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Politics



As many as 500 people were arrested in **Saudi Arabia** in what the government said was a clampdown on corruption. Critics say that Muhammad bin Salman, the crown prince, is trying to concentrate power. Among those jailed are prominent royals and businessmen.

Saad Hariri resigned as prime minister of **Lebanon**, saying that his life was in danger and blaming Iran for meddling in Lebanon. His father, Rafik, was assassinated in 2005 in an attack blamed on Hizbullah.

Emmerson Mnangagwa, one of Robert Mugabe's most thuggish deputies, was sacked and then fled to South Africa. The 93-year-old Mr Mugabe is thought to be paving the way for his wife Grace, an avid shopper, to succeed him as president of **Zimbabwe**.

Some 1,000 soldiers deployed in **Somalia** as part of a 22,000-strong African Union mission are to start leaving next month. The country remains chaotic; terrorist bombings are common and jihadists still control swathes of countryside.

They shall not pass

Protesters blocked dozens of roads and rail lines in Barcelona, demanding the release of eight separatist leaders who were arrested and are being held by the Spanish authorities following **Catalonia's** unilateral declaration of independence on October 27th. In addition to the eight, Catalonia's president, Carles Puigdemont, and four of his advisers, face extradition demands after they fled to Brussels to escape arrest.

Angela Merkel surprised no one when she revealed that immigration and climate change are the two main stumbling blocks holding up exploratory talks on forming a new three-party coalition in **Germany** following elections held on September 24th.

A coalition led by Silvio Berlusconi won regional elections in Sicily, a sign that **Italy's** former prime minister is making a comeback. General elections are due early next year. The result was particularly bad for the ruling Democratic Party.

Priti Patel, **Britain's** aid minister, was forced to resign. She had failed to tell the prime minister about a trip to Israel that included more than a dozen meetings with officials, including Binyamin Netanyahu. Ms Patel was the second cabinet minister to lose her job in a week, after Sir Michael Fallon resigned as defence secretary over allegations of sexual harassment.

Yet again



A gunman killed 26 people at a **Texas** church, the latest in a string of mass shootings in America. The attack is once again fuelling debate about gun control. The gunman, Devin Kelley, had legally purchased several firearms despite having briefly escaped from a psychiatric hospital in 2012 and receiving a "bad conduct" discharge from the Air Force after pleading guilty to assault in military court.

Virginia's lieutenant-governor, Ralph Northam, defeated his Republican opponent to win the governor's race. Democrats secured important victories in local and state elections, including the

governorship of New Jersey, mayoral posts in North Carolina and New Hampshire and seats in state legislatures.

Senator **Rand Paul** was attacked by his neighbour while mowing his lawn in Bowling Green, Kentucky. The senator is expected to return to Washington on November 13th, after recovering from six broken ribs and bruised lungs. The neighbour has been charged with assault.

The Trump administration announced it would end a provisional visa programme for 2,500 **Nicaraguan** immigrants but deferred a decision on the fate of 57,000 Hondurans with the same designation. The "Temporary Protected Status" programme shielded the two groups from deportation after Hurricane Mitch swept through Central America in 1998.

A not-so-Chile reception

A **Venezuelan** opposition leader hid in the Chilean ambassador's house in Caracas after the supreme court moved to strip him of immunity from prosecution. Freddy Guevara said that the court was acting on behalf of President Nicolás Maduro's socialist regime, which passed a "law against hate" that criminalises dissent. The EU moved to ban shipments to Venezuela of arms and gear that could be used for repression.

The Trump administration tightened sanctions on **Cuba**. It restricted educational and cultural travel and banned American citizens from visiting 180 hotels and businesses with alleged financial links to the Cuban armed forces.

Colombian police seized more than 12 tonnes of cocaine, with an American market value of about \$360m, in the largest drug bust in the country's history.

At least five people were killed in clashes between supporters of the government and the opposition in **Nicaragua** following municipal elections.

The Organisation of American States expressed "profound concern" and urged comprehensive electoral reform.

Trump's grand tour



Donald Trump embarked on a ten-day trip to Asia. He played golf with Japan's prime minister, Shinzo Abe, dined in the Forbidden City with China's leader Xi Jinping, and promised South Korean legislators that the dispute over North Korea's nuclear weapons "will all work out".

China's rubber-stamp parliament increased the maximum punishment for disrespecting the national anthem to three years in jail. It also ruled that doing so should be illegal in Hong Kong, where booing of the national anthem is common at football matches.

Yang Tongyan, a dissident Chinese writer, died of brain cancer having nearly completed a 12-year sentence for "subverting state power" by calling for greater democracy. He had previously spent a decade in jail for his involvement in the Tiananmen Square protests.

The head of the local government in Delhi, **India's** capital, likened the city to a gas chamber. Schools and many offices were closed as smoke from farmers burning stubble in adjacent states caused air quality to plummet.

After yet more **Australian** MPs revealed that they might be ineligible to serve in parliament because they are dual nationals, Malcolm Turnbull, the prime minister, announced a plan to oblige all MPs to prove that they had renounced any foreign citizenship to which they might be entitled. ▶▶

Business

Venezuela teetered on the brink of default as President Nicolás Maduro announced he would order a “refinancing and restructuring” of its foreign debt, estimated to be worth around \$105bn. The prices of government bonds fell by up to half on the announcement. Negotiations will be complicated by American sanctions that prohibit investors from purchasing new debt and from dealing with the chief negotiator appointed by Mr Maduro.

Oil prices continued to rise, spurred by a political shake-up in Saudi Arabia, the world’s largest oil producer. The price of Brent crude reached \$64 a barrel during the week, its highest level since mid-2015.

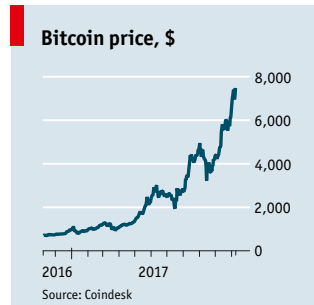
And the winner is...

Donald Trump ended months of speculation by nominating Jerome Powell as **Federal Reserve** chairman. Mr Powell is the Fed’s first non-economist chair since 1979. Janet Yellen, the outgoing chair, has not yet said if she will step down from the Fed’s board of governors. William Dudley, the New York Fed’s governor, announced his early retirement, opening up a vacancy on the central bank’s monetary-policy committee.

Lawmakers debated a Republican **tax bill**. Its elements include slashing the corporate-tax rate from 35% to 20%, limiting interest deductions and repealing the estate tax. Businesses complained about the plan’s proposed 20% “excise tax” on payments from companies with American operations to foreign affiliates.

The “**Paradise Papers**” shed light on offshore transactions linked to wealthy clients of Appleby, a law firm. Those caught up included Wilbur Ross, America’s commerce secretary, and Queen Elizabeth. Unlike last year’s Panama Papers, the latest trove of documents has not so far turned out to contain dirty money linked to corruption.

The Children’s Investment Fund, an activist investor, called for Xavier Rolet to be kept on as CEO of the **London Stock Exchange**. The fund, which has a 5% stake in the LSE, suspects that Mr Rolet has been forced to depart at the end of 2018, and threatened to call a vote to remove the LSE’s chairman instead.



The price of **bitcoins** continued to surge. Investors piled in after CME Group, a Chicago-based exchange operator, decided last week to launch bitcoin futures. The price of a bitcoin is around \$7,500, a rise of nearly 700% since the start of the year.

Bargaining chips

Broadcom unveiled a \$130bn bid for fellow chipmaker **Qualcomm**, in what would be the largest-ever technology deal; the combined entity would be the world’s third-largest chip-

maker. Qualcomm is reportedly preparing to reject the offer as being too low. The industry has seen increasing consolidation, as sales growth in smartphones and personal computers has slowed and the demand for chips has matured.

AT&T cast doubt on the timing and fate of its takeover of **Time Warner**, a media giant. America’s Department of Justice is reportedly seeking changes to the structure of the deal before approving it, such as the sale of Turner Broadcasting, the parent of CNN, a cable-news network. The proposed \$109bn deal was announced in October last year.

Sprint and T-Mobile us, America’s third- and fourth-largest mobile companies, called off their merger as their controlling companies, SoftBank and Deutsche Telekom, failed to agree on power-sharing in the new company.

SSE and Npower announced plans to combine their retail activities, forming Britain’s second-largest energy supplier. Both firms have shed market share to smaller and cheaper rivals. The government’s proposed retail-price cap, due to come into force in 2019, is also expected to squeeze profits.

Qatar Airways bought a 9.6% stake in Cathay Pacific, a Hong Kong-based airline. A blockade of Qatar by its neighbours has cost the state-run carrier a tenth of its business. It is making investments farther afield, including in Latin American and Italian airlines.

Not so spectacular

Shares in **Snap** fell by 15% as the social-media company delivered a third set of disappointing quarterly results since it went public earlier this year. Its chief executive, Evan Spiegel, said that the firm would overhaul its Snapchat app to make it more accessible to new users. The company also took a \$40m hit from unsold stock of its camera-equipped Spectacles. But in a much-needed vote of confidence for the firm, **Tencent**, a Chinese internet giant, was disclosed to have bought a 12% stake in Snap, becoming one of its largest shareholders.

The European Union tried to drive carmakers towards cleaner technologies. Producers will need to cut **carbon-dioxide emissions** from cars and vans by 30% in the decade to 2030, or face fines.

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



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Endangered

American influence has dwindled under Donald Trump. It will not be simple to restore



A YEAR ago this week Donald Trump was elected president. Many people predicted that American foreign policy would take a disastrous turn. Mr Trump had suggested that he would scrap trade deals, ditch allies, put a figurative bomb under the rules-based global order and drop literal ones willy-nilly. NATO was “obsolete”, he said; NAFTA was “the worst trade deal maybe ever”; and America was far too nice to foreigners. “In the old days when you won a war, you won a war. You kept the country,” he opined, adding later that he would “bomb the shit out of” Islamic State (IS) and “take the oil”.

So far, Mr Trump’s foreign policy has been less awful than he promised. Granted, he has pulled America out of the Paris accord, making it harder to curb climate change, and abandoned the Trans-Pacific Partnership, a big trade deal. However, he has not retreated pell-mell into isolationism. He has not quit NATO; indeed, some of America’s eastern European allies prefer his tough-talk to the cool detachment of Barack Obama. He has not started any wars. He has stepped up America’s defence of Afghanistan’s beleaguered government, and helped Iraq recapture cities from IS. In the parts of the world to which he pays little attention, such as Africa, an understaffed version of the previous administration’s policy continues on autopilot. As Mr Trump makes a 12-day visit to Asia, it is hard to dismiss him as a man wholly disengaged from the world.

Many people find reassurance in the sober, capable military men who surround him (see page 20). His chief of staff, his defence secretary and his national security adviser all understand the horrors of war and will stop him from doing anything rash, the argument goes. Optimists even speculate that he might emulate Ronald Reagan, by shaking up the diplomatic establishment, restoring America’s military muscle and projecting such strength abroad that a frightened, overstretched North Korea will crumble like the Soviet Union. Others confidently predict that even if he causes short-term damage to America’s standing in the world, Mr Trump will be voted out in 2020 and things will return to normal.

Reagan, he ain’t

All this is wishful thinking. On security, Mr Trump has avoided some terrible mistakes. He has not started a needless row with China over Taiwan’s ambiguous status, as he once threatened to do. Congress and the election-hacking scandal prevented him from pursuing a grand bargain with Vladimir Putin that might have left Russia’s neighbours at the Kremlin’s mercy. And he has apparently coaxed China to exert a little more pressure on North Korea to stop expanding its nuclear arsenal.

However, he has made some serious errors, too, such as undermining the deal with Iran that curbs its ability to make nuclear bombs. And his instincts are atrocious. He imagines he has nothing to learn from history. He warms to strongmen, such as Mr Putin and Xi Jinping. His love of generals is matched by a disdain for diplomats—he has gutted the State Department,

losing busloads of experienced ambassadors. His tweeting is no joke: he undermines and contradicts his officials without warning, and makes reckless threats against Kim Jong Un, whose paranoia needs no stoking. Furthermore, Mr Trump has yet to be tested by a crisis. Level-headed generals may advise him, but he is the commander-in-chief, with a temperament that alarms friend and foe alike.

On trade, he remains wedded to a zero-sum view of the world, in which exporters “win” and importers “lose”. (Are the buyers of Ivanka Trump-branded clothes and handbags, which are made in Asia, losers?) Mr Trump has made clear that he favours bilateral deals over multilateral ones, because that way a big country like America can bully small ones into making concessions. The trouble with this approach is twofold. First, it is deeply unappealing to small countries, which by the way also have protectionist lobbies to overcome. Second, it would reproduce the insanely complicated mishmash of rules that the multilateral trade system was created to simplify and trim. The Trump team probably will not make a big push to disrupt global trade until tax reform has passed through Congress. But when and if that happens, all bets are off—NAFTA is still in grave peril.

Ideas matter

Perhaps the greatest damage that Mr Trump has done is to American soft power. He openly scorns the notion that America should stand up for universal values such as democracy and human rights. Not only does he admire dictators; he explicitly praises thuggishness, such as the mass murder of criminal suspects in the Philippines. He does so not out of diplomatic tact, but apparently out of conviction. This is new. Previous American presidents supported despots for reasons of cold-war realpolitik. (“He’s a bastard, but he’s our bastard,” as Harry Truman is reputed to have said of an anti-communist tyrant in Nicaragua.) Mr Trump’s attitude seems more like: “He’s a bastard. Great!”

This repels America’s liberal allies, in Europe, East Asia and beyond. It emboldens autocrats to behave worse, as in Saudi Arabia this week, where the crown prince’s dramatic political purges met with Mr Trump’s blessing (see leader on next page). It makes it easier for China to declare American-style democracy passé, and more tempting for other countries to copy China’s autocratic model (see page 27).

The idea that things will return to normal after a single Trump term is too sanguine. The world is moving on. Asians are building new trade ties, often centred on China. Europeans are working out how to defend themselves if they cannot rely on Uncle Sam. And American politics are turning inward: both Republicans and Democrats are more protectionist now than they were before Mr Trump’s electoral triumph.

