over 20%. Views on this were as divided as they were during the giddy climb: did it mark the definitive bursting of a bubble as rapidly inflated as any in history (see chart)?

Asia provides both an explanation of this week's sell-off and a glimpse of cryptocurrencies' future. The threat of a ban in bitcoin-trading in South Korea was the proximate cause of the plunge. As to the future, the question is which Asia? At one end of the spectrum is Japan, which has embraced crypto-currencies. At the other is China, which has all but banished them. South Korea has been in the middle.

These countries have outsized roles in the crypto universe. China's exchanges hosted more than nine-tenths of global bitcoin-trading until the government closed them last year. Japan now has the biggest share of virtual-currency markets. South Korea makes up less than 2% of global GDP but nearly a tenth of bitcoin-trading.

North Asia has been fertile ground for crypto-currencies for several reasons. Partly it is the high-tech pedigree. A prevalence of smartphones, fast internet and computer-science graduates makes people receptive to the newfangled. The rigidity of conventional finance has helped. Capital controls boost the appeal of crypto-currencies in China and South Korea, and in Japan they are a beguiling alternative to low-yielding mainstream investments. A zest for gambling has surely lured some to a market that is driven by speculation.

But the region's regulators are going in different directions. China, alarmed at the

way crypto-currencies can evade government oversight, has taken the harshest line. Last year it banned domestic exchanges; in recent days it has taken aim at websites flouting this ban. Officials have also called on local authorities to choke off the power supply to bitcoin miners, computer networks that create new coins through massively energy-intensive calculations. China's miners, still dominant in the global industry, are shifting to other countries.

The Chinese government admires the technology that underpins virtual currencies and wants to reap the benefits. It is prodding its big financial firms to experiment with blockchain, a system of distributed ledgers popularised by bitcoin. But officials believe they can do this without having to tolerate the currencies themselves. As Pan Gongsheng, deputy governor of the central bank, quipped last year, quoting a French economist: "The only thing to do is to sit by the riverbank and wait for bitcoin's corpse to float past."

Japan, by contrast, has given crypto-

Not forever blowing

Historical asset bubbles, multiple of starting price* on relevant exchange



Sources: "New Evidence on the First Financial Bubble", Rik Frehen, William Goetzmann, Geert Rouwenhorst; "Famous First Bubbles", Peter Garber; Thomson Reuters

*Three years prior or earliest available price
†Post-peak data unavailable

The Big Mac index

The Mac strikes back

The dollar's decline is a small victory for burgernomics

IT IS usually considered quaint to predict foreign-exchange movements by reference to whether currencies are dear or cheap. Metrics such as *The Economist's* Big Mac index, a lighthearted guide to exchange rates, hint at how far currency values are out of whack. But they are often driven further out of kilter by capital flows, by fear and greed, by the interventions of policymakers, and so on.

Since our last look at the index in July, cheap currencies have narrowed the valuation gap against the dollar—almost completely in case of the Canadian dollar (see chart). Fundamentals, such as fair value, seem (at last) to have greater sway in the foreign-exchange market.

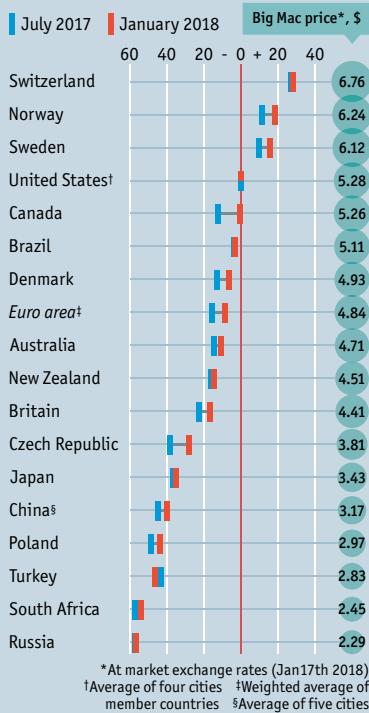
The index is based on the idea of purchasing-power parity, which says exchange rates should move towards the level that would make the price of a basket of goods the same in different countries. Our basket contains only one item, but it is found in around 120 countries: a Big Mac hamburger. If the local cost of a Big Mac converted into dollars is above \$5.28, the average price in four American cities, a currency is dear; if it is below that yardstick, it is cheap. The average cost of a Big Mac in the euro area (weighted by GDP) is €3.95, or \$4.84 at the current exchange rate. That implies the euro is undervalued by 8.4% against the dollar, our benchmark. The last time we looked at burgernomics, it was almost 16% undervalued. The euro surged after Mario Draghi, boss of the European Central Bank, hinted at a conference in Sintra, Portugal, that the bank's bond purchases might soon be curtailed. It was as if the foreign-exchange market suddenly woke up to how cheap it was.

Measured against a basket of currencies, the dollar still looks dear. Only in three countries (Switzerland, Norway and Sweden) do burgers cost more, based on current exchange rates. But that is not necessarily a sign that depreciation is overdue in these countries. The cost of a burger depends partly on untradable inputs, such as rent and wages, which are higher in the rich countries on the fringes of the euro zone. So the price of a meal may not be a good guide to how competitive a country is in markets for tradable goods. The Swiss and Norwegian currencies look dear, for instance, but both countries have big trade surpluses.

Among rich countries, only Britain's and Japan's currencies stand out as bargains. The pound is cheap for a reason—

The Big Mac index

Local currency under(-)/over(+) valuation against the dollar, %



Sources: McDonald's; *The Economist*

Brexit. But it might be harder for the yen to stay so cheap. The euro has shown that the merest hint of an end to easy monetary policy can prompt a sharp rally. The yen may have a similar "Sintra moment", says Kit Juckes of Société Générale, a bank. For those who feel they have missed out on the euro at bargain-basement prices, there are other ways to bet on the burgeoning strength of the euro-zone economy. Poland and the Czech Republic have strong links to the euro area and robust GDP growth. The Polish złoty is undervalued by 44% against the dollar, and the Czech koruna by 28%.

The caveat that applies to Switzerland, Norway and Sweden applies in reverse to emerging markets, where rents and wages are lower than in the rich world. In general, currency gauges based on purchasing-power parity work best when comparing countries with similar income. That said, many emerging-market currencies do look cheap. The Russian rouble, for instance, is still 57% undervalued even after a big rally in the oil price. South Africa's rand is almost as cheap. Eat hamburgers with Johannesburgers.

The World Bank

Undoing business

The World Bank casts doubt on one of its most influential products

HOW many days does it take to correct a misleading newspaper interview? Four, in the case of Paul Romer, the World Bank's chief economist. On January 12th a surprising article in the *Wall Street Journal* alleged that one of the bank's signature reports—on the ease of doing business around the world—may have been tainted by the political motivations of bank staff. The story was based on an interview with Mr Romer, who pointed out that Chile's ranking in the yearly report had dropped sharply during the presidency of Michelle Bachelet, a left-leaning politician who took office for the second time in 2014. Chile sank so heavily not because doing business had become harder, but because the bank had repeatedly changed its method of assessment.

That method mostly entails answering measurable questions, such as how many days does it take to start a business, register a property or file taxes. The answers determine a country's score (known as its "distance to the frontier"), and its score, relative to those of other countries, determines its global rank and bragging rights.

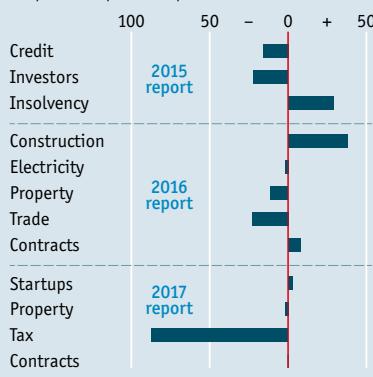
From 2014 to 2016, the bank made 12 big methodological changes, broadening some indicators and adding others. "Doing Business 2017" (published in late 2016) was, for example, the first in the series to ask how easily companies can obtain a refund or resolve an error after they have filed their taxes. In that report, Chile was ranked as the 120th easiest place to pay taxes, some 87 notches below its rank in the previous year. No other country fell so dramatically.

The data-gathering and analysis were overseen by a former professor of economics at the University of Chile in Santiago, adding to the suspicion of skulduggery. Supporters of Ms Bachelet, whose coalition lost the recent presidential election, were apoplectic. Some even suggested that Chile's slide in the rankings had hurt confidence, undermining investment and jeopardising their political prospects.

Four days later, Mr Romer clarified his remarks on his blog, saying that he had not seen any sign of political manipulation and had not meant to suggest he had. But that may not be the end of the matter. Many people are predisposed to think the worst of the bank and its Doing Business reports in particular. Because they rank countries against each other, they have been both unusually influential, spurring governments to cut red tape, and unusu-

Feeling the Chile?