For all its flaws, America has long been the greatest force for good in the world, upholding the liberal order and offering an example of how democracy works. All that is imperilled by a president who believes that strong nations look out only for themselves. By putting “America First”, he makes it weaker, and the world worse off. ■

Initial coin offerings

Scam or substance?

There is an ICO bubble. But it holds out the promise of something important



MARKETS and manias go together. The latest frenzy is for all things crypto. The price of the best-known digital currency, bitcoin, has risen by nearly 700% this year and is now about \$7,500; one enterprising firm recently quadrupled its share

price simply by adding the word “blockchain” to its name.

But nowhere do alarm bells ring more loudly than in the realm of “initial coin offerings” (ICOs), a form of crowdfunding in which firms issue digital “coins” or “tokens” in return for a payment (typically in ether, another crypto-currency). ICOs have raked in more than \$3.2bn this year, rivalling the money flowing to internet startups from early-stage venture capital. Although most of these tokens are supposed to be used in exchange for the companies’ products, as in a corporate loyalty scheme in the offline world, investors scent something different: the chance to be in at the birth of another bitcoin.

It is tempting to dismiss ICOs as nothing but a fraud’s charter. They are easy to pull off, requiring little more than a few enterprising souls and an ambitious-sounding plan. Unlike equity-owners, coinholders get no claim on an issuer’s earnings. Projects are being marketed to retail investors. In September America’s Securities and Exchange Commission (SEC) brought its first charges against a token-issuer, for allegedly promising hefty returns from firms that barely exist. China and South Korea have banned ICOs altogether.

Yet there is usually meaning in the madness of technology-driven bubbles. The British railway mania in the 1840s helped create a national network of train lines; the dotcom boom spawned firms such as Amazon and eBay. So it is with ICOs.

They can provide a source of finance for serious software projects which otherwise have a hard time getting off the

ground. As an analogy, imagine that in the early days of the internet domain names had been sold to finance the development of the network with the promise that their value would rise as online traffic grew.

ICOs may also give rise to new forms of firm: because founders, employees and users hold coins, everyone has an interest in seeing their network grow, as this will drive up the value of the token. One example of this is Filecoin, which in September raised \$257m and will allow token-holders to buy and sell digital storage on each other’s computers. Enthusiasts say that these “crypto co-operatives” combine the advantages of a firm—lower transaction costs, aggregation of capital—with a decentralised structure that means no one controls it or the data it holds. Such hopes may prove unfounded, but there is a chance that organisations of this sort could offer an alternative to the monolithic tech giants of today.

The baby in the bathwater

For these reasons, it is wrong for regulators to ban ICOs. Fortunately, most are more thoughtful. Some, like the financial-market authorities in Quebec, have invited ICOs into a regulatory “sandbox”, where less strict rules apply (see page 59). The SEC has issued a useful report giving guidance about when a token is a security, meaning that an ICO has to comply with registration requirements. This month it warned celebrities against making endorsements of an ICO (as Floyd Mayweather, a boxer, and Paris Hilton, a socialite, have done).

The big test of regulators will come when the ICO bubble pops, as it surely will, and people lose money. If the backlash is severe, ICOs and the organisations they finance might fall out of favour for years to come. A lot of today’s ICOs sound silly, and some are scams; most of the projects they finance will fail. But they might just contain the seed of a digital future that is not dominated by a few online giants. ■

The rise of Muhammad bin Salman

A palace coup in Riyadh

The West should push the impetuous crown prince to reform Saudi Arabia, not wreck it



IN A kingdom where change comes only slowly, if at all, the drama of recent days in Saudi Arabia is astounding. Scores of princes, ministers and officials have been arrested or sacked, mostly accused of corruption. Many of those arrested are being held in the splendour of the Ritz-Carlton hotel in Riyadh. About \$800bn-worth of assets may have been frozen. At the same time a missile fired from Yemen was intercepted near Riyadh, prompting Saudi Arabia to accuse Iran of an “act of war”.

Upheaval at home and threats of war abroad make a wor-

rying mix in a country that has, hitherto, held firm amid the violent breakdown of the Middle East. The world can ill afford instability in the biggest oil exporter, the largest Arab economy and the home of Islam’s two holiest sites.

At the centre of the whirlwind stands the impetuous crown prince, Muhammad bin Salman, son of the aged King Salman. The prince has staged a palace coup—or perhaps a counter-coup against opponents seeking to block his sweeping changes (see page 41). Either way, at the age of just 32, he has become the most powerful man in Saudi Arabia since King Abdel-Aziz bin Saud, who founded the state. All this may be the precursor to profound reforms that the country needs. The danger is that it will just lead to another failed one-man Arab dictatorship. ►►



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▶ Casting himself as a champion of the young, Prince Muhammad (known as MBS) understands that his country must reinvent itself to deal with the end of the oil boom, a burgeoning and indolent population, and a puritanical Wahhabi religious ideology that has been a Petri dish for jihadism. He has set out ambitious plans to harness private firms to reform the state and wean the country off oil. He has also eased some social strictures, promising to end the ban on women drivers and restraining the religious police. He speaks of returning to a “moderate Islam open to the world and all religions”.

A hot-headed Arabian prince

All this is welcome. But the way the prince is going about enacting change is worrying. One reason is that his ambition too often turns to rashness. He led an Arab coalition into an unwinnable war in Yemen against the Houthis, a Shia militia, creating a humanitarian disaster. He has also sought to isolate Qatar, a gas-rich neighbour, succeeding only in wrecking the Gulf Co-operation Council and pushing Qatar towards Iran. With fewer constraints, he could become still more reckless. He is rattling the sabre at Iran over the war in Yemen, and may be challenging it in Lebanon. During a visit to Riyadh, the Saudi-backed Lebanese prime minister, Saad Hariri, announced that he would step down, and denounced interference by Iran and its client militia, Hizbullah (see page 43). What precisely the Saudis intend to do in Lebanon is unclear. But many worry about a return to violence in a country scarred by civil war and conflicts between Hizbullah and Israel.

Another concern is the economy. Prince Muhammad's plan for transformation relies in part on luring foreign investors. But they will be reluctant to commit much money when someone like Alwaleed bin Talal, a prince and global investor, can be arrested on the crown prince's say-so (see page 42). Last month Prince Muhammad made a pitch to foreign investors for a new

high-tech city filled with robots, NEOM. The glitzy event took place in the same hotel complex that is now a prison.

A third cause for disquiet is the stability of the monarchy. Saudi rule has hitherto rested on three pillars: consensus and a balance of power across the sprawling royal family; the blessing of Wahhabi clerics; and a cradle-to-grave system of benefits for citizens. Prince Muhammad is weakening all three by concentrating power in his own hands, pushing for social freedoms, and imposing austerity and privatisation.

Much of this had to change. He could seek new legitimacy by moving towards greater debate and consultation. Instead, space for dissent is disappearing and executions are rising. The anti-corruption campaign is being carried out with little or no due process to determine who is guilty of what. Many ordinary Saudis are cheering for now. But the arrests look like Xi Jinping's purges in China, not the rule of law. As he meets resistance and his base narrows, the crown prince may rely increasingly on the security apparatus to silence critics. That would only repeat the mistakes of republican Arab strongmen: socially quite liberal, but repressive and ultimately a failure.

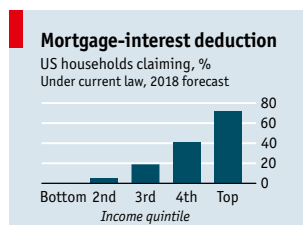
Many have predicted the fall of the House of Saud, only to be proved wrong. The most likely alternative to its rule, flawed as it is, is not democracy but chaos. The country would fragment and, in the scramble for its riches, Iran would extend its power, jihadists would gain a new lease of life and foreign powers would feel compelled to intervene.

The world must fervently hope that Prince Muhammad's good reforms succeed, while urging restraint on his bad impulses. President Donald Trump is wrong to cheer the purge on. The West should instead counsel the prince to act with caution, avoid escalation with Iran and free political life at home. Prince Muhammad may be heeding the dictum of Niccolò Machiavelli that it is better for a prince to be feared than loved. But this advice comes with a rider: he should not be hated. ■

American taxes

Reform the reform

How to make the Republican tax plan work



THE last time Republicans controlled both the White House and Congress, under President George W. Bush, they passed a package of temporary tax cuts. This time they are displaying more ambition. The tax bill unveiled in the House of Representatives on November 2nd can properly be called a reform. It would slash deductions that distort the economy: for debt and mortgage interest, state taxes and manufacturers. The savings would go towards reducing most marginal tax rates.

The principle of scrapping deductions in order to lower rates is exactly the right one. But the House bill is flawed. Despite leaving the top rate of personal income tax unchanged, the bill's benefits are unduly skewed towards the rich. And rather than boost growth, as President Donald Trump wants, the bill may slow the economy in the long term, by adding around \$1.5trn to the national debt by 2028.

Unfortunately, the Senate's proposal, which was to be re-

leased after *The Economist* went to press, is unlikely to be much better. Were this newspaper in charge, we would do three things to make the reform less fiscally reckless, less regressive and more pro-growth.

The first change is the most important. The bill should be revenue-neutral. With the unemployment rate at just 4.1%, fiscal stimulus is not merely unjustified but irresponsible. Higher government debt will make it harder to boost spending or cut taxes in the next recession. Over time, it may crowd out private investment, reducing growth. It will also make America's eventual fiscal reckoning, as spending on the elderly soars, more painful. Republicans who opposed higher deficits after the financial crisis, when unemployment hit 10%, are making fools of themselves by pushing for more borrowing now.

Revenue-neutrality need not be accomplished through higher tax rates. The House bill merely limits the debt- and mortgage-interest deductions; it should scrap these senseless tax breaks, saving perhaps \$2trn over a decade. The deduction for employer-provided health insurance should go, too.

Another way to balance the books would be to cut business ▶▶

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▶ taxes by less than the House bill would. There is little reason to cap taxes on “pass-through” firms, whose profits appear on the tax returns of individuals, at 25%. Republicans pretend these are all small businesses, but they include real-estate developers and other large firms. Three-fifths of their income flows to the top 1% of earners.

Our second aim would be to make the reform less regressive. In addition to its giveaways to owners of pass-throughs, the House bill would abolish the estate (inheritance) tax. This levy already applies only to estates worth more than about \$5.5m; with inequality high and social mobility falling, cutting taxes for rich heirs should be reformers’ lowest priority. We would keep the estate tax; and we would remove entirely the carried-interest deduction, beloved of hedge funds and private-equity firms (see page 54).

The bill also contains a time-bomb for the middle class. It scraps the personal exemption, which reduces a household’s taxable income in accordance with its size. In its stead, there is a flat \$300 tax credit for adults and a big boost to child tax credit. But the adult credit would phase out, and the child credit is not fully indexed to inflation. As a result, the bill would eventually raise taxes for many low- and middle-income households,

compared with current law. If the personal exemption is scrapped, its replacements should be made permanent.

The final change would be to make the bill more friendly to growth. Not adding to government debt would help. So would a greater emphasis on investment “expensing”. This allows firms to knock the cost of investments off their taxable profits in the year they are made, rather than as their assets depreciate. It is the best way to reform business taxes so as to encourage investment. Unlike cuts to the corporate-tax rate, expensing does not provide windfall gains to the owners of existing capital, or to firms with market power. In the House bill expensing lasts for five years. It should be permanent.

GOPsmacking

In today’s debate it can seem as if Republicans have forgotten the purpose of tax reform. Some say that only deficit-financed tax cuts can boost growth—a remarkable claim from a party supposedly devoted to supply-side economics. A badly designed tax code reduces growth by distorting incentives. Untangling it would help the economy regardless of the effect on spending. That is why tax reform is worth pursuing in the first place, and why the House bill could be so much better. ■

The global spread of plea-bargaining

The shadow justice system

Plea bargains save time and money, but are too easily abused



THE elements that make up a criminal-justice system are familiar from a thousand courtroom dramas. Detectives interview witnesses and examine crime scenes. Forensic scientists coax secrets from bloodstains and cigarette ash. Judges and juries weigh the facts and pronounce on guilt and innocence.

But in many countries, behind this system lies a quicker, rougher one. It is plea-bargaining, in which prosecutors press lesser charges or ask for a lighter sentence in return for a defendant pleading guilty or incriminating others. Long crucial to the operation of American justice, this shadow system is now going global (see page 51). One study of 90 countries found that just 19 permitted plea bargains in 1990. Now 66 do. In many countries, including England and Australia, pleas now account for a majority of guilty verdicts. In American federal courts the share is close to 100%.

The result sometimes bears only a passing resemblance to justice. Prosecutors may heap charge upon charge so that defendants risk decades behind bars if they decide to face trial. Even when cases are flimsy, defendants may see little option but to plead guilty. A defence lawyer who offers a witness \$1 to exonerate his client commits bribery. A prosecutor who threatens the same witness with prison if he does not give damning evidence is just doing his job. Is that fair?

The fiction behind plea-bargaining is that innocent people will stand fast and trust the courts to exonerate them. The truth is that many will not. Of the Americans convicted of rape or murder and later cleared, a sizeable share had pleaded guilty. Pre-trial detention increases the risk: people may say anything

to get out of jail. Studies by psychologists have shown that students will confess to academic transgressions they did not commit to avoid even minor penalties.

Plea-bargaining is too useful to be abandoned. With no incentive to plead guilty, even criminals caught red-handed would opt for a trial, since a tiny chance of getting off is better than none. Justice would be slower and pricier. More victims would have to relive their trauma in the witness box. And it would remove an important weapon in the fight against organised crime, namely the ability to reward minor figures for helping to take down kingpins. But if plea bargains are to serve justice, not subvert it, they must be subject to clear constraints.

To start with only modest incentives should be offered. Small reductions in sentences are enough to induce guilty defendants to waive trial. But as discounts become more generous, false confessions become more common. And incentives for incriminating others should come with strict conditions. Brazil shows the way. Its recent extension of plea-bargaining has enabled prosecutors to go after corrupt politicians. But it guards against perjury by requiring supporting evidence for statements incriminating others and by making it clear that if a defendant is caught in a lie, the deal is off.

A plea for common sense

Above all, plea bargains must not be allowed to warp criminal-justice systems. In countries such as America where prosecutors have broad leeway, crimes are often loosely defined and sentences harsh. This is no accident: these are the tools used to browbeat defendants into guilty pleas. When few cases are tested in trials, police may become sloppy, lawyers lazy and judges capricious. When the innocent are bullied into trading away their day in court, justice is weakened for everyone. ■

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Those who are left behind

Your briefing on the regions of the world that have been marginalised by globalisation stated that economists “once thought that, over time, inequalities between both regions and countries would naturally even out” (“In the lurch”, October 21st). I am not one of them. I have always believed that the global economy “can be imagined to be a self-equilibrating mechanism of the textbook variety, or it can be recognised as subject to processes of cumulative causation whereby if one or more countries fall behind the pack, there may be dangers of them falling further behind, rather than enjoying an automatic ticket back to the equilibrium solution path. These two alternative, conflicting views of real-world economic processes have very different implications regarding institutional needs and arrangements” (“Managing the Global Economy”, 1995).

The same applies to regions. There is no reason in theory, nor evidence in practice, why they should enjoy virtuous circles of convergence rather than vicious cycles of divergence. Thus, at the time of the Brexit referendum it was said that income per head in Britain was back above pre-financial crisis levels. As Andy Haldane, the chief economist at the Bank of England, pointed out subsequently, this was true in aggregate, but at a disaggregated level it applied to only two of Britain’s regions: London and the South-East.

JONATHAN MICHIE
Professor of innovation and knowledge exchange
University of Oxford

More freedom for people to move raises wages for everyone. Increased competition to attract workers makes them better paid. But in Britain our shortage of homes and the benefits regime make it hard for people to up sticks to take advantage of better opportunities. We have created a pernicious, very British, *hukou* system; a 21st-century Statute of Labourers that stops work-

ers from relocating. Governments are happy to support helping less advantaged places. Let’s not neglect the easiest ways to help people.

JOHN MYERS
Co-founder
London YIMBY

In a small and densely populated country such as Britain, *The Economist’s* proposal for long-distance migration is unnecessary to solve the long-term issues of regional inequality. A better solution would be to improve the transport connectivity between rich and poor areas.

For example, the “grim up north” conurbation of East Lancashire is Britain’s most deprived area: 200,000 people live there, about the same as Milton Keynes. However, it takes an unbelievable three hours to travel by train from East Lancashire into the booming city of Leeds, just 45 miles away. By contrast, the similar distance from Milton Keynes to central London takes 35 minutes. No prizes for guessing which of the two is the more affluent. Why move when you can easily improve?

PETER BRYSON
Chair
Skipton and East Lancashire Rail Action Partnership
Aldingham, West Yorkshire



The argument that migration is the answer to what is largely a question of distribution brought to mind the parable in John Steinbeck’s “The Grapes of Wrath”. The migration of the Joad family from the dust bowls of Oklahoma to the unfulfilled promise of abundance in California is a cautionary tale of transplanted inequality.

JOSEPH HALE
Melbourne, Australia

A passing wind

Nature continually reminds the contributors to our global-warming discourse that it is far more complex and unpredictable than they care or dare to admit. You reported that one unintended consequence of the boom in offshore wind-power is that the pilings for the turbines are being inhabited by mussels (“Flexing the mussels”, October 14th). These molluscs generate significant amounts of methane, which is up to 28 times more potent than carbon dioxide in its impact on warming, and nitrous oxide, which is 265 times more potent. Mussels, oysters and clams are thought already to produce a tenth of all methane and nitrous-oxide emissions from the Baltic Sea. The ecological trade-off in this complex dynamic is yet to be understood.

Nature has limitless time and much irony. Humanity has limited time and much to learn.

PIOTR NEY
Farnham, Surrey

Tsar-like qualities

I was struck by the fact that Mikhail Glinka’s “Glory to the Tsar” was played during Vladimir Putin’s coronation-like inauguration (“Enter Tsar Vladimir”, October 28th). That piece is the epilogue of Glinka’s opera, “A Life For the Tsar”, which during Soviet times was known as “Ivan Susanin” for the peasant hero who dies for the tsar.

The opera’s events take place during the “Time of Troubles” at the start of the 17th century, when Mikhail Romanov is attempting to consolidate power and fight the Poles. Ivan offers to guide the Polish army to meet the Russian troops. He leads them deep into the forest, taking them out of the action. When they realise the deception, they kill him.

The piece represents the founding of the Romanov dynasty, a reference that many Russians would find significant today.

TAMARA PETROFF
Maryport, Cumbria

Russians are discontent with corruption and point the finger at bureaucrats and politicians. Mr Putin’s sky-high approval ratings can be explained in part by his image as *tsar-batiushka*, our Tsar the Father, a benign dictator undermined by incompetent underlings.

Ivan the Terrible terrorised the boyars, a high-ranking aristocracy in medieval times. The mistrust of political advisers persists in today’s society. Meanwhile, ordinary citizens commiserate with the burden of rule bestowed on their leader. Boris Godunov, a boyar who succeeded Ivan the Terrible, laments his new royal headgear in Alexander Pushkin’s play: “Ah! Heavy art thou, crown of Monomakh!”

The hero-worship that is bestowed on Russia’s leader is tinged with sympathy.

YACOV ARNOPOLIN
London

The Bolshevik revolution was seen by radicals as an endorsement of Marx’s dialectical materialism. Marx abhorred the static nature of “determinism”. There is no direct Lenin-Stalin-Putin line, dictated by Russian genes or the genetics of history. Change does not automatically lead to the conclusion of “tragic irony”. Even the gods gave Oedipus a choice; or is that choice only ever Hobson’s?

JULIAN LAGNADO
Strasbourg

The same old record

I enjoyed Bagehot’s remark that unreconstructed Thatcherites think that all they “need to do is replay old vinyl records of Margaret Thatcher’s speeches” to win votes (October 14th). That observation is reason enough to resubscribe to *The Economist*.

MICHAEL DRIVER
Ichihara, Japan ■

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Counsel of warriors

WASHINGTON, DC

The president's coterie of military men will try to temper his rashest decisions. They will not always succeed

WASHINGTON, DC, is a revealingly gossipy place. A favourite tale of the Donald Trump era involves a pact that the generals working for the president are supposed to have sworn. As described by ambassadors, senators and foreign-policy panjandrums, the generals have agreed that one of their number will remain in America at all times, to prevent a war being started by intemperate presidential tweets.

The details change. Sometimes, it is said, the pact involves James Mattis, the defence secretary, aligning travel with the White House chief of staff, John Kelly, a fellow retired four-star Marine general. Others say Mr Mattis is in cahoots with Joseph Dunford, a serving four-star Marine general and chairman of the joint chiefs of staff, or with H.R. McMaster, the national security adviser (an army lieutenant-general still on active service but shouldering a mere three stars). Still others insist the pact includes the secretary of state, Rex Tillerson, a former oil man and a rare civilian among the so-called “grown-ups” who run national-security policy for Mr Trump.

Mr Mattis has told aides that no such pact exists. *The Economist* recently travelled to South Korea with the defence secretary on the same day that General Dunford was also in Seoul, and Mr Tillerson was in Geneva. The durability of this ur-

ban legend is telling, however.

Washington grandees and foreign governments have invested extraordinary hopes in the men that Mr Trump likes to call “my generals”. The near-consensus among foreign-policy types is that Mr Trump is a thin-skinned, unpredictable and alarmingly incurious neophyte. The generals are trusted to keep the ship of state on a safe course, until the Trump-tempest blows over. Reality is more nuanced.

In line for promotion

Sighing with relief over Mr Trump's generals does not require Washington's elite to credit him with good judgment. The general closest to Mr Trump during his presidential campaign, Mike Flynn, failed spectacularly as his first national security adviser. The angry, crudely anti-Muslim man who campaigned with Mr Trump left old comrades shaking their heads in disbelief. Mr Flynn crashed out of office in under four weeks, after being caught fibbing about his contacts with Russian officials.

Mr Trump is widely held to have picked his best advisers on gut instinct and probably with an eye to their image as warriors from “central casting”. The president first tried to recruit a shaven-headed former Navy SEAL and retired vice-admiral, Robert Harward, to replace Mr Flynn. When he

declined the offer, Mr Trump took the advice of allies including Senator Tom Cotton of Arkansas, a hardliner on Iran and other foreign-policy questions, to hire Lieutenant-General McMaster, a tough-talking counter-insurgency expert.

The president's first choice for defence secretary, General Jack Keane, a regular contributor on Fox News, his favourite television network, turned him down citing the recent death of his wife, but recommended two four-star warrior-intellectuals, Mr Mattis and General David Petraeus. Introducing Mr Mattis as his choice to supporters in December 2016, Mr Trump revelled in the nickname “Mad Dog”, hung around the general's neck by journalists after service in the first Gulf war, Afghanistan and Iraq. Mr Mattis dislikes the sobriquet, and was better known among his men as a “warrior-monk” who combined ferocity in combat with a taste for reading Marcus Aurelius and other Roman thinkers in his tent.

A gleeful Mr Trump described Mr Mattis as “the closest thing to General George Patton that we have”, in homage to the swaggering, snarling second-world-war commander, and promised: “Mad Dog plays no games.” Conservative media outlets swooned over Mattis-epigrams that gained fame among troops in Iraq, such as his advice: “Be polite, be professional, but always have a plan to kill everyone you meet.” It only added to Mr Mattis's appeal on the right that he was asked to retire as head of Central Command five months early by Team Obama, who worried that his calls for aggressive containment of Iran might up-end nuclear talks.

Accepting the nomination Mr Mattis ►►

▶ talked of the importance of allies, and of defending the country and the constitution. Just three years after retiring from the Marines, he noted that he would need a waiver from Congress to the rule that defence secretaries must have been civilians for at least seven years before running the Pentagon (the last time such a waiver was needed was for George Marshall in 1950). “He’ll get that waiver, right?” beamed Mr Trump on stage next to him. “Such a popular choice.”

As a president who inspires much amateur psychoanalysis, Mr Trump’s general-worship is routinely linked to his adolescence at a private military academy, which he has said gave him “more training militarily than a lot of the guys that go into the military” and to his avoiding service in Vietnam because of painful feet.

Fighting talk

Mr Trump gives his old warriors striking licence to disagree with him in public. After campaign-trail promises to bring back waterboarding and “a hell of a lot worse”, Mr Trump said he was “very impressed” to hear Mr Mattis explain why “a pack of cigarettes and a couple of beers” were more effective. No rebuke came in June when Mr Mattis urged an audience in Singapore to “bear with us” when Americans became put out at the burden of upholding a rules-based world order. Mr Mattis told congressional hearings that it was in the national interest to stay in the deal to freeze Iran’s nuclear programme, which the president wanted to scrap.

Other high-stakes interventions have been more discreet. Sources close to Steve Bannon, the former chief strategist to Mr Trump, confirm that he was frustrated in June when the defence secretary watered down plans for the president to confront South Korea’s new president, Moon Jae-in, over his country’s trade deficit with America. Economic nationalists in the White House urged Mr Trump to link the trade imbalance with the security offered by tens of thousands of American troops in South Korea. Mr Mattis persuaded Mr Trump to keep the two questions separate, calling this a terrible time to cast doubt on the alliance with South Korea.

Mr McMaster also clashed with Mr Bannon about troop levels in Afghanistan. The grizzled campaign strategist, who left the White House in August, challenged the general about his apparent “emotional connection” to Afghanistan, arguing that Trump voters were tired of spending blood and treasure on open-ended commitments to foreign wars. One meeting became so heated that Mr Mattis tapped Mr McMaster on the leg in an urgent warning that he should calm down, a witness says. For his part the defence secretary was left shaken by Trump aides questioning whether America has vital national-security inter-

ests in Afghanistan.

Such reports of heated debate, especially in the first months of the administration, led to breathless suggestions that the generals operate as something akin to a “deep state”, defending democratic rule from a strongman president—as if America is a richer version of the Philippines or Turkey.

When Mr Mattis talked about military power as a tool allowing diplomats to work from a position of strength, or declined to comment on breaking news until he knew more facts, pundits declared that he was obviously rebuking Mr Trump. A media cottage industry sprang up finding photographs of Mr Kelly seeming to stare at his shoes in misery, or hold his head while listening to the president, notably after becoming White House chief of staff in July following his six-month stint as secretary of homeland security.

Such reporting exasperates Mr Mattis, who sees himself as a loyal servant of the constitutional order and thus of a president who was freely elected by the American people. His duty, as described to colleagues, is to speak out when needed and to represent the views of the armed services to the commander-in-chief, but in private in order to maintain indispensable bonds of trust.

In recent weeks Mr Kelly has gone much further, deriding what he called “astounding” press reports that he sees his role as controlling the president. As chief of staff his job is to control only the flow of information to the president, he said in October. A sharper row followed after Mr Kelly defended Mr Trump against allegations of mishandling a telephone call to the widow of a soldier killed in action.

After poignantly describing how he learned of the death of his own son in combat, Mr Kelly then attacked a Democratic congresswoman critical of Mr Trump’s call to the bereaved woman, falsely accusing her of exploiting an earlier fatal tragedy for political gain. Mr Kelly then startled the White House briefing room by suggesting that many journalists do not even “know anyone who knows anyone” in the armed

forces and offering to take questions from reporters with a connection to a bereavement in war.

Mr Kelly’s overtly partisan defence of his president surprised many civilians. But his voicing of conservative political views—followed up a few days later with an odd defence of a Confederate civil-war general, Robert E. Lee, as an “honourable man”—also dismayed his brothers in arms. A former colleague calls Mr Kelly’s press conference a “very sad moment” which showed the dangers of allowing war service to become politicised and “really broke my heart”.

Officer material

Attitudes to global openness increasingly divide Americans. They also divide Mr Trump, a man who does not understand why anyone would want to visit dangerous places, from his beloved generals, all of whom came of age in far-off theatres of war and survived by studying alien codes of behaviour. Yet there are differences between the generals, too. It is said that Mr Kelly’s years at Southern Command, overseeing crime-ridden Central America, left him readier to haul up drawbridges against a wicked world.