Chile, change in rank in the World Bank's "Doing Business" reports*, by subtopic, places lost/gained compared with previous report



Sources: World Bank; *The Economist*

*2015 report refers to "Doing Business 2015", published in 2014

ally controversial. In some quarters, they are seen as scorecards for a deregulatory race to the bottom. Such critics may not accept Mr Romer's apology at face value.

Other evidence may reassure them. First, the broadening of the tax indicators can be traced to an independent review of "Doing Business" published in 2013, before Ms Bachelet's election. Second, not all of the methodological changes hurt Chile's standing. After four of them, the country's sub-ranking improved (see chart). Third, Augusto Lopez-Claros, who oversaw the report's work from 2011-2017, is indeed a former University of Chile professor. But he is not Chilean and lived there for only two years in the early 1980s.

Moreover, the reports did little to highlight Chile's purported decline. On the contrary: they play down changes in any country's relative standing. Each new edition mostly avoids mentioning the previous year's rank. Instead, the first and most prominent table in the report details three things: the country's current rank, current score and whether that score (not rank) has improved since the previous year. This improvement is calculated using the same, latest method of assessment for both years. This table showed an increase in Chile's score in each of the past four reports, highlighting an improvement in the ease of doing business under Ms Bachelet.

One final loose end does, however, need tying up: a previously unreported error in one indicator. Chile's "post-filing" index (which reflects the ease of obtaining tax refunds and resolving errors) was recorded as 5.58 out of 100 in "Doing Business 2017". According to the bank's online database, it should have been 57.67. Consequently, Chile's rank on paying taxes should have been 65th not 120th. But the country need not feel too singled out. The bank's online database contains over 1,000 revisions and corrections for that report. "Doing Business" is not easy. ■

Government venture capital in Europe**The worm's turn**

DOLE

The French state will funnel ever more venture capital to startups

AS A boy, Antoine Hubert used to catch butterflies. These days, the agro-engineer has eyes only for meal worms. In a demonstration factory near Dole in eastern France, he shows how trayfuls of plump, half-grown worms are fed, left to grow in a darkened dormitory, and then—after two months—slaughtered and cleaned with a blast of steam. A machine divides the resulting mush into oil and protein powder.

Around 70% of a worm is protein, making it ideal for animal feed. Demand is soaring, notably at fish and shrimp farms. Mr Hubert predicts aquaculture businesses will need 70m tons of feed annually in ten years' time, up from 40m now. The global market for animal feed, he reckons, is already worth €500bn (\$610bn).

Ynsect, his firm, thus expects to grow once it opens a new factory this year. He dreams of annual output exceeding 1m tonnes, hinting at a hunger for scale often left unsatisfied in a French entrepreneur: local startups find it notoriously difficult to get beyond the pupa stage, partly because of a lack of capital. But Ynsect has so far raised a decent €22m, some of it from Bpifrance, a bank owned by the Caisse des Dépôts, a two-century-old investment arm of the state. Bpifrance was set up in 2013 to channel venture capital (vc) to startups.

The bank is "accelerating the startup ecosystem" in France, says Paul-François Fournier, its head of innovation. It invested in 1,500 startups in 2013, rising to 4,000 last year. Over lunch (beef, not worms), he outlines broader goals. Bpifrance already has €20bn invested directly in various small

and large companies. The government of President Emmanuel Macron is to raise €10bn from privatisations, such as of airports in Paris. That will be deployed to finance more startups and train 4,000 existing firms in the better use of digital tools.

Bpifrance is also shifting how it invests in vc funds. As it tries to expand, it has stakes in roughly half of France's 200 or so funds. On average it invests in funds managing €180m of capital, up from €80m in 2013. Mr Fournier says its role helps to explain why the vc industry is growing faster in France than elsewhere in Europe; a typical round of public financing of €10m is enough, he suggests, for firms to get heft without crossing the Atlantic to tap deeper capital markets. It remains tough, however, to raise bigger sums without going abroad.

Some argue it makes no sense for a government to place vc bets, directly or otherwise. Mr Fournier says it happens everywhere. vc funds in Britain raise lots of public money from the EU, via the European Investment Fund. Post-Brexit, more of that could flow to France. Massimo Colombo, an academic who studies government vc in Europe at the Polytechnic University of Milan, reckons government involvement can be beneficial, but admits that, when results are measured by jobs created or productivity boosted, the private sector is far better at deploying capital.

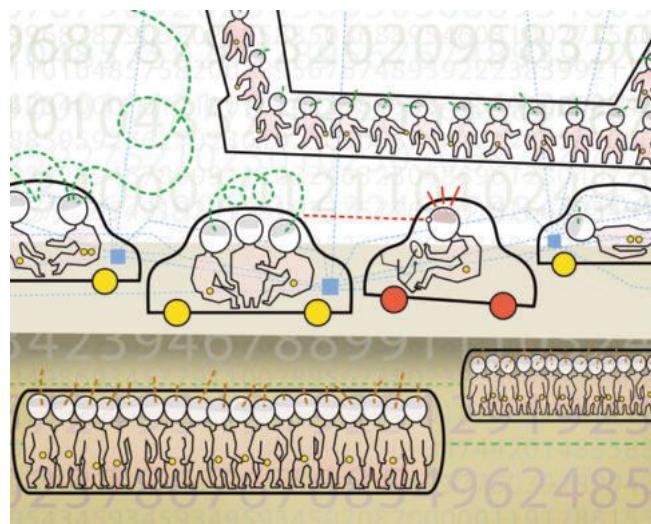
Studying 25,000 government vc investments in 28 countries, between 2000 and 2014, he and colleagues concluded that they worked only when they did not compete directly with the private sector. If Bpifrance is typical, the most successful investments, in terms of drawing in private money and boosting small businesses, are in science-oriented and manufacturing activities (not, say, e-commerce), and in startups in remote spots such as Ynsect's base in Dole. About half its funds go out of Paris. If the insect business does grow fat, it will be an advertisement for incubation in more ways than one. ■



Don't be coy, carp about the food

Free exchange | Jam tomorrow

Driverless cars will not save cities from either traffic or infrastructure expense



THE most distractingly unrealistic feature of most science fiction—by some margin—is how the great soaring cities of the future never seem to struggle with traffic. Whatever dystopias lie ahead, futurists seem confident we can sort out congestion. If hope that technology will fix traffic springs eternal, history suggests something different. Transport innovation, from railways to cars, reshaped cities and drove economic advance. But it also brought crowded commutes. Now, as tech firms and carmakers aim to roll out fleets of driverless cars, it is worth asking: might this time be different? Alas, artificial intelligence (AI) is unlikely to succeed where steel rails and internal-combustion engines failed.

More's the pity. In America alone, traffic congestion brings economic losses estimated in the hundreds of billions of dollars each year. Such costs will rise unless existing transport systems receive badly needed investment. For example, fixing New York's beleaguered, overcrowded subway will take at least \$100bn, according to one recent estimate. A driverless *deus ex machina* might seem to spare governments some difficult decisions.

But congestion is a near-inevitable side-effect of urban growth. Cities exist because being near to other people brings enormous advantages. Proximity allows people to find friends, mates and business partners, to discuss ideas and generate new ones, and to trade (and so to capture the benefits of specialisation). Regrettably, clumping leads to crowding: the more people an area houses, the greater the competition for its scarce resources, from seats at a hot new restaurant to space on public roadways. Each new arrival enhances a city's magic but also adds to congestion. Cities grow until costs outstrip benefits.

New transport technologies are not useless. Mass-transit railways and highways allowed big cities to get bigger. But their congestion-easing benefits inevitably proved temporary. When the New York subway extended into northern Manhattan, it became practical to live far from the dirty, expensive, crowded downtown area, while still enjoying access to the city's social and economic benefits. So the city's population rose—a lot—leaving New Yorkers once more cheek by jowl. A post-war highway-building boom in America yielded explosive growth in city suburbs. Cities once again found their equilibrium, however, as the suburban land-rush led to road congestion, raising the cost of living far from em-

ployment centres. In a paper published in 2011, Gilles Duranton, of the University of Pennsylvania, and Matthew Turner, of Brown University, identified a “fundamental law of road congestion”: namely, that building more highways does not alleviate congestion. Rather, it attracts more residents, leads to more driving by existing residents and boosts transport-intensive economic activity, until roads are once again crammed.

Driverless cars should cut traffic, other things being equal. Lower accident rates will mean fewer crash-related hold-ups, while AI that can pilot cars more closely together will boost road capacity. But reductions in traffic will make living in currently congested areas more attractive and hence more populous. Miles travelled per person might also rise, since self-driving technology frees passengers to use travel time for work or sleep. And just as new highways prompt a rise in transport-intensive business, driverless vehicles could generate lots of new road-using activity. Where now a worker might pop into the coffee shop before going to work, for example, a latte might soon be delivered in a driverless vehicle. The technology of driverless cars may make us safer and more productive, but not necessarily less traffic-bound.