As for Mr Mattis, he let his views show briefly when talking to young troops on a parade ground in central Seoul on October 27th, after a helicopter flight from the (heavily fortified) demilitarised zone that cuts the Korean peninsula in two. Asked about American forces bringing families to live in South Korea, the defence secretary conceded that they live “within range” of North Korean artillery. But having Americans live alongside Koreans, who watched their democracy emerge from a bloody war, provides “an awful lot of our strength in the alliance,” Mr Mattis said.

Mr Trump takes a transactional view of alliances. Visiting Seoul on November 7th he thanked South Korea for buying American arms, saying: “We make the finest equipment in the world, and you’re buying a lot of it, and we appreciate that.”

Senior uniformed and civilian figures ▶▶

Military parade

Generals and ex-generals in the Trump administration

H.R. McMaster
National security adviser
★★★
Army lieutenant-general (active)



James Mattis
Secretary of defence
★★★★
Marine general



John Kelly
Chief of staff
★★★★
Marine general



Joseph Dunford
Chairman of the joint chiefs of staff
★★★★
Marine general (active)



Michael Flynn
Former national security adviser (resigned)
★★★
Army lieutenant-general



▶ do see upsides to having generals serve in the Trump administration. In a polarised, short-termist political environment, modern commanders stand out for their impatience with ideology, for taking the long view and for their devotion to the free competition of ideas. That is no surprise, for it was ideological certainties that led to the botched occupation of Iraq after the overthrow of Saddam Hussein in 2003.

This generation of generals has seen a lot of combat. A long-time colleague notes that after retiring from the Marines, Mr Mattis spent months on a cross-country road trip, quietly visiting the families of troops killed on his watch. He is not anti-war, but is conscious of war's limits. One of his favourite quotes, from Will Rogers, a newspaper columnist in the 1920s, notes that many foreigners are more comfortable with an imperfect government of their own choosing than with a perfect one imposed by American Marines. Mr Mattis has called his countrymen "an idealistic people bound by pragmatism".

On the frontline

Many modern generals are impatient with partisans trying to start culture wars about such issues as transgender troops or sexual harassment in the ranks, asking instead what policies promote discipline and "lethality". Those generals are as interested in the power of America to inspire as to intimidate, says Michèle Flournoy, a former under-secretary of defence who declined an offer to be Mr Mattis's deputy, citing discomfort with the Trump agenda. "These are people who know the cost of war. They are the first to say, we can use coercive means but it is better to use them to back up diplomacy," she says.

The military chain of command teaches officers devotion to institutions larger than any one individual's whim, says Robert Tyrer, a former chief of staff to William Cohen, who as defence secretary worked closely with Mr Mattis in the 1990s. It teaches officers to think about "a broader sense of national purpose" dating back to the start of the American experiment 240 years ago, rather than one measured in four-year electoral cycles.

The armed forces teach high-flying officers Washington's ways, notes Mr Tyrer, giving Mr Trump's generals more experience of government than many in his team of outsiders. As a colonel, Mr Mattis served as executive secretary to two defence secretaries, a co-ordinating post "at the centre of the central nervous system of the department", in Mr Tyrer's words. The younger Mr Mattis stood out for being unusually reflective and for "reading Thucydides at the weekend". Mr Kelly was a Marine Corps liaison to Congress and in 2011-12 the senior military assistant to the defence secretaries Robert Gates and Leon Panetta.

Partisan swings of the pendulum have

also left some high-ranking commanders wary of siding with any one party or faction. Privately, many disliked micromanagement by Mr Obama and aides who seemed to think of American interventions as a destabilising menace. They see a potentially useful energy in Mr Trump's impatience and willingness to press allies to do more. In their most optimistic moments, they can make this president sound like an accidental Ronald Reagan, ready to shake up stale assumptions and press allies to step up. At other times, senior defence folk chafe at Mr Trump's distinctly un-Reaganish scorn for American exceptionalism and apparent belief that he has little or nothing to learn from predecessors.

Mr Panetta, a former CIA director as well as defence secretary, White House chief of staff and congressman, worries that generals lack much experience of the horse-trading side of politics. Watching his former aide, Mr Kelly, under fire after taking to the airwaves to defend Mr Trump, Mr Panetta offers the thought that: "If you're a good chief of staff, one fundamental role is to tell the president 'no'."

For all the risks of a national-security team that is so heavily weighted towards military experience, Mr Panetta believes that Mr Trump's generals are "the best hope we have to restrain this president and to keep him on a more traditional foreign-policy path". Such talk alarms Mr Bannon, now back running Breitbart, his hard-right news operation. He remains a fan of Mr Kelly's grasp of the national interest and the importance of strong borders, to the point of telling the president, with whom he speaks regularly, that the chief of staff would make a good secretary of state after Mr Tillerson.

He credits Mr Mattis with crafting a plan of "annihilation rather than attrition" against the extremists of Islamic State, but adds: "That being said, I'm not quite sure he has totally bought into the Trumpian

worldview, that America is not going to underwrite the security of the whole post-war rules-based international order."

Mr Bannon urges Mr Trump to seek generals who share his "America First" vision. He has urged Mr Trump to study the example of Abraham Lincoln and his generals. "Lincoln was sold on the fact that the generals were experts, and had all the plans for winning the civil war. But [to win] he had to find Grant and Sherman, who were prepared to execute his strategy, which was to burn the South down."

Marching to a different tune

Such whiffs of raw politics are just what worries former commanders like Admiral Mike Mullen, chairman of the joint chiefs of staff from 2007 to 2011. Generals have served in government before, including Brent Scowcroft and Colin Powell at the National Security Council. Mr Powell and Alexander Haig both served as secretary of state, while Mr Haig was a White House chief of staff.

This time feels different, says Mr Mullen, both because there are so many generals in high office, and because "the country takes such comfort from them being there." In his experience, military careers may prepare generals for the political world, with a small "p"—hearings on Capitol Hill or talks with foreign counterparts. But the world of Politics with a capital "P" is something more alien, and perilous. In a speech in October, Mr Mullen questioned whether it is right to depend "on retired generals for the stability of our citizenry".

It is better to have good generals than bad men in powerful jobs. But no one cabinet secretary or aide can save the government from calamity. The American chain of command allows for much robust debate. But the toughest generals can argue only for so long, notes Mr Mullen. "Then the president makes a decision, and you march off and execute." ■



The commander-in-chief likes a man in a uniform



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Malaysian politics

Eyes on the prize

KUALA LUMPUR

Despite being implicated in embezzlement, the prime minister will soon call an election—and may well win it

THE opposition, naturally, has been making hay out of the goings-on at 1MDB, a Malaysian state-owned investment fund. Over the past few months it took a road show, complete with snazzy slides on shell companies and international transfers, to rural areas to explain how almost \$4bn of taxpayers' money was siphoned out of the firm—quite a lot of it, American investigators say, by Najib Razak, the prime minister. But in the two years since the scandal first broke, Mr Najib (pictured) has worked assiduously to bury it, while purging opponents and distracting voters. He now looks ready to call—and win—an election.

Mr Najib does not dispute that roughly \$700m entered his personal bank accounts shortly before the previous election, in 2013. But he says it was a gift from an unnamed Saudi royal, and that most of it was returned. (The donor, Mr Najib's allies say, was Prince Turki bin Abdullah, who was recently arrested for alleged corruption.) America's Justice Department, however, says the money was looted from 1MDB.

America, Switzerland and Singapore have conducted investigations into 1MDB. In theory, Malaysia has too. But the only person convicted in Malaysia in relation to the scandal is an opposition politician who leaked parts of the auditor-general's investigation because the government declared it an official secret. Mr Najib fired the

attorney-general for pursuing the matter, and then other senior members of his party, the United Malays National Organisation (UMNO), when they protested.

Although prosecutors show no interest in the billions stolen from 1MDB, they are always on the lookout for misdeeds by the opposition. Anwar Ibrahim, a leader of Pakatan Harapan (PH), an opposition coalition, has been put behind bars for sodomy (a crime in Malaysia), on flimsy evidence. Later this month the government will oppose a suit calling for his release. Meanwhile another senior figure in PH, Lim Guan Eng, the chief minister of the state of Penang, conveniently faces two sets of corruption charges (he is accused of buying a house at an artificially low price). Two leaders of an opposition party in the state of Sabah, set up by a former vice-president of UMNO sacked as a minister for complaining about 1MDB, have also been scooped up in a recent corruption probe.

Piety before propriety

Meanwhile UMNO has positioned itself as the defender of Islam, the faith of the Malay majority. This worries ethnic-Chinese and -Indian voters, the largest minority groups. Mr Najib is courting a conservative Islamic party as a possible new member of his ruling coalition, the Barisan Nasional. It supports public caning and other harsh punishments.

When a launderette in the state of Johor put up a sign in September that read “For Muslim customers only”, Mr Najib, the head of a multi-ethnic coalition, kept mum. Instead, the local sultan, who is the head of the Muslim faith in the state, rebuked the owners for discriminating against minorities. Last month he and the country's eight other sultans, who take it in turns to serve as head of state, released an unusual statement deploring growing Muslim intolerance as “beyond all acceptable standards of decency”.

Gerrymandering will also help Mr Najib. At the last election, although the opposition won 51% of the vote, it secured only 40% of the 222 seats in parliament. The election commission, with government-appointed members, has proposed boundaries for the next contest which will see even more of those who usually vote for the opposition, such as the ethnic-Chinese, crammed into huge constituencies, many of them urban. In practice this means their votes count for less than those of Malays in sparsely populated rural constituencies, who tend to favour UMNO. The state of Selangor, controlled by an opposition party, has challenged the new boundaries; a decision in the past week by the federal court allows them to stand everywhere else.

Mr Najib is also showering voters with cash. The 280bn ringgit (\$66bn) budget for 2018, announced late last month, cuts taxes for more than 2m people. It also provides bonuses to some 1.6m civil servants which will be paid in two instalments—the first in January and the second in June—with the election likely to fall between the two. Billions will be set aside for rural infrastructure, too.

Not everything is going the prime minister's way. The PH coalition has been ▶▶

▶ boosted by the inclusion of a new party, Bersatu, founded by Mahathir Mohamad, a former prime minister and head of UMNO for more than two decades. It signed up around 200,000 members in just a few months.

Confronted with a strengthening opposition, Mr Najib might choose to hold the election sooner, rather than later. But a vote in the next two months would probably coincide with seasonal flooding in rural areas, which might both suppress the vote and make the voters who do turn out irritable. A short delay could avoid this. But the prime minister will not want to wait for long, given that Mr Anwar may walk free as early as April. The sweet spot may come after Chinese New Year in February. For those opposed to Mr Najib, however, the outcome may be bitter. ■

Surnames in Japan

When two become one

TOKYO

The rule that married couples must share a surname is causing confusion

A YOUNG professional wants to marry the father of her two children. But if she does, one of them would have to take the other's surname. Japanese law requires married couples to share a family name. That would lead to confusion: they have almost the same first name and work for the same organisation.

Theirs is a rare case. But there are plenty of practical reasons, let alone ones of principle, why people might not want to change their names. Married female employees are often allowed to use their maiden names at work. But the bureaucracy, which has long enforced the law for official documents (for the names both of employees issuing them and of ordinary citizens mentioned in them), is only just beginning to be more flexible.

Female judges have recently been allowed to sign rulings using either their maiden name or their married one. For certain tasks, the patent office is giving workers a choice too. From next year the government will allow people to use their preferred name when dealing with the local council, and perhaps also on their passports from 2019.

A majority of the public reckon married people should be free to choose their surnames, according to polls. The traditional family is still very much the norm in Japan: hardly any children are born out of wedlock, for example, and gay marriage is illegal. But there is a growing sense that some of the conventions surrounding family life are unduly rigid.

The requirement that a married couple share a surname, which dates back a little over a century, is seen by many as entrenching sexism. The law does not specify that it is the wife who must change her name, rather than the husband, but 96% of the time that is what happens. It is no coincidence that the three female justices all dissented against a ruling of the supreme court in 2015 that found that the law did not violate the constitutional right to equality.

But the piecemeal reforms are a muddle. A lawyer can submit documents to a court using her maiden name, but can only register property for clients using her married name, for example. Even if a woman uses her maiden name at work and on various documents, she must still alter it in the *koseki*, the official register of the population. The *koseki*, in turn, is the basis for lots of other forms. Married women who use their maiden names often have to complete extra paperwork to prove their identity—no quick task in a bureaucratic country.

"It would be simpler to allow couples to have different surnames on the family register, but this is the conservatives' last line of defence," says Yuichi Kaido, a (male) lawyer whose long-term partner is Mizuho Fukushima, a prominent lawmaker and campaigner for reform. Conservatives, many of whom belong to the ruling Liberal Democratic Party (LDP), see change as imperilling the family, and a woman's traditional place in the home.

Some would like to abolish the *koseki*, which lists people by family unit rather than as individuals. Campaigners point out that each family must name a head of household, who is almost always a man. Women who marry are transferred to their husband's entry, as if they were property.

"I think it has a strong effect on the mindset of the people," says Tomoshi Sakka, a lawyer in Okayama, a city in the

south of Japan. Next year he will represent a couple challenging the surname law. "It creates the idea that a wife is to follow her husband after marriage."

Japan is falling behind its neighbours, too. South Korea abolished its family register in 2005 after its supreme court found it discriminatory. China still maintains one, but married women there have never taken their husband's surname.

Mr Sakka is confident that the law's days are numbered. But that may not change the convention: even in countries where women don't have to change their name on marriage, most do. Take Britain, where a survey last year found that 59% of young women want to take their husband's name (and roughly the same proportion of men want them to do so). That share has not changed in a generation. ■

Abortion in South Korea

Petition and counter-petition

SEOUL

A movement to decriminalise abortion is gaining momentum

WHEN So-yeong, a pupil in secondary school, found out she was pregnant in January, she was at a loss. She knew abortion was illegal, and that she could be sent to jail for a year for getting one (doctors providing them risk two years behind bars). But she also knew that she could not keep the baby if she wanted to continue her education. Eventually she told her parents. Her mother arranged for a surreptitious abortion at a hospital, paying in cash. So-yeong (she asked that her real name not be used) tried to return to school in March "with a heavy heart", only to find out that she was being expelled for "setting a bad example" to her peers.