It might, however, improve traffic by making it easier, politically, to impose tolls on roads. Jams occur because a scarce resource, the road, is underpriced, so more people drive than it can accommodate. But tolls could favour use of the roadway by those who value it most. Some places already use such charges—London and Singapore are examples—but they are rarely popular. Some drivers balk at paying for what they once got for nothing, and others are uneasy about the tracking of private vehicles that efficient pricing requires. People seem not to object to paying by the mile when they are being driven—by taxis and services like Uber and Lyft—and the driverless programmes now being tested by Waymo and GM follow this model. If a driverless world is one in which people generally buy rides rather than cars, then not only might fewer unnecessary journeys be made, but also political resistance to road-pricing could ease, and congestion with it.

Ok, commuter

That might lead to a different kind of dystopia (also with historical antecedents): one in which fast, functional transport is available only to those who can pay. Luckily, history also suggests a solution: mass transit. Ride-hailing services might introduce multi-passenger vehicles and split travel costs across riders (they could call them “buses”). Or, as Daniel Rauch and David Schleicher of Yale University argue, governments might instead co-opt the new transport ecosystem for their own purposes. They might subsidise the travel of low-income workers, or take over such systems entirely (a common fate for mass-transit systems which begin life as private enterprises, including the New York subway). Municipal networks of driverless cars might prove less efficient than private ones, particularly if cars are rationed on a first-come-first-served basis rather than by price. But in the past city governments have felt that providing equal-opportunity access to centres of economic activity was worth the cost.

Should congestion prove ineradicable in a driverless world, people will continue to hope for technological solutions, like the long-promised flying cars. While we wait for that—and the clogged skyways that would soon follow—governments would be wise to keep their underground systems in good working order. ■



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Space flight

Size matters

The biggest rocket in the world prepares for its maiden voyage

TECHNOLOGICAL progress is not always straightforward. Before Concorde's first commercial flight in 1976 supersonic passenger-travel was science fiction. Since that aircraft's last hurrah, in 2003, it has become historical fiction instead. Similarly with rockets, the most powerful built (almost five times more powerful than anything flying today) was the Saturn V, which carried human beings to the moon. It last flew in 1973.

These days, though, big rockets are coming back. On a launching pad at Cape Canaveral, Florida, sits the Falcon Heavy, the latest offering from SpaceX, a private space-flight firm. It is 70 metres tall and sports 27 engines (see picture above). Collectively, these generate 22.8m newtons of thrust—about as much as eighteen 747 jetliners. That is enough oomph to put almost 64 tonnes of payload into low-Earth orbit. This is, admittedly, still less than half of what the Saturn V could once manage. But it is more than twice as much as the Delta IV Heavy, the current champion.

SpaceX's engineers are now testing their machine, and—assuming those tests do not blow the rocket up—at some point in the next fortnight or so they hope to take the final step and actually try to launch the beast into orbit. If they succeed, the Falcon Heavy will become by far the beefiest rocket presently flying, second only to the Sat-

urn V itself in its capacity to lift things into orbit (see chart on next page).

A successful launch would be another vindication for SpaceX's founder, Elon Musk, who started the firm to shake up the rocketry business and to slash the cost of getting into orbit. After a rocky start, he has succeeded admirably. The launch price of the firm's existing machine, the Falcon 9, is thought to be around half of what some of its competitors charge. That has helped SpaceX to win a big order book, launching commercial satellites for companies, secret ones for America's armed forces, and making cargo runs to the International Space Station on behalf of NASA, that country's space agency.

Pile 'em high. Sell 'em cheap

SpaceX's prices can go even lower if customers are willing to fly on one of its reused rockets, a technology that the firm has pioneered. It now routinely flies the first stage of a Falcon 9 back to Earth, landing it either near the original launch site or on a robotic ocean-going barge. In March one of these recovered rocket stages was relaunched for the first time, hoisting a communications satellite into orbit on behalf of Airbus, a big European firm. All this adds up to a serious squeeze on the industry's incumbents. In April 2017 United Launch Alliance (ULA), the joint venture between

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Lockheed Martin and Boeing that makes the Delta IV Heavy, announced that it would cut its workforce by a quarter, and the prices on a range of rockets called Atlas by a third.

Conceptually at least, the Falcon Heavy is a simple machine. It consists of three Falcon 9 rockets lashed together like a set of pan pipes. SpaceX had originally pencilled in its first launch for 2013. But Mr Musk has admitted that he had been "naive" about just how difficult things would prove. The middle of the trio needs to be fortified to deal with the stresses imposed by thrust from its neighbours. The aerodynamics of three linked rockets are different from those affecting a single one. And Mr Musk hopes to try to recover all of the Falcon Heavy's rockets at once—something that has never been tried before.

With all this in mind, Mr Musk has been careful to play down expectations. In July 2017 he told a space-flight conference in Texas that "I hope it [the Falcon Heavy] makes it far enough away from the pad that it does not cause pad damage [if it explodes]. I would consider even that a win, to be honest." But he cannot resist having at least a bit of fun. Like all debutante rockets, the Falcon Heavy will carry a test payload rather than a paying customer's satellite. Usually, these are blocks of metal or concrete. In April Mr Musk, who is also the founder of Tesla Motors, an electric-car company, said he was looking for something more interesting. He eventually chose his own cherry-red Tesla Roadster sports car. The mission calls for the car to be blasted into orbit around the sun, where it should remain for billions of years.

Even if the first mission does end up in a fireball, though, the Falcon Heavy's extra capacity and the savings from recyclability ➤



mean that if and when it works reliably, the costs of getting big objects into space could fall by an order of magnitude from those of the Delta IV Heavy. Indeed, the new rocket already has customers lined up, including Arabsat, a satellite-communications firm, and America's air force. The most eye-catching mission is to send two paying tourists on a jaunt around the moon and back. SpaceX says the daring duo have already paid a "significant" deposit. Their trip is, perhaps ambitiously, scheduled for some time this year.

The Falcon Heavy is not the only big rocket in development. China and Russia are both working on craft—the Long March 9 and the Energiya-5V—that will rival the Saturn V's lifting prowess. Mostly, the fledgling private space industry has confined itself to smaller machines. A firm called Rocket Lab may soon become the first startup since SpaceX to reach orbit. Its diminutive Electron rocket can carry loads of 150kg. But Mr Musk has high-end competition in the form of Jeff Bezos, the founder of Amazon, who runs his own rocketry firm called Blue Origin. This company is building a lifter called the New Glenn which it hopes will take off in 2020 and will be able to carry 45 tonnes into orbit.

Mine's bigger than yours

Mr Bezos may be pipped to the post by America's government, which is due to launch Block 1, the first version of its Space Launch System (SLS), in 2019 or 2020. This rocket will be able to carry 70 tonnes into orbit. The final variant of the SLS, Block 2, due in 2029, should manage double that. It has been explicitly designed to enable NASA to go back to the moon and, perhaps, eventually on to Mars.

But the SLS is far from universally popular. Its critics see it as little more than a job-creation programme for established aerospace companies, which are politically powerful. Nor is it cheap. NASA has estimated it could cost \$18bn. The progress being made by America's billionaires certainly makes it harder to justify their government's attempts to duplicate their efforts. And SpaceX will probably end up taking the crown in any case. The planned sequel to the Falcon Heavy is the BFR, or

"Big Fucking Rocket", whose name neatly sums up its design goals. Capable of lifting up to 250 tonnes into orbit, and intended to enable Mr Musk's oft-stated wish to colonise Mars, it would be far and away the most potent rocket ever built. SpaceX says the BFR will be ready by 2022, though few will be surprised if that date slips. Still, if it ever flies it would, after half a century, at last bring the Saturn V's reign to an end. ■

Perception and language

Scents and sensibility

How well people can name sensations depends on those sensations' salience

THE human sense of smell is weak. That is well known, and is suspected by many anthropologists of being the result of a trade-off in the primate brain in favour of visual processing power. In the specific case of people, however, the relative weakness of smell compared with sight extends to language, too. Humans have no difficulty putting names to colours but are notoriously bad at putting names to odours.

That might also be caused by how the brain is wired. But some doubt this. They suggest it is more likely a consequence of the tendency of languages to contain words useful to their speakers. Since smells matter little to most people, most languages have few abstract words for them. A study just published in *Current Biology*, by Asifa Majid at Radboud University in the Netherlands and Nicole Kruspe at Lund University in Sweden, supports this.

Dr Majid knew from previous work she had done that the Jahai, a group of hunter-gatherers who live in western Malaysia, are remarkably good at naming odours. For example, when she asked some Jahai, and also a comparable group of American volunteers, to name colours and odours they were presented with, the Americans generally agreed with one another when it came to naming colours but agreed much less when putting names to odours. When

presented with cinnamon, for example, they described it variously as sweet, spicy, wine, candy, edible and potpourri. When presented with baby powder they offered vanilla, wax, baby oil, toilet paper, dentist office, hand lotion, rose and bubble gum as descriptions. Jahai answers, in contrast, were in equal agreement about both odours and colours.