In September a petition appeared on a government website, calling on the government of Moon Jae-in, the president (and the first liberal to hold the office in ten years), to amend the law. In particular, it called for the government to approve the sale of mifepristone, an abortion pill that is available in many countries. "Dear Mr President," the petition started. "Unwanted pregnancy is a tragedy for all, including the woman, the unborn child and the country." The government has promised to respond to any petition that gains more than 200,000 signatures in a month; this one received more than 235,000. "We were stunned by people's fervour," says Hong Yae-ji of Womenlink, an NGO.

Abortion has been illegal in South Korea since 1953, except in cases of rape, danger to a woman's life or severe defects in the fetus. But for a long time governments ▶▶





Society is coming around

turned a blind eye to it, viewing it as simply another form of birth control. Doctors readily provided it. Many people did not even know that it was illegal to have one. To this day the government estimates that around 170,000 pregnancies are aborted every year.

But in 2010 a group called Pro-Life Doctors started reporting hospitals offering abortions to the police. Wealthy and politically influential religious groups began campaigning against the practice too. The president at the time, Lee Myung-bak, a devout Christian, vowed to prevent illegal abortions. He created a task force to ensure the law was enforced, presenting the move as a way to lift falling fertility rates. It did not work: in 2016 there were only 406,000 live births, the lowest number on record. It did lift prices though: during Mr Lee's term, the cost of a furtive abortion reportedly rose tenfold.

Advocates of abortion, many of them young women, are mounting a counter-attack. A year ago 14 women's-rights groups gathered in central Seoul to protest against the abortion law and the abortion policies of Park Geun-hye, the (conservative) president at the time. Just days earlier the Ministry of Health had withdrawn a bill increasing the penalties for doctors performing abortions, after a backlash from doctors and women's groups.

A recent survey found that only 36% of people want to keep abortion as a criminal offence, down from 53% in 2010. The constitutional court is due to rule soon on a challenge to the abortion law, on the grounds that it is an unwarranted infringement of women's personal liberty. In 2012 the court voted narrowly to uphold it, but several more liberal judges have joined since then.

Whatever decision the court takes, it will be controversial. Counter-petitions have flooded the presidential home-page, although none of them has received many signatures. A government spokesperson has already warned that it may be some

time before the government responds to the original petition. Politicians have long been wary of the subject. Lee Jung-mi of the Justice Party is one of the few MPs to have spoken out in favour of scrapping the law. Conversations about abortion in the National Assembly "have not yet broken the surface", she says. The success of the petition is "only the beginning". ■

Politics in Vietnam

Hammer and fist

HANOI

The Communist Party is reasserting control

NGUYEN CHI TUYEN, a human-rights activist, is used to government repression. Since 2011, when he took part in protests against Chinese military aggression in the South China Sea, he has been watched carefully by plainclothes policemen. Twice a year an official visits his office and talks to his boss. Sometimes, when foreign dignitaries are visiting, he is not allowed to leave his house. In 2015 he was brutally beaten up by a group of thugs. The authorities regularly break up the practice sessions of a football team that includes him and other dissidents. Yet even he is surprised by the recent crackdown on dissent, with around 25 people arrested or exiled this year alone. The government's "heavy campaign" is puzzling, he says.

Discussion of politics has long been heavily policed in Vietnam. But there used to be a little more leeway than in China, its northern neighbour and fellow Communist state. There is no equivalent of China's Great Firewall, so locals have access to foreign news and Western social media. Perhaps half of the country's 90m people use Facebook. Public criticism of economic

policy has been possible, and protesters have been able to gather over issues such as the South China Sea, even if they are subsequently monitored by the police.

Yet since early last year, when Nguyen Tan Dung, the prime minister, was forced to retire, the political landscape has shifted. A crackdown on dissidents and activists, already begun under Mr Dung, has been combined with a fierce anti-corruption drive. That has toppled high-ranking officials in places such as Ho Chi Minh City and Danang, where Donald Trump is attending a big regional summit this week. The result is a strengthening of the Communist Party and its secretary-general, Nguyen Phu Trong, at the expense of the bureaucracy. "The political mood in Vietnam has always been dour," says Jonathan London, a Vietnam-watcher at the University of Leiden. "But these days it has a bit of a draconian edge to it."

Under Mr Trong, the Communist Party has become more conservative. Unlike the freewheeling Mr Dung, who was pro-Western and pro-business, Mr Trong's main concern seems to be the preservation of the Communist Party. This has led to a "more disciplinary style of rule", says Mr London. In August Vietnamese agents appear to have kidnapped Trinh Xuan Thanh, a former head of PetroVietnam, a state-owned oil firm, in Germany, where he was seeking asylum. At any rate, he mysteriously surfaced in Hanoi, where state media reported that he had handed himself over to the police. A month later Nguyen Xuan Son, a former chairman of PetroVietnam, was sentenced to death on embezzlement charges.

Mr Trong and his allies are also cementing the party's authority over the bureaucracy. A pilot scheme in Quang Ninh province has merged the positions of party secretary and chairman of the people's committee—in effect handing executive authority to the party's man. If successful it will be rolled out in other provinces, says Le Hong Hiep of the ISEAS-Yusof Ishak Institute in Singapore.

The crackdown on dissidents has also been carried to the provinces, points out Carlyle Thayer of the University of New South Wales. "It is an orchestrated, national movement," he says. A lack of condemnation from abroad seems to be playing a part: according to Nguyen Anh Tuan, a dissident, security forces are "pretty straightforward" about stating that Mr Trump's apparent lack of concern for human rights has emboldened them.

The crackdown seems mainly to be aimed at groups that might conceivably threaten the rule of the Party: many of those who have been targeted are associated with the Catholic church or civil-society groups such as the Brotherhood of Democracy. On October 25th Phan Kim Khanh, a 24-year-old student, was given a six-year ▶

prison sentence for “conducting propaganda against the Socialist Republic of Vietnam” and for having contacts with Viet Tan, California-based democracy advocates the government has branded terrorists. But prominent individuals have also been clobbered: Nguyen Ngoc Nhu Quynh, a popular environmental blogger known as “Mother Mushroom”, was given a ten-year sentence in June.

Indeed, as wary as Vietnam is of China, it seems to be following its lead in shoring up the Party’s authority. The Ministry of Public Security has proposed a sweeping cyber-security law, which would further limit dissent. Yet Vietnam is a smaller, poorer economy than China, more reliant on foreign investment and trade. Even with a less demanding American administration, it has far more to lose. ■

the prior journey by ship from Indonesia. Hafiz Pasha, a former head of an official economic advisory body, argues that the PML-N has undermined the benefits of the new plants by obliging industry to subsidise other power consumers through a series of surcharges and taxes. Like many analysts, he doubts that the new capacity will revive Pakistan’s moribund export industries, or provide the two-percentage-point boost to GDP growth he predicted in a study published in 2013.

A shortage of generation was just one of the electricity market’s woes. “They didn’t fix the distribution system,” says Mohsin Khalid of Ittehad Steel, a big conglomerate. Yet inefficiency and theft lead to the loss of about 18% of the power generated—one of the reasons why industry ends up paying such high tariffs. The state of the grid is another problem: so rickety is the network that former officials expect it will not be able to handle all the new generation. That means that blackouts may still take place even after Pakistan begins to generate surplus power.

The government has at least stopped selling power at half the price recommended by NEPRA, an independent regulator, slowing the growth of the \$8bn of debt weighing down state-owned power firms. But the expense of importing coal and liquefied natural gas is helping to sap Pakistan’s dwindling foreign reserves. If, as many suspect, the government is eventually forced to devalue the rupee, the cost of imported fuel will rise, further pushing up power bills. Earlier this year the energy minister was moved to another job after cautioning against building too many power plants that rely on imported fuel. Meanwhile, the construction of Diamer Basha Dam, a 4,500-megawatt hydropower project, has proceeded frustratingly slowly.

In other words, increased generation is no panacea for Pakistan’s economy. But with the lights back on, the other problems are at least plain to see. ■

Electricity in Pakistan

Volt-face

FAISALABAD

The government is fixing a power shortage, revealing other problems

MOVING into view behind a row of eucalyptus trees, the twin cooling towers of the Sahiwal power plant, a 1,320-megawatt facility in central Pakistan, are so large they seem other-worldly. Yet it is not only size that makes an impression. Labourers built the entire plant in a record 22 months, a year faster than is typical. “Even at home we don’t work this hard,” says the chief engineer of the Chinese power company that operates Sahiwal, describing how floodlights were hung from cranes so construction could continue through the night.

Pakistan’s government is hungry for power. Last month the chief minister of Punjab, Shahbaz Sharif, announced that his party, the Pakistan Muslim League-Nawaz (PML-N), which also runs the national government, will shortly fulfil its campaign promise to end blackouts.

Fridges and fans still cut out without warning, but far less often, and for less time: in August the gap between supply and peak demand fell to about 12% of output according to Arif Habib, a research firm, the lowest in years. That is thanks chiefly to a construction blitz. By elections due next year, the PML-N will have installed some 9,000 megawatts of generation capacity, increasing the total by half. “We will remove the darkness from Pakistan,” proclaims Mr Sharif, under a glittering chandelier in his offices in the capital.

All this makes a change from 15 years in which successive governments failed to respond as population growth far outstripped the power supply. By 2012 outages lasted for as long as 20 hours a day, fuelling a sense of national despair. People were reduced to cooling off in filthy canals.

Much of the new power comes from private coal-fired plants like Sahiwal, built by Chinese firms as part of a \$38bn investment in the power sector under a joint development scheme called the China-Pakistan Economic Corridor (CPEC). Coal-fired power previously accounted for less than

1% of generation in Pakistan, compared with over 70% in neighbouring China and India. Much of Pakistan’s electricity comes from huge hydropower projects, but their output is as variable as the rainfall that feeds them. Solar power, another potential alternative, presents similar problems. Meanwhile, Pakistan is beginning to exploit large indigenous reserves of coal.

But even if coal is a rational choice in principle, the power the new plants produce is expensive. Under the PML-N, the average electricity tariff for industry has risen to \$0.13 per kilowatt-hour, higher than in India (\$0.12) and Bangladesh (\$0.09). In the cavernous gloom of a closed textile mill in Faisalabad, a manufacturing hub, a layer of dust covers a graveyard of heavy machinery. “Now we have electricity and gas, but because of the price we can’t compete with India and Bangladesh,” sighs the boss of the biggest textile firm in the city.

Part of the problem is that Sahiwal is 1,000km inland. Bringing imported coal (local mines do not yet produce much) from the coast to the plant costs more than



Power to the people



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America and China

Barbarian outreach

BEIJING

Xi Jinping glad-hands Donald Trump, but anti-American feeling stirs in China

CHINA'S leader, Xi Jinping, welcomed Donald Trump on the American president's first visit to Beijing like a Chinese emperor receiving a barbarian potentate, with a mixture of flattery and disdain. The government closed to the public the 9,000-room Forbidden City—the vermilion-walled former imperial palace at the heart of Beijing—so the visitor could have his own tour and dinner there. The courtiers of the Communist Party have lost little of the ancient art of feigned deference.

The Chinese also bore gifts: trade deals worth over \$200bn, covering everything from jet engines and car parts to shale gas. Most of the pledges were memoranda of understanding: expressions of intent, not enforceable contracts. Many concerned things the Chinese would have done anyway. Still, Mr Trump seemed pleased, as he also was by Mr Xi's (reiterated) pledge to enforce UN resolutions on North Korea.

The question is how long the summit's bonhomie will last. Under Mr Xi, China has become more open in its challenge to American influence in Asia. The official media have turned more sharply critical of America's political system. The problem has hardly reached the embassy-burning stage (angry crowds last surrounded the American embassy in Beijing in 1999, after NATO's mistaken bombing of the Chinese embassy in Belgrade). But there is a whiff

of anti-Americanism in the air.

Mr Trump claims that he and Mr Xi are close. The same can hardly be said of public attitudes towards each other's countries. A study in 2016 by Zhang Kun and Zhang Mingxin of Huazhong University of Science and Technology found that America was far down the list of countries about which the Chinese express favourable opinions—below Germany, Britain, France, Canada, Australia and Russia. Things may have changed since then because views of Mr Trump are warmer in China than in most places. But opinions of America itself are unlikely to have improved much. A survey in the same year by the Pew Research Centre in Washington also found that only half of Chinese respondents were favourable to America—much less than the global median “favourability rating” for the United States of 64% then.

American opinions of China are even cooler. Pew's poll in 2017 found more Americans expressed negative views about China than positive. Such attitudes might not affect policy but they could make public dissatisfaction easy to ignite.

Anecdotal evidence suggests there is plenty of flammable material. One of the most popular questions on Zhihu, a Chinese question-and-answer site, is “Is America preparing to dismantle China?” (the most popular answer, though, is that if

China were to collapse, America would not be the main reason). It has been viewed 3m times since the start of 2016. The phrase “American air is so sweet” has become a term of online abuse. It stems from a comment by a Chinese graduate of an American university who said that “when I took my first breath of American air, it was so sweet and fresh...I felt free.” The remark produced a torrent of criticism in China; she apologised and closed her online account. The term is now used as sarcastic criticism of all things American.

For many years, despite ups and downs in policy, China's rulers stuck to a strategic view that the United States was essential to their country's modernisation. China, they argued, needed American technology to upgrade its industries and American markets for its exports. That view has become far less strongly held as China's economy shifts away from exports and towards home-grown innovation. In the past year, moreover, it has been overlain by a competing idea: that China's global ambitions require a dose of anti-Americanism.

Bucking the norm

In a speech last month at a five-yearly party congress, Mr Xi made those ambitions even more apparent. He talked of moving China “closer to centre stage” and of the country's “all-round efforts” to pursue “great-power diplomacy with Chinese characteristics”. It is not clear what these characteristics are, but it is a safe bet that they do not involve accepting global norms established by America.

The United States has long proclaimed itself “the last, best hope of Earth” (to quote Lincoln). Now Chinese media are advancing similar claims about China's system. In mid-October Xinhua, the main state-run ▶▶

news agency, made the case explicitly. In an article called “Enlightened Chinese democracy puts the West in the shade”, it said the Western kind was “doddering”. It argued that the Chinese system “leads to social unity” rather than the divisions which it said were an “unavoidable consequence” of Western democracy. The commentary forbore to name names, but state media often talk of Mr Trump’s America as a prime example of what Xinhua referred to as “the endless political backbiting, bickering and policy reversals which are the hallmarks of liberal democracy”.

Xinhua’s description of democracy’s self-destructive tendencies echoes that of a book published in 1991 called “America Against America” by a professor at Fudan University, Wang Huning. But there are three important differences between China’s interaction with America today and the way it was then. One is that Mr Wang has just been elevated to the party’s most powerful body, the Politburo Standing Committee, where he is likely to be in charge of propaganda (that is, projecting the party’s image at home and the coun-

try’s abroad). Having in such a position an America-sceptic who actually studied there is unprecedented.

Next, the government has started to export what it calls “the China model”. Deng Xiaoping once said China was not a model for anyone. At last month’s party gathering, Mr Xi talked about China “blazing a new trail for other developing countries” and offering “Chinese wisdom and a Chinese approach to solving problems” (his “Belt and Road Initiative” offers lots of cash, too). Orville Schell of the Asia Society in New York says this seems to set up a clash not just of civilisations and values, but of political and economic systems.

Third, the anti-American strain now seems to run from the top of the Chinese state (Messrs Xi and Wang) to the bottom (Xinhua and internet trolls). That suggests such sentiment is gaining strength. Mr Xi may still prefer to exercise caution in his country’s rivalry with America. But he does not seem to have moderated his global ambitions because of Mr Trump. And it will take more than a dinner in the Forbidden City to wish those ambitions away. ■

Financial stability

Caveat comrade

SHANGHAI

Close to retirement, the central-bank chief warns of financial risk

ZHOU XIAOCHUAN sometimes sounds more like a zookeeper than a financial official. China’s central-bank governor has recently spoken of a menagerie of beasts stalking the economy, from black swans to grey rhinos and crocodiles. Chinese investors know what each refers to: swans are unforeseen risks; rhinos are neglected dangers; crocodiles prey on financial weakness. And they have surely all heard Mr Zhou’s warnings by now. In the past month he has commented publicly four times, making the case that debt is too high and that, without stricter regulation, China could face trouble.

Always a straight talker, Mr Zhou has been blunter than usual. To be sure, he insists that the economy is in good shape. But at a news conference last month on the sidelines of a Communist Party congress, he spoke of the threat of a “Minsky moment”—a concept named after Hyman Minsky, an American who postulated that stable economies end up crashing because of overconfidence that benign conditions will prevail indefinitely. In an article published on the central bank’s website on November 4th, Mr Zhou said China had accumulated “hidden, complex, sudden, contagious” risks. So why express such

concerns, and why now? Economic analysis provides only part of the answer. The agenda of China’s president, Xi Jinping, and Mr Zhou’s impending retirement from the central bank, the People’s Bank of China, are at least as important.

It may seem odd that Mr Zhou is sounding gloomy just when China appears to be making progress in patching up its financial vulnerabilities. The government’s declared economic priority for 2017 is to curb financial risk. In a “regulatory storm”, officials have reined in borrowing by highly le-

veraged firms and strengthened supervision of financial dealings.

Partly as a result, credit growth this year is at its slowest in more than a decade. Nominal economic growth has accelerated to a double-digit pace. China’s onerous ratio of debt to GDP is thus near to stabilising, at least for now (see chart). The structure of debt also looks healthier. Assets held by poorly regulated shadow lenders (everything from trust companies to peer-to-peer schemes) fell from 86.5% of GDP at the start of 2017 to 82.6% at the end of June—the first sizeable drop, calculates Moody’s, a ratings agency.

But this backdrop helps to explain Mr Zhou’s stridency: his rhetoric is sensibly countercyclical. When investors were pessimistic about China’s economy in 2016, Mr Zhou reassured them that growth remained strong. With sentiment turning positive this year, he is reminding everyone that the work of defusing potential problems is not done.

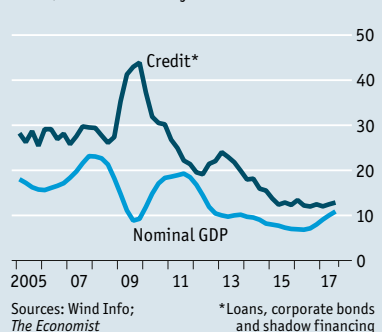
Also, Mr Zhou cannot simply decide on his own what to focus on. Formally, the central bank answers to the State Council. In practice, it reports to the president. At last month’s party congress, Mr Xi stressed the importance of preventing major financial risk. He also refrained from stating economic targets, which used to be *de rigueur* in leaders’ speeches. Larry Hu of Macquarie Capital says this could herald tougher deleveraging (in China, GDP targets tend to foster reckless lending). Mr Zhou’s words echo the priorities of his master.

Compared with others who enjoy similar status in China, Mr Zhou speaks with unusual confidence, in a manner refreshingly free of party jargon. But despite his outspokenness, he is highly trusted by the party’s leadership. He has been central-bank governor for 15 years, the only ministerial-level official to straddle three administrations. He was due for retirement at the last big government reshuffle five years ago but was kept on, a credit to his rare combination of financial knowledge and political skills. Now his governorship is ending. Almost 70, he has perhaps just weeks before retirement and appears to be trying to burnish his legacy.

Overall, he is likely to be well remembered. Abroad, Mr Zhou is seen as a savvy policymaker who has tried to open the country’s financial system more widely to global market forces, for example by pushing his government (albeit with limited success) to permit freer trade in China’s currency, the yuan. Some analysts fault Mr Zhou for letting credit growth get out of hand. That is unfair: it is the party’s leaders who ultimately dictate monetary policy. With Mr Xi himself talking more about risk, Mr Zhou is seizing the chance to amplify the message. If there is financial trouble ahead, he cannot be accused of failing to point it out. ■

Why worry?

China, % increase on a year earlier



Banyan | Fortress mentality

South Korea is making up with China, but a sour taste remains



IT IS China's least edifying diplomatic strategy, and it is certainly not from "The Analects" of Confucius or from Sun Tzu's "Art of War". Call it the doghouse approach. If China does not like what you are doing, it bullies you until you change. If you don't, it punishes you by putting you in the doghouse. If you still refuse to change, it pulls you out again after a suitable term of punishment, pretends all is normal, and expects you to be grateful.

South Korea is the latest country to endure the cycle. This year its holiday island of Jeju, along with the best-known scenic spots in Seoul, the capital, have been free of the usual throngs of loud, jostling Chinese tour parties. The emptiness has been, let's be frank, a delight. But for South Koreans, it is a sour pleasure because China wilfully ordered the tourists and their spending power away—a sort of reverse punitive mission.

The Chinese government also found ways to punish South Korea in China itself. K-pop bands were barred from performing. Lotte, a huge South Korean conglomerate with stores across China, became the biggest victim of a state-backed boycott by shoppers. The Hyundai Research Institute in Seoul estimates the cost of China's vindictiveness to the South Korean economy this year will be \$76bn, equivalent to 0.5% of GDP.

South Korea's crime must be shocking. Yet it was simply to move to defend itself better against the menace of North Korea by accepting American anti-missile batteries known as THAAD, or Terminal High Altitude Area Defence. China's intense displeasure over THAAD was based on the notion that the radars could monitor China's military activity. (Lotte was singled out for punishment because, in a land-swap agreement with the South Korean government, it supplied the site for a THAAD installation.)

China's solipsism in elevating its self-serving concerns above the existential threat that North Korea poses to the South seemed, to many South Koreans, a case of extreme bullying. After all, one reason why North Korea is close to a nuclear breakout is because China for years turned a blind eye to its nuclear project, and even used to protect the North from censure at the UN.

Yet a curious thing happened after the last of the planned THAAD systems was put in place, following North Korea's detonation of a nuclear device, its sixth, in September. On the fringes of the UN General Assembly in New York, Wang Yi, the Chinese

foreign minister, who in the summer had hectoring his South Korean counterpart, Kang Kyung-wha, was suddenly all sweetness and light, making it clear to her that China wanted to resume cordial relations. And so, this week, the Chinese president, Xi Jinping, will call for a new leaf to be turned when he meets his South Korean counterpart, Moon Jae-in, on the sidelines of a regional summit in Danang in Vietnam. Mr Moon will agree.

Another part of the doghouse strategy is to claim victory. The Chinese press claims the South Korean side made big concessions, including, allegedly, a promise not to undertake further THAAD deployments, or join America and Japan in an anti-China alliance. South Korean officials are adamant that no such promise was made, beyond an indication that the government has no current plans for more THAAD deployments. As for a putative alliance, that was never on the cards, they say. South Korea does plenty with Japan and America in defence, including joint training in Japan. Ties with China affect none of this.

Mr Xi, boosted at home by a recent Communist Party congress, is in a strong position to seek better relations with South Korea. And he has good cause to want them. He must have considered that having lousy relations with both Koreas hardly looks adroit—especially since both China and South Korea seek the same goal, namely, to bring the North to talks. Mr Xi may have worried that Chinese surliness might push Mr Moon, who feted Donald Trump in Seoul this week, even further into the American camp. And what of the possible damage to China's image? Mr Xi's talk of a "community of common destiny" for mankind is risible if China is acting like a playground bully.

The proverbial shrimp between whales

The question is how inclined South Korea will be to pretend nothing happened and resume cordial relations. After all, because of its churlishness, China has even bumped Japan from bottom place in South Koreans' perceptions of other countries. That position may not prove permanent. South Koreans know they need to get on with China, their biggest trading partner. As John Delury of Yonsei University points out, the South's differences with China over THAAD lack the emotive force of its history wars with Japan, the former colonial overlord.

Still, South Korea is on its guard where once it was trusting. And ancient memories are resurfacing. Koreans have long had a sense that, though China is often to be admired, it has over the centuries treated Korea as a vassal state or a prize to be coveted. And hard-wired into the Korean psyche is a sense that nothing goes well when big powers clash over the Korean peninsula.

In that sense, history is making a comeback in Korean perceptions. This autumn's blockbuster has broken all film records in South Korea. "The Fortress" chooses an unlikely backdrop for a hit: the 17th-century rise of the Manchus, who came out of the northern forests, challenged the Ming dynasty that had ruled China for nearly three centuries and set themselves up as the Qing, China's last imperial dynasty.

On their way to China's conquest, the Manchus invaded Korea, partly to use it as a base from which to continue attacks on China. The core of the film is a human drama about the dilemma faced by Korea's Joseon dynasty: whether to maintain loyalty to the failing Ming and fight to the death, or accept the new order of the rising Qing for the sake of peace. Substitute America for the failing Ming, and China's Communist Party for the rising Qing, and you can see why the film has touched a nerve. ■

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Off-year elections

Kind of blue

ASBURY PARK, NEW JERSEY, AND FAIRFAX, VIRGINIA

A string of victories should energise Democrats and alarm Republicans heading into next year's mid-term elections

CELEBRATING his first political victory, Phil Murphy, New Jersey's governor-elect, awkwardly leapt onto the stage, clapping with legs akimbo, to "declare the days of division over. We will move forward together." Roughly 230 miles south-west, Ralph Northam, Virginia's governor-elect, pictured above, sounded similar themes (without the leaping): "Virginia has told us to end the divisiveness...and to end the politics that have torn this country apart." In one sense, these statements are boilerplate. Every newly elected politician claims a mandate, and every one says that he will serve and unite the electorate that his predecessor divided and ignored.

But they are also rejections of Donald Trump, and the divisive political style he champions. Mr Trump did not campaign with Kim Guadagno or Ed Gillespie, the Republican gubernatorial candidates in New Jersey and Virginia. But he loomed nonetheless. Mrs Guadagno and Mr Gillespie ran race-baiting ads that spuriously linked Messrs Murphy and Northam to violent undocumented immigrants, hoping that Trumpism without the increasingly unpopular Mr Trump could prove a path to victory. It did not. Republicans and Trumpism suffered resounding defeats in the various elections held on November 7th, leaving Democrats energised and Republicans shaken as both parties look towards next year's mid-term elections.

Mr Murphy's win was the more routine. A former ambassador and Goldman Sachs executive who spent \$20m of his own money, he brought in the big guns to stump with him: Barack Obama and Joe Biden; Cory Booker, the state's charismatic and ambitious junior senator; and perhaps biggest of all in New Jersey, Jon Bon Jovi, a 1980s-rock star and native son.

The last round of polls had Mr Murphy up by 14 points; he won by 13. New Jersey has almost 900,000 more registered Democrats than Republicans and the state tends to elect governors from the party that does not hold the White House. Mrs Guadagno was lieutenant-governor to the unpopular and scandal-ridden Chris Christie, forcing her into the awkward position of talking up her experience and achievements in office, while trying to keep Mr Christie at a distance (he did not campaign with her). But neither candidate inspired much excitement; even by off-year election standards, turnout was low.

Mr Northam, by contrast, dramatically outperformed expectations. As election day drew nearer, his polling lead shrunk; the last round had him up by three points, around half as much as in October. He has a calm, steady demeanour but is not a gladdening retail politician, and many thought that his campaign was faltering. After saying he would ban sanctuary cities—places that limit co-operation with

federal immigration authorities—if any appeared in Virginia, a progressive activist group withdrew its support. He vowed to work with Mr Trump after having called the president a "narcissistic maniac" last summer. He admitted to having voted for George W. Bush twice. Some worried that a peeved base would stay home.

In the end, Mr Northam won by nine points, exceeding the margins of both the outgoing governor, Terry McAuliffe, in 2013 and Hillary Clinton last year. Exit polls suggest that voters who decided on a candidate in the campaign's final week broke for him, which helps to explain the pollsters' misfire. Mr Northam did best in the state's most populous areas: Richmond, Tidewater and the liberal Washington suburbs. And he won far more votes than Mr McAuliffe did—532,689 compared with 373,413 in the state's five most populous cities and counties—indicating an unusually motivated Democratic electorate.

Finger-pointing from Mr Trump's camp began immediately. *Breitbart*, the politics website run by his former chief strategist, Stephen Bannon, called Mr Gillespie a "Republican swamp thing." From Asia Mr Trump tweeted that Mr Gillespie lost because he "did not embrace me".

In fact, exit polls showed that 34% of Virginia voters cast a ballot "to express opposition to President Donald Trump"; Mr Northam won 97% of that group. A plurality of voters (39%) said health care was the motivating issue; Mr Northam won 77% of them. Mr Gillespie did best among voters motivated by immigration. But they comprised just 12% of the electorate. Mr Trump's nativism has a durable but small core of support in an increasingly diverse Virginia.