When she published this result, Dr Majid suggested that it might, in part, be because the Jahai have a dozen words dedicated to describing different sorts of smells in the abstract (the equivalent of colour-words such as red, blue, black and white, of which there are generally reckoned to be 11 in English). For example, the Jahai use the word "cñes" for stinging sorts of smells associated with petrol, smoke and various insects, and "pl?en" for bloody, fishy and meaty sorts of smells. According to Dr Majid, only "musty" is able to act in this way in English without drawing on analogy (banana-like, gooseberry-noted, and even earthy and sweet-smelling, are all analogies of some sort).

To test how important someone's way of life is to his or her use of abstract words for smells, Dr Majid and Dr Kruspe looked at how two other groups of people from the Malay Peninsula used terms for colours and odours. These were the Semaq Beri, who also hunt and gather for a living, and the Semelai, who cultivate rice. Crucially, although these two peoples make their livings in different ways, their languages are closely related and they both live in the rainforest.

Dr Majid and Dr Kruspe asked 20 Semaq Beri and 21 Semelai to name odours and colours presented to them at random. The colours were on 80 differently hued cards; the odours on 16 variously scented sticks. The sticks were daubed with smells like (to English-speaking sensibilities) leather, orange, fish, garlic and turpentine.

The two researchers found that the Semaq Beri used abstract terms for odours 86% of the time—about as often as they did for colours, which was 80%. The Semelai also used abstract colour descriptions at a similar rate, namely 78% of the time. But when it came to describing odours they relied on abstraction on only 44% of occasions, while resorting to analogies, such as "banana" and "chocolate", 56% of the time. Moreover, as with Dr Majid's earlier study with the Jahai, the Semaq Beri more frequently agreed with one another about naming odours than did the Semelai.

Given these findings, Dr Majid and Dr Kruspe argue that it is the hunting-and-gathering way of life, rather than the use of a particular language, that is crucial to the use of abstract names for odours. Presumably, the business of surviving by eating what the forest has to offer requires a more discriminating use of the nostrils than is needed for farming. ■



Evolution

Shell game

An intriguing example of convergent evolution is explained

THE exhausting chore of raising young is one a few birds manage to avoid. By laying their eggs in the nests of others, they dupe those others into feeding their nestlings. Such brood parasitism has arisen independently at least three times, in the groups known as cuckoos, cowbirds and honeyguides. That gives biologists a tool with which to explore the phenomenon of convergent evolution, in which unrelated lines with similar ways of life evolve similar adaptations that help them to thrive.

One feature shared by cuckoos, cowbirds and honeyguides is that the shells of their eggs are all thicker than those of the birds they parasitise—sometimes by as much as 30%. This looks like a classic case of convergent evolution, but no one has been able to prove the point by demonstrating a benefit derived from it that is connected directly with brood parasitism. Liang Wei, of Hainan Normal University, in China, thinks he has now done so. His work, just published in the *Science of Nature*, suggests that the greater thickness of brood-parasites' eggshells provides insulation, which speeds up the eggs' incubation. This ensures they hatch before their hosts' eggs do, thus granting the parasitic hatchlings time to dispose of their incipient rivals by puncturing the eggs containing them or pushing those eggs out of the nest.

To test this idea, Dr Liang and his colleagues decamped from their home in China's southernmost province to Heilongjiang, its northernmost. Their destination was Zhalong National Nature Reserve, where reed warblers are parasitised by common cuckoos. They picked this pairing of host and parasite because the two species' eggs are, by chance, of similar sizes. That made it easier to compare the rates at

Computers and criminal justice

Algorithm's dilemma

Are programs better than people at predicting recidivism?

IN AMERICA, computers have been used to assist bail and sentencing decisions for many years. Their proponents argue that the rigorous logic of an algorithm, trained with a vast amount of data, can make judgments about whether a convict will reoffend that are unclouded by human bias. Two researchers have now put one such program, COMPAS, to the test. According to their study, published in *Science Advances*, COMPAS did neither better nor worse than people with no special expertise.

Julia Dressel and Hany Farid of Dartmouth College in New Hampshire selected 1,000 defendants at random from a database of 7,214 people arrested in Broward County, Florida between 2013 and 2014, who had been subject to COMPAS analysis. They split their sample into 20 groups of 50. For each defendant they created a short description that included sex, age and prior convictions, as well as the criminal charge faced.

They then turned to Amazon Mechanical Turk, a website which recruits volunteers to carry out small tasks in exchange for cash. They asked 400 such volunteers to predict, on the basis of the descriptions, whether a particular defendant would be arrested for another crime within two years of his arraignment (excluding any jail time he might have served)—a fact now known because of the passage of time. Each volunteer saw only one group of 50 people, and each group was seen by 20 volunteers. When Ms Dressel and Dr Farid crunched the numbers, they found that the volunteers

which the two sorts of egg lost heat, since the ratio of surface area to volume is a crucial variable in matters thermodynamic.

The team searched the reserve for warbler nests. When they found one that also had a cuckoo egg, they removed that egg, together with a warbler egg, and brought the pair to their laboratory, where they placed them in an incubator at 37.5°C—their natural incubation temperature.

On the first day of this process, and on three further occasions, spaced three days apart, each of the 15 pairs of eggs the team had collected was taken out of the incubator for 20 minutes—the average amount of time clutches are left unattended by warbler mothers (the fathers having long departed) when they go foraging. As soon as the eggs came out of the incubator, the team took thermal images of them, permitting their temperatures to be estimated.

correctly predicted whether someone had been rearrested 62.1% of the time. When the judgments of the 20 who examined a particular defendant's case were pooled, this rose to 67%. COMPAS had scored 65.2%—essentially the same as the human volunteers.

To see whether mention of a person's race (a thorny issue in the American criminal-justice system) would affect such judgments, Ms Dressel and Dr Farid recruited 400 more volunteers and repeated their experiment, this time adding each defendant's race to the description. It made no difference. Participants identified those rearrested with 66.5% accuracy.

All this suggests that COMPAS, though not perfect, is indeed as good as human common sense at parsing pertinent facts to predict who will and will not come to the law's attention again. That is encouraging. Whether it is good value, though, is a different question, for Ms Dressel and Dr Farid have devised an algorithm of their own that was as accurate as COMPAS in predicting rearrest when fed the Broward County data, but which involves only two inputs—the defendant's age and number of prior convictions.

As Tim Brennan, chief scientist at Equivant, which makes COMPAS, points out, the researchers' algorithm, having been trained and tested on data from one and the same place, might prove less accurate if faced with records from elsewhere. But so long as the algorithm behind COMPAS itself remains proprietary, a detailed comparison of the virtues of the two is not possible.

Then, just before they put the eggs back, they took a second set of images.

The findings were clear. During the 20-minute periods outside the incubator the 15 warbler eggs lost 4.42°C on average, whereas the 15 cuckoo eggs lost an average of 4.15°C. This may not seem a huge difference, but experience of incubating bird's eggs artificially shows that actually it is.

Given these findings, Dr Liang argues that the thicker eggshells do indeed give the embryos within the developmental edge they need to hatch first. As to why warblers and other victims of brood parasitism fail to retaliate by themselves evolving thicker eggshells, and thus faster-hatching young, that is unclear. Presumably the extra cost of doing so is not worthwhile in a world where a minority of nests are parasitised. Proving this, though, would require a whole new research project. ■

Drones in a box

Ready for take off

Making robot helicopters easier to use will increase the number in use

SMALL multicopter drones—souped-up versions of those sold by the million as Christmas toys—have tremendous potential for use in industry and agriculture. Rather than erecting scaffolding or bringing in a mechanical platform to inspect things like roofs and chimneys, the job can be done instantly, and probably for less money, by sending up a drone-mounted camera. Drones can also fly along pipelines and power cables, checking for damage faster than a ground-based operation could manage. Similarly, they can survey fields for signs of pest or drought at a fraction of the cost of a manned flight.

Most existing drones do, however, need to be flown by an experienced operator. Indeed, the law often requires this. Drones also need technical support and maintenance. And the people operating them would be well advised to have an understanding of the legal and safety implications of what they are up to. Hence the appeal of the “drone-in-a-box”. This is a term being applied to the offerings of several firms that aspire to sell the advantages of drones without the associated worries.

The box in question is a base station that houses the drone, recharges it and transfers the data it has collected to the customer. The drone may fly autonomously, according to a preprogrammed schedule, find its way automatically to a point it is ordered to visit, or be piloted remotely by an operative of the company that supplies the system, from a control centre anywhere on the planet.