Mr Northam had long coat-tails: Justin Fairfax will be Virginia's second black lie- ▶▶

▶ tenant-governor. Mark Herring won a second term as attorney-general. Democrats also picked up at least 15 seats in Virginia's House of Delegates, and may flip the chamber (as *The Economist* went to press some races were too close to call) from a nearly 2-1 Republican majority. Should the Democrats prevail, and maintain their majority until 2020, they would control the next round of redistricting. Among those elected were Lee Carter, a 30-year-old socialist who unseated the House Majority Whip, and Danica Roem, who will become Virginia's first transgender state legislator after defeating Bob Marshall. Mr Marshall wrote a bill to force transgender people to use the bathroom corresponding to their sex at birth, and once called himself Virginia's "chief homophobe".

Beyond these two races, Manka Dhingra won election to the Washington state senate, which gave Democrats unified control in all three West Coast states. Voters in Hoboken elected Ravi Bhalla New Jersey's first Sikh mayor, despite campaign flyers warning voters "Don't let TERRORISM take over our town!" Helena, Montana, Charlotte, North Carolina and St Paul, Minnesota elected their first black mayors, as did several small Southern cities. Voters in Maine approved Medicaid expansion over their Republican governor's wishes; Utah and Idaho may offer voters the same choice next year.

Parties in power always fare poorly in off-year and mid-term elections. But Mr Trump is a deeply unpopular president who looks likely to imperil Republican fortunes in suburban America. After a year in office, his greatest achievement may be enervating Democratic voters.

Yet most of the contests that Democrats won took place in Democrat-friendly territory. In south-western Virginia, Mr Gillespie's margin of victory exceeded that of the 2013 Republican, Ken Cuccinelli, showing how toxic the Democratic brand remains in rural America. Mr Gillespie won 72% of white voters without college degrees—roughly the same share as Mr Trump won in 2016.

Victories let Democrats avoid the infighting and blame-casting that losses would have caused. They showed the limits of culture-war politics (which may also secretly delight mainstream Republicans, whom Messrs Trump and Bannon have pounded and frustrated for a year). And Mr Northam put the Democratic purity police on the back foot: the party can run progressive candidates in progressive districts and moderate candidates elsewhere without fatally depressing the base. Republicans' rightward lurch under Mr Trump has left the centre open; Democrats would do well to grab it. To win the House, much less the Senate, next year, they will have to do more than run up their vote totals in friendly territory. ■

Mass shootings

The never-ending story

WASHINGTON, DC

Senseless gun policies claim more lives, and will continue to do so

IT WAS a familiar horror story. A gunman, armed with an assault rifle, barged into a church in a small town in Texas and massacred 26 people, shooting some in the head at close range. A month earlier, a man fired on a crowd of concertgoers in Las Vegas, killing 58, using rifles modified with "bump stocks"—devices designed to mimic the speed of fully automatic weapons. Since the start of 2017, 112 Americans have been killed in mass shootings, making it the worst year in more than three decades.

Asked about the Texas shooting, Donald Trump said it was not "a guns situation" and noted that "you would've had hundreds more dead" had an armed neighbour not shot the gunman as he left the church. Gun-rights advocates typically call for a policy moratorium after any mass shooting. No similar sensitivity is on show after terrorist murders. Less than 24 hours after an Uzbek immigrant inspired by Islamic State murdered eight people in New York, Mr Trump was demanding a sweeping policy change—dismantling the diversity visa programme on which the attacker came.

Mass shootings, if they provoke any reaction at all, produce piddling proposals which still cannot be passed. A modest initiative after the Las Vegas shooting to ban bump stocks has stalled. Jeff Flake, a Republican senator, has introduced a bill which would prevent those convict-

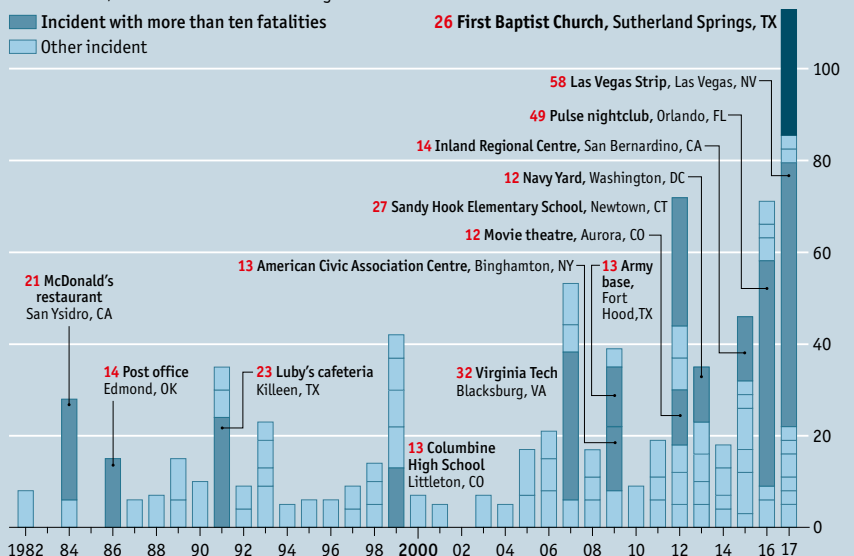
ed of domestic abuse in military courts from acquiring guns. It is likely to go nowhere: even after the massacre of 20 children in Newtown, Connecticut, in 2012, the Senate rejected a bill to expand background checks.

America's powerful gun lobby, of which the National Rifle Association (NRA) is the most prominent group, is able to cow Republican legislators into inaction. Yet the organisation largely represents the extreme views of a minority of gunowners: the NRA claims 5m members, compared with the 17m Americans who hunt or the third of adults who own guns. NRA members are twice as likely to own five or more guns than non-member gunowners, and are twice as likely to carry a gun outside their house all or most of the time. Their policy preferences are much more hostile to any gun control. In the recent Virginia election, exit polls show that 37% of gunowners backed Ralph Northam, the Democratic candidate, for governor. Should such moderates organise effectively, they may be able to snap the NRA's stranglehold over gun policy.

Until then, mass shootings will more often be followed by looser gun laws, as a paper from three researchers at Harvard Business School found. Gun buying usually spikes after such killings. Since the Las Vegas massacre, bump stocks have sold out across the country.

Thoughts and prayers

United States, fatalities from mass shootings*



Sources: Mother Jones; press reports

*Shootings with three or more fatalities excluding perpetrator(s). Before January 2013, with four or more fatalities. Not comprehensive

School-board races

Boardroom battles

LOS ANGELES

Once-sleepy contests have become million-dollar affairs

A FEW weeks ago, flyers appeared around Denver in anticipation of a school-board election that was held on November 7th. At first glance, they appeared typical, bearing the smiling face of the candidate next to a short explanation of why she deserved to win. “Jennifer Bacon is the only candidate who has actually taught in public schools,” it read. But above that ordinary proclamation was a more surprising claim. Next to an image of an open safe containing stacks of \$100 bills the flyer blared: “Rachel Espiritu’s campaign is funded by dark money from groups outside Colorado tied to Donald Trump and Betsy DeVos.”

Elections to choose school boards, which shape education policy at the local level, have historically been sleepy, low-turnout affairs. But in recent years they have become contentious, serving as proxies for the rancorous debate between advocates of education reform and teachers’ unions. The reformers champion increasing access to charter schools and expanding educational options in general; the unions oppose such an agenda on the grounds that it could attract students away from districts that bargain with teachers collectively. (Charter schools receive public money but are run independently, usually by non-profit organisations but sometimes by private companies.) In the past few years outside donors with ideological or financial interests in such fights have become involved, focusing attention and money on previously ignored local races.

Chalkbeat, an education news organisation, reported that political committees on both sides of the dispute channelled at least \$1.65m into the school-board races that took place on November 7th in Denver, nearby Aurora and Douglas County. Other areas have seen even more expensive contests. In Los Angeles, where three board seats came up for election earlier this year, outside groups poured nearly \$35m into canvassing and advertisements on behalf of the candidates. Much of the money came from California Charter Schools Association, which supports charter schools and received nearly \$7m from Reed Hastings, the co-founder of Netflix, in the run-up to the election, and United Teachers Los Angeles, a union which opposes charters. According to Carol Burris, the executive director of the Network for Public Education, an advocacy organisation, outside money has also fuelled



Campaign bus

school-board fights in Louisiana, Minneapolis, and Perth Amboy, a town of just 52,500 in New Jersey.

It is not just the volume of cash being poured into school-board elections that is striking. So is where it comes from. As with political contributions in general, the origins of donations in school-board races are being obscured. The elections in Colorado illustrate how. Political action committees (PACs), which pool contributions from members and put them towards campaigning for or against candidates, are required to disclose their donor rolls. But social-welfare organisations, also referred to as 501(c)4s after the section of the tax code that describes them, are not. Those who wish to fund local races anonymously can direct their money to amenable 501(c)4s, which in turn donate to the PACs. In Colorado, for instance, a PAC called Raising Colorado, which supports the campaigns of charter-school champions, has received donations from only one source: Education Reform Now Advocacy (ERNA), the 501(c)4 arm of a non-profit organisation with its headquarters in New York City and Washington, DC. Who has donated to ERNA is a mystery.

Pedro Noguera of the Graduate School of Education and Information Studies at the University of California, Los Angeles, attributes the growing focus on school-board races to the perception—especially among the very rich—that America’s school system is a failure. American students rank significantly below their peers from other developed countries in science, mathematics and reading. Federal testing data suggest maths proficiency among fourth- and eighth-graders is dipping after years of improvement. Such discouraging numbers, coupled with fears about how artificial intelligence and other technological advances will up-end traditional methods of education, have motivated some wealthy businesspeople to throw money at educational reform.

Sometimes they have tried to do this directly. In 2010, Mark Zuckerberg gave \$100m to Newark’s public school system. Much of that was used to launch new charter schools. Last year Mr Hastings established a \$100m educational foundation. Others have funnelled money into the hands of organisations and politicians who share their views. In addition to Mr Hastings, Michael Bloomberg, a billionaire and former mayor of New York City, Arthur Rock, a Silicon Valley investor, and heirs to the Walmart fortune have all dedicated large sums of money to campaigning for charter schools.

The backers of these schools insist that independence produces superior academic results. Critics argue that where charter schools do better, that is because they do not enroll the same types of students, such as those who are learning English as a second language or who have disabilities, and that they shed their most difficult students back into the public system. Studies of charter schools’ performance by the Centre for Research on Education Outcomes (CREDO) at Stanford University have turned up mixed results. A report published in 2013 suggested that pupils at charters progressed by the equivalent of only eight additional days of learning per year compared with their peers who are educated at conventional public schools. But follow-up research suggests that charter schools have been much more successful when educating poor children in cities.

Further complicating matters, a recent study in California found that charter schools with unionised teachers may do best of all, a result that is anathema to both sides. That the data are ambiguous means that charter schools’ advocates and unions will continue to scuffle for the foreseeable future. School-board elections are therefore likely to remain fiercely contested. But the intense interest of outsiders is unlikely to boost that of locals. A mere 8.5% of Los Angeles voters bothered casting ballots in this year’s race, the costliest for a school board in American history. ■



For-profit colleges

Decline and fall

WASHINGTON, DC

Betsy DeVos's promised regulatory relief might not revive a tarnished industry

GOVERNMENT funds set aside for college aid have long been a favoured target for grifters. After the second world war, veterans flush on GI Bill funds would sign up for sham television-repair courses. After receiving the free television that came with enrolment, they would quit—while schools billed Uncle Sam for the entire course. Low-quality “proprietary schools” tried to cajole Vietnam veterans into enrolling through, in the words of the Federal Trade Commission, “deceptive advertising, high pressure sale tactics and misrepresentations of course difficulty and content”. George H.W. Bush signed legislation in 1992 culling thousands of such outfits. Every few decades, newspaper exposés would prompt irate congressmen or presidents to weed out fraudulent for-profit programmes—only to discover later that they had simply sprung up elsewhere.

Barack Obama's administration was the latest to give this a try. His education department finalised two important regulations. The first would cut off federal funding to institutions which do not prepare students for “gainful employment”—defined as earnings increases large enough to cover their debts. The second, called the “borrower defence” rule, would forgive student-loan debt for students deceived by providers. Betsy DeVos, President Donald Trump's education secretary, has delayed both regulations and has pledged to rewrite them. She has taken special umbrage at the borrower-defence rule, saying “under the previous rules, all one had to do

was raise his or her hands to be entitled to so-called free money”. Not a single application to cancel a loan has been approved since the new management moved in, causing a backlog of 65,000. “They seem to be doing everything they can to prevent enforcement,” says Bob Shireman, a fellow at the Century Foundation and a former education appointee in Mr Obama's administration.

Grisham's law

Mrs DeVos's policy shift is particularly mystifying, because Republicans were once among the strongest critics of for-profit education. William Bennett, Ronald Reagan's education secretary, led the charge against for-profit schools. “The kids are left without an education and with no job, and the taxpayer ends up holding the bag for a kid who gets cheated,” he said at the time. But ever since for-profit schools became billion-dollar enterprises, partisan allegiances have switched. Mrs DeVos, who was formerly best known for using her family's fortune to promote school-choice schemes, is said to be frustrated by her inability to influence high-school policy. But the secretary of education does have a lot of power over what happens after high school.

The rise of for-profit education began 30 years ago. Until then, for-profit colleges were mostly small shops, teaching such trades as cosmetology and plumbing. But after listing on stockmarkets and raising capital from shareholders, large for-profit

college chains emerged and began expanding, attracting mostly poor students with slick advertisements and devoted recruiters. Between 2000 and 2010 their enrolments more than quadrupled. Publicly listed colleges devoted nearly a quarter of their revenues to marketing and recruiting—more than on educating students. Their bosses commanded salaries unheard of in education: Bridgepoint Education paid its chief executive \$20m in 2009. “For a long time, for-profit colleges were the darlings of Wall Street,” says Ben Miller, a senior policy adviser at the Department of Education (DOE) under Mr Obama. ITT Tech, one of the country's largest for-profit educators, returned a handsome 37.1% profit margin in 2009. Last year, the company shut its doors after its aggressive recruiting practices and its students' lacklustre record in the job market prompted the DOE to turn off the federal spigot.