Feel the buzz

One of the most advanced drone-in-a-box systems is produced by Airobotics, an Israeli company. In this case the box is made of metal and is about the size of a garden shed. A hatch in the roof opens and through it a purpose-built quadcopter called Optimus lifts off to fly a preprogrammed route. After each such tour it returns, and its part-used battery is swapped for a freshly charged one by a robot arm within the box.

Airobotics' first contract for this system is with Israel Chemicals (ICL). In this case the drone's job is stock control. It monitors ICL's phosphate-rock mining and processing operation in the Negev desert, by measuring the dimensions of recently mined piles of the stuff—and thus the amount of rock they contain. That task was previously carried out by a human being scrambling

over the heaps with survey tools. Now it is done with 3D photography and computer modelling. The drone method is quicker and easier, and does not require the site to be closed to trucks for safety reasons. It is also completely automated. The drone knows when to fly, what route to take, and what to do en route.

Atlas Dynamics, another firm with Israeli roots (though it is now based in Latvia) is following swiftly in Airobotics' wake. Its drone garage, which it refers to as a “Nest”, is smaller than that of its rival (about the size of a fridge-freezer), is made of carbon fibre, and can accommodate several drones. Those drones, which it calls Atlas Pros, are different, too. An Atlas Pro has three engines and unlike most helicopter drones, which are regular polygons with a lifting propeller at each vertex, it has a clear front and back. In its case, two propellers are mounted forward and one at the rear. The trick is that the struts holding the front propellers are also aerofoils that provide lift during forward flight, meaning the drone combines the characteristics of a helicopter with those of a fixed-wing aircraft. This provides stability, meaning the craft can fly in winds that a conventional multicopter could not handle.

According to Guy Cherni, the boss of At-

las Dynamics, the firm's first target market is security. If an alarm is tripped at a fence or gate, for example, a drone will launch itself automatically from the Nest to provide a close-up view of the potential incursion point. Drones can also be programmed to carry out regular patrols, or sent on one-off human-controlled missions by means of a simple map-based app.

A third company, Airmada, of Boston, Massachusetts, has taken a slightly different approach from these other two firms. Rather than go to the expense of developing its own robot aircraft, it has designed a base station that can accommodate any brand of commercial drone in line with the customer's desire. Again, this station swaps out the drone's battery and enables the remote operation of what is, in essence, a security and surveillance system for industrial plants.

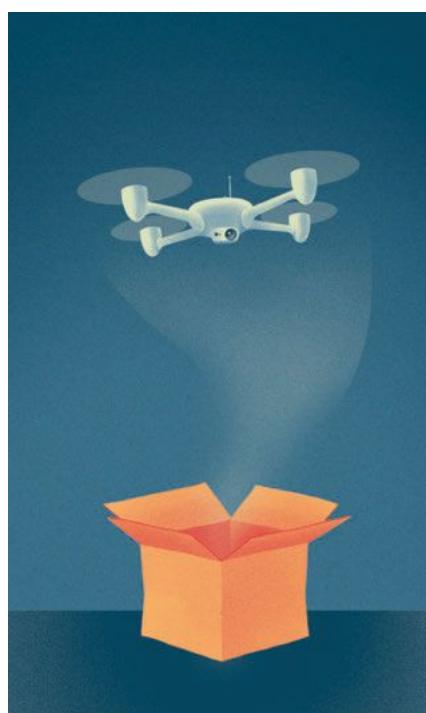
Another Boston-based firm—GreenSight Agronomics—has a different sort of plant in its sights, the sort that grows. It offers a boxed drone for surveying farms and golf courses. Its drone is fitted with a “multispectral” camera tuned to be sensitive to specific wavelengths of light, including some in the infra-red. This permits it to detect health-related changes in vegetation before they are visible to the naked eye.

Ruling the skies

GreenSight is also tackling the question of how drones are regulated. At the moment, American law requires someone who can see the drone to be in ultimate charge of it. Moreover, that person must have passed an exam to qualify as a drone pilot. In December, though, the Federal Aviation Administration gave GreenSight a waiver from this law which permits a qualified pilot to fly drones remotely, from Boston.

At the moment, this waiver saves no manpower, for an observer on the ground must still follow the flight and be able to take control in an emergency. GreenSight hopes, though, that this will never need to happen and that, by giving an extended demonstration of the fact that remote flying can be done safely, a further relaxation of the rules will eventually do away with the job of observer.

In Israel, Airobotics has already gone through a similar process: Optimus drones are now able to fly unsupervised. In both countries the authorities are being sensibly cautious, but the data suggest that automatic flights of the Optimus variety are safer than piloted ones, particularly during take-off and landing, when most accidents happen. Whether this also applies to remote piloting remains to be seen. But GreenSight seems confident it will. Justin McClellan, the firm's chief marketing officer, hopes the strictures on observers will change next year—indeed, he expects a general relaxation of the rules, not just for GreenSight, but also for its competitors. ■





The Vietnam war

Wishful thinking

Nearly half a century after the conflict in South-East Asia ended, American writers are still fighting the Vietnam war

BECAUSE the Vietnam war was the first that the United States unequivocally lost, American treatments of it are often couched as might-have-beens. Liberals look for moments when America might have avoided the war; conservatives search for ways that it could have been won. The latter temptation grew after the invasions of Afghanistan and Iraq, when America again became mired in guerrilla conflicts. In the late 2000s, neo-conservative authors began arguing that America could have triumphed in Vietnam (and, by extension, could win in Afghanistan and Iraq) by committing to so-called “counter-insurgency” strategies, which involve political nation-building rather than relying solely on firepower. Practitioners of counter-insurgency (including H.R. McMaster, who later became Donald Trump’s national-security adviser) rose to the top of America’s security hierarchy.

Max Boot, a journalist turned foreign-policy scholar, supported winning both Iraq and Afghanistan with counter-insurgency strategies. (In 2001 he wrote that “Afghanistan and other troubled lands” needed “the sort of enlightened foreign administration once provided by self-confident Englishmen in jodhpurs and pith helmets.”) His new book is a biography of Edward Lansdale, a legendary CIA officer

The Road Not Taken: Edward Lansdale and the American Tragedy in Vietnam.
By Max Boot. Liveright; 768 pages; \$35.
Head of Zeus; £30

and pioneer of counter-insurgency thinking. As its title suggests, it is another entry in the Vietnam what-if genre. Yet Mr Boot’s views have evolved. Once a staunch conservative, his attitudes on social issues of race and gender have moved in a liberal direction. One question hanging over his book is whether his attitude towards military intervention has mellowed, too.

Lansdale was an advertising executive from California who joined the OSS (the precursor of the CIA) during the second world war. In the Philippines in the early 1950s he helped defeat a communist insurgency by arranging for an honest Filipino congressman, Ramon Magsaysay, to become defence secretary, and successfully managing his campaign for president. He acquired a deep understanding of local society by convening a team of creative military officers and politicians (and by launching a long-term extramarital affair with a Filipino widow, Pat Kelly, whom he would eventually marry). Lansdale persuaded the army to stop alienating peasants with bloody, heavy-handed tactics,

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and paired military offensives with political campaigns to divide the communists and buck up trust in the government.

In 1954, Lansdale shifted his attention to Vietnam, where France was losing its war against Ho Chi Minh’s Viet Minh guerrillas. As a CIA liaison officer in Saigon, he developed a close relationship with Ngo Dinh Diem (pictured), the nationalist Catholic chosen to lead South Vietnam once the French left and the communists took over the north. Lansdale and his dozen-odd advisers played a crucial role in stabilising the rickety new state. They arranged for American ships to evacuate hundreds of thousands of Catholics from the north to the south, and helped Diem win the support of sectarian militias and crush a heavily armed mafia, the Binh Xuyen. By now Lansdale was seen by the American public as a wizard of democratic nation-building, lionised in “The Ugly American”, a political novel about American diplomacy that came out in 1958. (Contrary to rumour, he was not the model for Graham Greene’s “Quiet American”.)

Mr Boot argues that things soured in Vietnam after Lansdale returned to America in late 1956. He understood that fighting insurgencies was fundamentally a political task, one of building a coherent government that commands popular assent. Yet as communist insurgents returned to South Vietnam in the early 1960s (aided by Diem’s increasing authoritarianism), American advisers grew frustrated, and President John Kennedy approved a coup in November 1963. The coup leaders unexpectedly killed Diem; Lansdale was aghast (as was Kennedy). The government rapidly disintegrated in a series of coups by squabbling generals, and in 1965 America had to ►

▶ send in combat troops. Lansdale returned for an ineffectual stint as an adviser from 1965-68, but for Mr Boot, overthrowing Diem was the critical mistake that ended any chance of a viable South Vietnam—one Lansdale would not have made.

Here, Mr Boot is wrong. Diem was a genuine Vietnamese leader, but he was also rigid and vindictive, relying on a narrow Catholic power base. By 1963 he was pointlessly cracking down on Buddhists, whose monks set themselves on fire in protest. His own pilots tried to kill him by bombing the presidential palace. Few historians think he could have saved the south. As for Lansdale, while he grasped the centrality of politics in fighting insurgencies, he was prone to wacky secret-agent schemes. A congressional investigation into CIA misconduct in 1975, after his retirement, uncovered a proposal he once made to undermine Fidel Castro by having navy ships fire special shells to make Cubans think that Christ had returned. It also accused him of condoning assassination.

Mr Boot seems to have grown less gung-ho since 2001, and he acknowledges that South Vietnam might have fallen no matter what America did. But his claim that Lansdale's strategies represent a "road not taken" is unconvincing. Counter-insurgency was tried, by Lansdale and others in Vietnam—including figures such as John Paul Vann and Creighton Abrams, who have featured in their own what-if books. It was tried again, in Afghanistan and Iraq, by officers like General McMaster and David Petraeus. The road has been taken. It is tortuous and exhausting, and it is not clear that it leads anywhere. ■

Art history

The first artists' biographer

The Collector of Lives: Giorgio Vasari and the Invention of Art. By Ingrid Rowland and Noah Charney. Norton; 432 pages; \$29.95 and £23.99

TOWARDS the end of his life Michelangelo Buonarroti, the most famous artist of the Italian Renaissance, began burning his drawings. He did not consider them works of art in their own right so much as pictorial scaffolding. They aided the difficult process of deciding what a painting or sculpture would look like when it was finished and demonstrated his very real struggles to achieve aesthetic perfection. By eliminating these drawings he wanted posterity, when thinking of the great Michelangelo, to be confronted with a towering figure of insurmountable genius, one as cold and stiff as the marble he worked



Vasari made craftsmen into stars

with—in short, a man who conjured up the great masterpieces in Western art with minimal effort.

That people can see behind this façade is due to the timely intervention of another influential figure of the Renaissance: Giorgio Vasari (1511-74), a painter, architect and author, who saved many drawings from the artist's purge. Safeguarding the legacy of those around him, as well as that of their predecessors, became Vasari's obsession. In 1550 he published his *magnum opus*, "Lives of the Most Excellent Painters, Sculptors, and Architects". In it he records the many flaws, rivalries, vices and eccentricities that together create a family photograph of the Quattrocento and Cinquecento. Vasari pulls his subjects down off their artistic pedestals, and sketches in characteristics that are all too human. Masaccio was absent-minded. Filippo Lippi had an insatiable libido despite being a monk. Paolo Uccello once fled from his work when served cheese.

In "The Collector of Lives", an insightful and gripping new book about Vasari, Ingrid Rowland and Noah Charney avoid the endless debate over which of the biographer's stories are true or false. Instead, they focus on what has been included in the biography as a way of learning more about Vasari himself.

Thus a suspiciously melodramatic story of Leonardo da Vinci dying in the arms of King Francis I of France, bitterly lamenting his own lack of devotion to his art, reveals more about Vasari's attitude to work than Leonardo's. Vasari achieved contemporary fame and wealth by his rigorous work ethic. His ability to stick to deadlines often exhausted him, but it ensured a steady stream of important commissions from the Medici and the papacy. Shrugging off taunts from jealous rivals about his short stature, Vasari created work across the Italian peninsula that was lauded by contemporaries and made him as celebrated as many of the artists he wrote about. His unattractive appearance may

well be the reason, the authors believe, that Vasari championed the similarly plain-looking Giotto and Brunelleschi, reminding the reader that "lumps of earth often conceal veins of gold."

Ms Rowland and Mr Charney draw a panoramic view of the art-world during the Renaissance, placing Vasari at the centre. He went to great lengths to preserve pieces of scrap paper. They contained sketches by Michelangelo, and he deemed them valuable. This was a time when artists were traditionally anonymous, uneducated craftsmen of "pretty things". By prioritising the creators themselves over what they created, championing their deeds and elevating their status, Vasari helped lay the foundations for art history as well for how art is understood today. This is an important book and long awaited. The authors have done a commendable job of returning to his rightful place the man who inflated the reputation of art and artists so successfully that he himself was squeezed out of the picture. ■

New fiction

A river runs through it

River. By Esther Kinsky. Translated by Iain Galbraith. Fitzcarraldo; 368 pages; £12.99. To be published in America this autumn by Transit Books

IN HER post-war childhood beside the Rhine, the narrator of Esther Kinsky's third novel learns that "every river is a border." Flowing water both divides and connects city and country, past and present. The "liminal habitat" that runs through "River" is the Lea: a tributary of the Thames that snakes its marshy, scruffy way through to north-east London. Tramping these post-industrial zones of makeshift



Esther Kinsky goes with history's flow

► enterprise, neglect and dilapidation, “bashed and bedraggled by the times”, the solitary heroine summons other rivers from her atlas of memory. She revisits waterways not only in Germany but Canada, Croatia, Hungary, India and Israel.

Although rooted in the author’s own long residence in London, “River” is a novel, not a documentary expedition. Episodes of satire and fantasy, such as a stint broadcasting for a Kafka-like version of the BBC World Service, push it towards eerie German gothic fiction rather than the London-bred “psychogeography” of Iain Sinclair or Peter Ackroyd. Light on plot, rich in

atmosphere, “River” meanders like its liquid locales. It also traces a path into the past, which leads back to the narrator’s much-travelled father, and the “post-war condition” of his ravaged continent.

The woman who has fled her own hinterland for the ragged fringe of London discovers a dreamlike city of melancholy magic. This spiritual nomad meets in this “capital of chameleons” Hasidic Jewish, Croatian, Kurdish and African neighbours. With these encounters, Ms Kinsky nods to the waves of settlement that have stitched a score of migrant narratives into east London’s tattered fabric.

Yet the perpetual flux of London, where “Nothing began...and nothing ended”, cannot lay the past to rest. Regret and relief mingle as she packs again for another new life in eastern Europe. From her enigmatic photographs, or the half-buried historical traumas that haunt these “landscapes of bereavement and implacable homelessness”, readers of the great W.G. Sebald—another self-exiled German—will suspect that his shade has strolled with Ms Kinsky by the Lea. Iain Galbraith, who has also translated Sebald, gives “River”, and all its “lumber of cumbersome jetsam”, a special English poetry of grunge and grime. ■

Johnson | Unlocking pronouns

Personal pronouns have been hard to alter. That is now changing fast

NOT so long ago a man could be jailed in Texas for sex with another man. In 2015 a county clerk in Kentucky was jailed for refusing to certify the marriage of two men. Gay rights in America proceeded at an extraordinary rate between *Lawrence v Texas* (2003), in which the Supreme Court struck down sodomy laws, and *Obergefell v Hodges* (2015), which made gay marriage legal across the country.

Transgender rights came next into public view. “Transparent”, a successful television show, has put trans people at the heart of a complex universe. The case of Caitlyn Jenner, who had been an Olympic gold medallist as Bruce Jenner, helped bring not just visibility but greater acceptance. In liberal circles, being openly transphobic is becoming unacceptable, proceeding along the same trajectory—but much faster—as attitudes towards homophobia or racism.

With mores around sex and gender already on the move, it is little surprise that non-binary people are on the frontlines of a rights revolution. The grammar of the English language is part of the battlefield. Gay rights involved a small linguistic shift—people getting used to saying “Steve’s husband”. Treating people who have transitioned to another gender with respect required another adjustment: swapping “he” and “she”, and often learning a new name and avoiding the old one.

But non-binary people, who may identify as of no gender, both, fluid or something else, ask for a change at the very guts of English. Many ask to be referred to either by an invented pronoun, such as “ey” or “ze”, or, more commonly, as “they”.

This is hard for many others, because pronouns are a “closed” class of words, according to linguists. Adjectives, nouns and verbs are “open”: they can be coined



at will. Tell a tiny child that a kind of bird is called a “wug”, and not only do they immediately accept the existence of the wug; they work it into their grammar, knowing that the plural must be “wugs”. Adults may be more conservative, rejecting words they do not like, but they still accept new nouns and verbs all the time. Long-term changes in the meaning of nouns, verbs and adjectives are also routine. Few words mean exactly what they did centuries ago: “buxom” once meant “obedient”, for example.

But grammatical intuitions are more deeply disturbed by the addition of new pronouns, which is why invented ones like “ze” have failed to spread widely. Singular “they”, though, is different. “They” is an old English word. And contrary to the common myth, it can have single antecedents, as in the case of “someone left their umbrella here.” This is not a concession to modern feminism (avoiding “someone left his umbrella”). It goes back to the 14th cen-

tury in English, and has appeared in fine literary sources continually ever since.

But this use of “they” is unusual: traditionally it can refer back only to an indefinite antecedent. “A student must have left their umbrella” is uncontroversial. But “Steve must have left their umbrella” is jarring. So is “my best friend must have left their umbrella”: even if the hearer does not know if the friend is male or female, the speaker presumably does. So those non-binary people asking to be called “they”, as in “Taylor left their umbrella”, are up against the ingrained grammar of many listeners.

But just how ingrained is that grammar? Lauren Ackerman, a fellow at Newcastle University, conducted a small study. Forty people rated the “naturalness” of sentences like “Someone dressed themselves” and “Chloe dressed themselves”. (She also tested “themself”.) Few were bothered by “someone dressed themselves”. Contrary to Ms Ackerman’s prediction, responses were all over the scale for “Chloe dressed themselves”. Moreover, Ms Ackerman found that of the subset (nine) of the test-takers who regularly interacted with someone transgender, acceptability was higher on average—and it increased with the frequency of the interaction with that person.

The study is far too small to be definitive. As academics always say, more research is needed. But it is clear that something is afoot here. It goes hand-in-hand with a rising belief that the gender binary is a social construct. Most members of “Generation Z”, aged 13-20 in a poll taken in 2016, agree with statements like “gender doesn’t define a person as much as it used to” (78%), and 56% know someone who uses a nontraditional pronoun, against 43% for those 28-34. Pronouns may not be such a closed class after all.

Leonard Bernstein at 100

A man in full

More than 2,000 events around the world will celebrate the centenary of America's greatest 20th-century composer

IF YOU were a well-heeled Massachusetts lady in the late 1920s and wanted your hair fixed like the movie stars, there was one man to turn to: Samuel Bernstein. In 1927, this entrepreneurial immigrant, who had arrived in New York from Tsarist Russia aged 16, acquired the only local licence to sell the Frederics Permanent Wave machine for curling hair. Like many businessmen of the times, he expected his eldest son to follow him into the family firm.

But Louis Bernstein, born in August 1918 and known to everyone as Lenny (he officially changed his name to Leonard as a teenager), had different ideas. The family had no musical roots to speak of, but ten-year-old Lenny found himself drawn obsessively to his aunt Clara's piano. No matter that his father remained vehemently opposed to the notion that he should make music his life, there was but one path ahead.

For all his early misgivings, Samuel later conceded that his son was a genius. In his passport, Leonard Bernstein simply called himself a "musician"—characteristic humility from a man whose broad achievements are unique in musical history. Bernstein was a conductor whose interpretive gifts over the course of half a century shone light on the classics from Haydn to Mahler, Bartok to Stravinsky. He was a composer not just of Broadway masterpieces like "West Side Story", but of ballet, opera and chamber music; orchestral, instrumental, choral and vocal works; and even a film score ("On the Waterfront", starring a young Marlon Brando). He was a fine concert pianist and pioneering broadcaster; an educator, Harvard lecturer, writer and humanitarian; a husband, father, lover—and a bona fide celebrity with the good looks, charisma and hair (ironically) of a film star. Such a multifaceted life was not without complexities, contradictions and critics—but oh, what a life.

The Bernstein legend was forged on November 14th 1943. Having been out partying after the premiere of his song cycle "I Hate Music", the 25-year-old was woken by a phone call at 9am requesting that he replace the indisposed maestro Bruno Walter in a major concert that afternoon. It was to be a live, nationwide radio broadcast with the New York Philharmonic (where Bernstein was two months into a gig as assistant conductor) featuring a fearsome programme including Schumann, Strauss and Wagner. There was no time for re-

hearsal. Bernstein put on "the one good suit that I had" (a double-breasted shark-skin) and went to Carnegie Hall. "No signs of strain or nervousness", remarked a dazed New York Times the next day—on its front page. Whether it knew it or not, America was seeking a musical figure who could harness the European classical tradition with a certain homegrown energy. They had found their man.

Bernstein was curious about all sorts of music, including jazz, folk, blues and klezmer. His own daughter Jamie—one of three children Bernstein had with his wife, Felicia Montealegre, a Chilean actress—tells of the joy of devouring Beatles LPs with him. (He was mad for them: "I learned more about music by listening to the Beatles with my dad than I think I did any other way.") Bernstein's own music, whether destined for Broadway or the concert hall, is helplessly eclectic—as well as unapologetically tonal when Schoenberg-influenced serialism was all the rage. His scores blithely, ingeniously united disparate musical elements and forged a path for future musical mixologists that would have been unthinkable without him.

Great classical artists trade in elevated abstractions and are often given licence by the public to stay in ivory towers, seemingly unconcerned about the messy realities of life as it is actually lived. There are some



European tradition, American incarnation

shining exceptions, such as Yehudi Menuhin, Mstislav Rostropovich and Daniel Barenboim. Bernstein, a lifelong progressive—"liberal and proud of it", he once said—was a pioneer in this way.

The charitable and humanitarian causes he supported were legion. "All his life," his daughter Jamie recalls, he "clung hard to the belief that by creating beauty, and by sharing it with as many people as possible, artists had the power to tip the earthly balance in favour of brotherhood and peace." After the assassination of John Kennedy in 1963, he declared: "This will be our reply to violence: to make music more intensely, more beautifully, more devotedly than ever before." At the fall of the Berlin Wall in 1989, "empowered by the moment" as he later said, Bernstein conducted a concert of Beethoven's ninth symphony and was inspired to change a vital word in the Schiller poem which forms the final "Ode to Joy" movement, replacing the word *Freude* ("joy") with *Freiheit* ("freedom"). It became known indelibly as the "Berlin Freedom Concert"; Bernstein was ever the showman.

Meanwhile, his own compositions attempted to address the world around him. His "Symphony No. 2: The Age of Anxiety" explored the psychic damage of the second world war. "Candide" was expressly conceived as a protest against 1950s McCarthyism. "West Side Story" tackled, with eternal relevance, the tragedy of gang warfare and the evils of bigotry and prejudice.

Bernstein's political side did not go unnoticed. The FBI's dossier on him included some 1,000 items. Another cache of documents, released in 2011, proves that the conflicts he exemplified in his career—between classical purism and the Broadway stage, between the public glory of conducting and the private isolation of composing—were a mirror to the internal tensions he battled as a gay man who genuinely wanted to be a family man, loving husband and father. In 1951 Felicia had told him, in a letter: "You are a homosexual and may never change... I am willing to accept you as you are." They remained happily married until her death in 1978.

Bernstein died, aged 72, in 1990. There have since been bold classical composers who straddle genres; charismatic conductors who have the common touch; visionary teachers who practise joyous inclusivity and access. But Bernstein was Bernstein. This year, more than 2,000 events will attempt to honour that singular legacy. From the American cities where he was such a beloved fixture (New York, Boston, Philadelphia, San Francisco, Washington and Chicago) to Europe east and west (London, Paris, Berlin, Vienna, Budapest) to countries as culturally diverse as Japan, China, India, Brazil, South Africa and Israel, 100 years since Bernstein's birth, there is, it seems, a place for him everywhere. ■

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**Invitation to Express Interest in relation to the
Taweeleah Reverse Osmosis ("RO") Independent Water Project
In the Emirate of Abu Dhabi**



The Abu Dhabi Water and Electricity Authority ("ADWEA") is pleased to announce the commencement of a competitive process to select a developer or developer consortium to own up to 40% of a special purpose vehicle (the "SPV") to be incorporated under the laws of the Emirate of Abu Dhabi to participate in the Taweeleah RO Independent Water Project (the "Project"). The remaining equity will be held, directly or indirectly, by ADWEA.

The Project is important to secure the security of potable water supply in the Emirate of Abu Dhabi as well as playing a key role in the ongoing cost reduction initiative in the sector through the procurement of competitive and efficient RO water desalination technology. This critical Project procurement will be in accordance with the vision of the Late Founding Father and President of the United Arab Emirates, Sheikh Zayed bin Sultan Al Nahyan, who through his vision, dedication and wisdom championed efficient stewardship of the power and water sector, and through the continuation of such vision, leadership and commitment to efficient water production of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the United Arab Emirates, and the direction of His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, Deputy Supreme Commander of the United Arab Emirates Armed Forces and Chairman of the Abu Dhabi Executive Council, and the oversight of the Abu Dhabi Government.

The Project will comprise, inter alia, the development, financing, construction, operation, maintenance and ownership of a greenfield Reverse Osmosis seawater desalination plant with a capacity of 200 Million Imperial Gallons of Water per day ("MIGD") of water output, together with associated infrastructure (the "Plant"). The Plant will be located at the Taweeleah power and water complex, approximately 45 kilometres north of the city of Abu Dhabi.

The Project will closely follow the model of the Emirate of Abu Dhabi's successful I(W) PP Programme, and will be structured as a stand-alone independent water project ("IWP"). The SPV will enter into a long-term water purchase agreement ("WPA") with the Abu Dhabi Water and Electricity Company (the "Procurer"), the single buyer of power

and water capacity and output in the Emirate of Abu Dhabi.

All interested parties are requested to submit an expression of interest ("Expression of Interest") at the earliest opportunity and no later than 12:00 noon local time on 7th February 2018 to the following addresses:

- Original copy to: Director of Privatization, Privatization Directorate, 6th Floor, Abu Dhabi Water and Electricity Authority (ADWEA Building), Al Falah Street, P.O. Box 6120, Abu Dhabi, United Arab Emirates; and
- An electronic copy to TaweeleahRO@adwea.ae.

Each Expression of Interest must specify the name, address, telephone number and e-mail address of the appropriate authorised contact person (the "Contact Person") from the developer or developer consortium, to whom all future correspondence should be sent, together with a brief description of the entity / consortium expressing interest (including but not limited to size, number of employees, country of incorporation and business profile).

Following review of the Expressions of Interest by ADWEA, the relevant Contact Person will be notified by ADWEA to advise whether the developer or developer consortium has been selected to proceed to the next stage. The Contact Person of each selected developer or developer consortium will be provided with a Confidentiality Agreement and a Request for Statement of Qualifications ("RFQ"). The RFQ will provide additional details regarding the Project, pre-qualification criteria and the bidding process.

Nothing contained in this invitation to express interest shall constitute an agreement, contract, warranty or representation between ADWEA and any other party. ADWEA reserves the right to modify this invitation and the contents thereof and/or the process related thereto in its sole discretion, including but not limited to the recipients of any RFQ.

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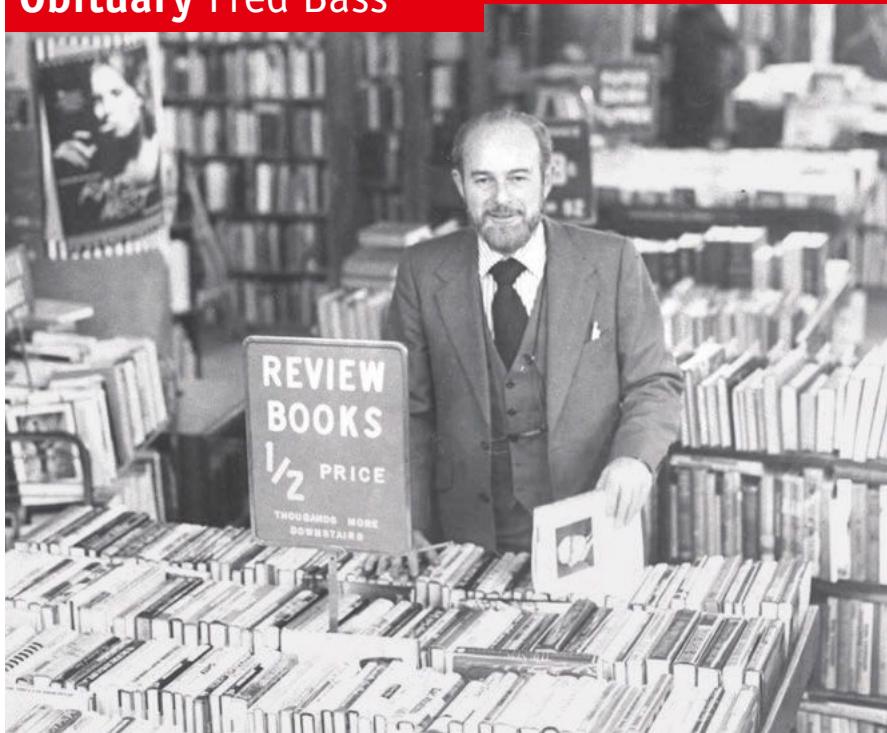
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Browsing at the Strand

Fred Bass, who built New York's Strand Book Store into the largest secondhand emporium in the world, died on January 3rd, aged 89

ACROSS the buying counter at the Strand Book Store, which is as worn and battered as an old school desk, has flowed much of the secondhand-book trade of the city of New York. Dog-eared tomes in college bags; shiny review copies dropped in by critics; bland boxes of publishers' remainers, and tantalising parcels from private estates; leather-bound volumes with uncut pages, and paperbacks rescued by vagrants from the trash. The whole momentum of New York publishing and reading seems to push towards that counter where Fred Bass presided, building up his stock from 70,000 in 1956 to 2.5m by the 1990s, and so rapidly exceeding his sales space that many books also sit in a warehouse at Sunset Park, in Brooklyn.

To this plenitude of books he was forever adding more. Every day he approached his counter like a small boy on a treasure-hunt. And treasure did turn up: a first edition of James Joyce's "Ulysses" (he paid \$7,000; resale price, \$38,000), and a second folio Shakespeare (sold for \$100,000). Yet the vibrant life of the shop pleased him just as much. From his counter he could survey the crazily overstuffed main floor, man the ever-ringing phone, and keep an eye on people browsing the dollar carts outside ("We prosecute everybody"). Gradually the business covered so many creaky

wooden floors, branching out even to satellites at Central Park on Fifth Avenue and the Flatiron District and elsewhere, that what he could see was but a tiny portion of the whole. Still, he could direct the flow.

His business was (and is) such a feature at Broadway and 12th, with its 1950s red fascia, its lingering street browsers and its parade of white-on-red signs—"Open Seven Days Until 10.30pm", "Sell Your Books Here", "ASK US"—that it seemed to have been there always. But he moved it there from Fourth Avenue, from the dereliction of what had once been the Book District, in 1957, shortly after he took over from his father Benjamin. The secondhand sector was dying, and his father thought he should try another trade. But by then Fred had been thoroughly infected. The book-dust he had been sweeping up since schooldays had got into his blood, and he never got it out. Working with his father, an immigrant from Lithuania who had battled destitution by browsing and acquiring, was sparky. But the pursuit of books united them. He would lug the precious bundles back on the subway, the rope digging into his hands. He supposed later that their bookshop survived, when 50 or so others went under, because his father had taught him what he knew.

At the buying counter his father some-

times yelled. Fred, when he assumed command, was quieter. With his three-piece suits and neat beard, he looked more like an Ivy League professor. The workings of his mind, though, moved lightning-sharp through price-scales, stock numbers and prevailing taste. And his decision was final. A biography of Hubert Humphrey? Nobody wanted to read about has-beens. A canvas bag of hardbacks? At a glance, \$15. He mostly went by "feel", losing his temper only when he was offered books that were dirty, or had no covers. "Are you really trying to sell this?" he would ask. And he tried to be fair, even to the down-and-outs. After all, beside the pawnshop, this was almost the only place in the city where you could just walk in and sell stuff.

Towards staff he was also kind, though not foolishly so. Their \$10.50 an hour, at latest rates, was hardly the New York living wage, but with 60 folk a week lining up to work at the Strand he could obviously name his price. In order to see what they knew about books (since "Without good people, you don't have anything going"), he devised a quiz to match ten authors with ten works, from Homer onwards. Hundreds failed. Equally testing was the lack, until his daughter and co-manager Nancy insisted on it 12 years ago, of central air-conditioning in the store. Having broiled by then in book-stacks through 70 New York summers, Fred saw no problem.

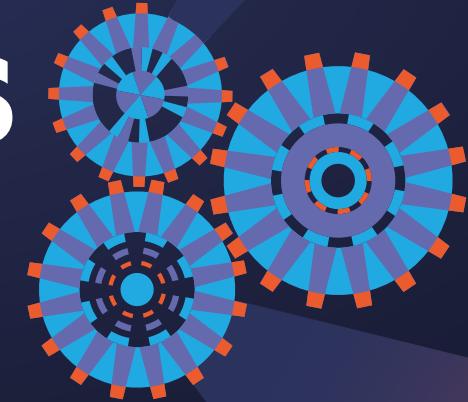
Modernity kept encroaching on his emporium, but he was sanguine about most of it. Amazon did not seem to dent his trade, especially since he had turned the shop into such an icon of New York that 15% of the revenues now come from sales of Strand t-shirts, tote-bags, mugs, socks and scented candles. The store's status in the city reached a sort of apogee, for him, on the night two officers from the Police Department approached him as he was closing up and asked him, shyly, whether they might buy a t-shirt.

Living and dead

One question often asked was why on earth he needed more books, when those he hadn't yet sold were heaping up all over. He had asked his father the same thing, but soon understood. You couldn't sell a book you didn't have. Besides, the secondhand-book trade was not about old, inert, long-accumulated things. It was alive, and needed renewing all the time. As fast as he was taking in fresh, lively books at his counter, staff would be clearing far shelves of all the dead, which would never sell. And this philosophy seemed to explain a second question that arose: how in one year, 2005, the store's "8 Miles of Books" suddenly became "18". Some Jewish patrons of the Strand pointed out that, in Hebrew, 18 is also the numerical value of the word *chai*—meaning "life". ■

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