There is, of course, nothing wrong with profiting from the provision of a valuable service. But labour-market outcomes suggest this is not what has been going on. Only 23% of students at for-profits finish their degrees, but nearly all accumulate lots of debt. Tuition rates were often set to maximise federal loan dollars, the principal source of revenues. An investigation by Congress showed that for-profits were, at their height, hoovering up 25% of DOE student-aid funds and 37% of post-9/11 GI Bill benefits, although just 10% of college students attended them. The best study so far, examining the tax returns of 1.4m students, found that “for-profit education does not have a meaningful private return to the student” and “the majority of schools appear to have negligible average earnings effects”. Default rates are high, and worse for minority students. Recent statistics show that 75% of black students who had dropped out of for-profit colleges had defaulted on their loans 12 years later.

Even if the DOE were to succeed in erasing the gainful-employment rule, for-profits are unlikely to come roaring back because their reputations are sullied. John Grisham, an author of legal thrillers, has even chosen “a third-tier, for-profit law school” as the villain in his latest work. Since peaking in 2010, for-profit enrolments have plummeted by 33%. Even if federal enforcement were to slow, Democratic state attorneys-general—an ambitious bunch who realise the unpopularity of such institutions—are unlikely to let up. Already, 18 of them have sued Mrs DeVos for delaying the gainful-employment rule. America's continuing economic growth also hurts the industry, since for-profits are most in demand during recessions, when less-qualified workers' worries about their credentials increase.

Surviving for-profit firms are already shifting tactics: some are focusing on graduate education, where accusations of pred- ▶▶

atory practice have been less common. For-profit colleges now award nearly 10% of masters degrees in America—and a whopping 40% of business doctorates. Others are trying to convert themselves into non-profits. Purdue University, a well-regarded public college in Indiana, has bought the for-profit Kaplan University in the hope of launching an online school. Some acquisitions are more baffling, though. The Dream Centre Foundation, a small non-profit associated with the Pentecostal church, recently bought schools owned by the Education Management Corporation, which saw the value of its stock fall by 99% from its peak and its bonds rated as junk, after a parade of mis-selling scandals and investigations by federal and state governments. Critics describe such moves as a rebranding exercise designed to dodge regulation. If the past is a guide, those fears are likely to go unheeded—at least until the next scandal. ■

Property tax in Chicago

Lakeshore carousel

CHICAGO

How the Democratic machine works in Cook County

“WE SUE the city every year,” says a wealthy Chicagoan who lives in an elegant apartment building in Gold Coast, a North side neighbourhood. If his property-tax lawyer manages to knock \$100,000 off the bill for the condominium’s owners, as the lawyer has done in past years, he gets to keep \$25,000. It is great business for property-tax lawyers—and a great saving for their clients.

The office of Joseph Berrios, the elected value-assessor of Cook County, America’s second-biggest county with 5.2m residents and 1.8m parcels of land, of which Chicago is part, encourages people to challenge their property-tax bills, arguing that it believes “in their importance as the taxpayers’ voice”. According to the *Chicago Tribune*, which put Jason Grotto, an investigative reporter, on the case for a year, such appeals tripled under Mr Berrios, who took over in 2010. In 2015 appeals concerning 370,000 parcels of land were filed. About 80% were successful (the success rate in New York City is 16%). Property-tax lawyers earned an estimated \$133m from tax reductions they battled for between 2009 and 2015. The *Tribune* also reports that since 2009 Mr Berrios, who is also chairman of the Cook County Democratic Party, has raised about \$5m through three different campaign funds, a record for an assessor in Illinois. More than half of that came from property-tax lawyers. Mr

Berrios’s re-election campaign says only that it has \$1.6m on hand.

“The system is unfair and corrupt,” claims Fritz Kaegi, a former investment manager who quit his job earlier this year to try to unseat Mr Berrios. Mr Kaegi refuses to take donations from property-tax law firms, especially those employing the state party’s top brass, and promises not to hire any relatives for county jobs if elected. Mr Berrios is an ally of Michael Madigan, the Speaker of Illinois’s House of Representatives, chairman of the state’s Democratic Party—and a partner at Madigan & Getzendanner, which represents dozens of the most valuable buildings in downtown Chicago in property-tax appeals. From 2008 to June 2016 the firm lowered its clients’ bills by at least \$70m. Several members of the Berrios family are employed by the county, including one hired under Mr Berrios to work in his own office.

Most county assessors in Illinois (and other states) are appointed rather than elected. Electing the overseer of such a reliable source of tax revenue is supposed to prevent such a cosy system from evolving. In this case, it does not seem to have worked. Mr Berrios, who has held his office since 2010, has created “a self-dealing racket”, says Daniel Biss, a Democratic candidate for governor. Chris Kennedy, another Democratic candidate, likens the system to extortion and wants to ban assessors from an important role in a political party and all elected officials from jobs as property tax lawyers. Mr Berrios has always denied all the allegations levelled against him.

This system of reciprocal gift-giving is bad enough, but it is not in fact the worst thing about how property is valued in Chicago. Despite being run by Democrats, Cook County’s property-valuation system became deeply regressive after the housing bubble burst in 2008. Properties are re-

valued every three years; poorer owners who saw bigger falls in the value of their homes were hit especially hard by overvaluation. It was made even more regressive by Mr Berrios’s encouragement of appeals. A study by the University of Chicago Harris School of Public Policy, published in May, found that valuable properties receive proportionally larger reductions in tax bills than those of modest value.

Socialism for the poor

This confirmed what many already knew. In the midst of the foreclosure crisis in 2009, Mr Berrios’s predecessor, Jim Houlihan, realised that homes in poor neighbourhoods were overvalued by as much as 150% and persuaded the MacArthur Foundation, a non-profit organisation, to pay for the development of a new statistical valuation system. “We created a much more accurate model, trained staff and ran our model alongside theirs,” says Bob Weissbourd of RW Ventures, a consultant who led the effort. After much foot-dragging, all was finally in place. Mr Berrios boasted about the new state-of-the-art system in a press release in July 2015 saying that it would improve accuracy by 50% and make the tax less regressive.

Yet Mr Berrios did not in fact use the new system, explaining that it was not working properly. Mr Weissbourd says he can think of three possible reasons for this: incompetence, pressure from tax lawyers and a desire to keep upper-class whites in the city. For the 2015 revision, Mr Berrios’s office tinkered with the numbers, making subjective adjustments, says Christopher Berry at the University of Chicago, who worked with Mr Weissbourd on the system revision. Mr Berrios’s team says that such manual adjustments are used for only about 2% of homes in Cook County.

Mr Berrios faces a difficult re-election campaign next year. The American Civil Liberties Union is preparing a multi-million-dollar lawsuit on behalf of owners of homes in poor neighbourhoods. David Orr, the outspoken Cook County clerk, recently endorsed Mr Kaegi. “No action has been taken to clean up this mess,” says Mr Orr, who thinks that it suits most of his Democratic colleagues to keep things as they are. Still, at least he can count on the support of the party’s machine, including Toni Preckwinkle, the president of the Cook County board. A few months ago she ordered yet another review of the system by the Civic Consulting Alliance, a non-profit organisation, which according to Mr Orr is already stalling.

Cook County’s residents are fed up with property taxes that are among the highest in the country. The higher the turnout at the next assessor election on March 20th, which is also the day of the gubernatorial primaries, the lower Mr Berrios’s chances of re-election. ■



ATM at dusk

Lexington | Not the Trump party yet

Donald Trump will change the Republican party, but less than many expect



A YEAR after Donald Trump became the Republicans' de facto leader, there is a growing view that the party has succumbed to his nationalist populism. As proof, many cite the race-baiting campaign Ed Gillespie, formerly a plain-vanilla Reaganite, ran in the Virginia gubernatorial contest. That many moderate Republicans are fleeing Congress looks like another clue; announcing his retirement, Senator Jeff Flake of Arizona said he could not face making the ideological and moral compromises that stumping for the party of Trump entails. In a forthcoming book, George W. Bush expresses a fear that he will turn out to have been "the last Republican president", so utterly is Mr Trump unmooring his party from its conservative internationalist principles.

This is to some degree understandable. America's political history is replete with outsiders, from Theodore Roosevelt to Jimmy Carter, who have tried to reorientate their parties, much as Mr Trump is now doing. He also has some advantages for this task. Political parties have never been weaker, due to many of the factors, including the introduction of the primary system and rise of gridlock in Congress, that helped fuel Mr Trump's insurgency. Republicans in Congress are twice as despised as the president; just 13% of Americans approve of their performance. No wonder Paul Ryan, Mitch McConnell and the rest have been slow to resist his assault on their principles. And the fact that Mr Trump has a direct line to millions of their voters on Twitter—maybe the most disruptive feature of his presidency—makes them additionally wary. Yet dramatic party realignments are exceedingly rare, and there is so far little evidence that Mr Trump is executing one.

In recent time there have been only two unambiguous examples of the phenomenon: Franklin Delano Roosevelt's reorientation of the Democrats in the 1930s, from a small-government party to the architects of the New Deal, and Ronald Reagan's melding of social and small-government conservatives with national security hawks, to form the Republican coalition that has endured until now. These makeovers shared common features, which the Trumpian takeover mostly lacks. First, both leaders built on long-standing political forces. The New Deal coalition was founded on the rise of trade unionism and migration of poor blacks from the Republicans. Reagan's revolution was fuelled by growing concerns about government expansion, in part

whipped up by Barry Goldwater's earlier Republican campaign.

Second, though there were losers from both realignments—the small-government Democrats who left Roosevelt's coalition, the Rockefeller Republicans who left Reagan's—they were more about synthesis, rallying the party's existing constituents around a new endeavour, than about exclusion. Third, Roosevelt and Reagan clinched their arguments with their governing record. Reagan's re-election campaign ad "Morning in America", depicting a moral society busily prospering, gives a powerful sense of that. "This afternoon 6,500 young men and women will be married and with inflation at less than half of what it was just four years ago they can look forward with confidence to the future," its avuncular narrator intoned.

Mr Trump's insurgency contains at most one of those ingredients, in the form of long-standing unhappiness among some working-class Republicans with the liberal immigration and trade policies favoured by the party's elite. This was also evident in the Tea Party movement, which was in part fuelled by anti-immigration sentiment, and thus played Goldwater to Mr Trump's Reagan. Yet it is hard to see Trumpism, as both a populist economic platform and oppositionist style of politics, as an enduring Republican response to this malaise, far less an effective one.

Unlike Roosevelt's and Reagan's projects, it appears too reductive to survive in a two-party system in which success depends on coalition-building. Though Mr Trump, who has never won a majority in a national poll, has pandered to pro-business Republicans, his protectionism is anathema to them. As is his nativism to the suburbanites who trounced Mr Gillespie. The president may also be too toxic to effect the transformation his critics fear. He has undercut or tainted most people who have worked with him—which matters because Trumpism looks heavily dependent on Mr Trump. Unlike Reagan, he has no army of pressure groups to push his agenda. He also has little governing success to point to. Indeed, it is not clear—considering he is yet to make good on populist promises to pull out of NAFTA, boost infrastructure spending and rewrite immigration laws—that he even thinks of them as a governing agenda. He has filled that gap with ethno-nationalist dog-whistling; where he has tried turning the whistles into action—as in his attempted travel ban—he has been checked.

As day follows night

This does not mean Mr Trump has not changed his party more than mainstream Republicans were expecting. (There is indeed a sense that they are overcompensating for past complacency.) But instead of capitulating or quitting, they should reflect on the crisis that first enabled his insurgency.

Mr Trump's takeover was a result of the party's weakness, not his strength. The Reaganite coalition has frayed as its constituents have adopted extreme and contradictory positions. A party that wants to slash social security and union power, as Messrs Ryan and McConnell do, is not for the working-class voters who provide half of its votes. A party that burns trillions of dollars on avoidable wars, as George W. Bush did, is not for smaller government. In Mr Trump's struggles, thoughtful Republicans should see the promise of a second chance to try to reconcile these contradictions. Perhaps the resulting settlement would retain traces of Mr Trump's populism. The class- and race-based grievances he is needling will endure. But that would be much less than the Trumpian submersion many Republicans fear is already upon them. It might even lead them, one day, to another new dawn. ■



Brazil

He's not the Messiah. He's a very naughty boy

BELÉM

Can a demagogue like Jair Bolsonaro become the next president?

IN THE arrivals hall of Belém's airport the excitement is palpable. Hundreds of supporters of Jair Bolsonaro, a seven-term congressman and would-be president, gather under the steady gaze of a squad of policemen. Some hold banners with Mr Bolsonaro's campaign slogan: "Brazil above everything, God above everyone". A few wear "Godfather" t-shirts, with his face in place of Marlon Brando's. When the candidate finally emerges through sliding doors the crowd surges forward, straining for a glimpse. While bodyguards forge through the scrum, the crowd hoists Mr Bolsonaro aloft as if he were a homecoming hero.

The visit to Belém, the sweltering capital of the Amazonian state of Pará, is an early stop in Mr Bolsonaro's campaign to win the presidential election due in October 2018. A religious nationalist and former army captain, he is anti-gay, pro-gun, and an apologist for dictators who tortured and killed Brazilians between 1964 and 1985. He rails against the political elite, whose venality has been exposed by the three-year Lava Jato (Car Wash) investigation.

His message resonates. If the election were held today, an eighth of Brazilians would vote for Mr Bolsonaro, according to Ibope, a pollster. In a crowded field, that would put him second to the former president, Luiz Inácio Lula da Silva, who has the backing of a third of the electorate. The two would face each other in a run-off.

Polls this early are unreliable and Mr

Bolsonaro's eighth of the electorate is hardly a groundswell. His appeal may well fade as the economy recovers from a recession and voters pay more attention to the election. But his second-place status says much about the turbulent mood among Brazilians. A choice between him and Lula, who has been convicted by a lower court of corruption, would be a grim one indeed. Lula is appealing against the verdict.

Telling it like it isn't

Mr Bolsonaro, who represents Rio de Janeiro in congress, hopes to be a Brazilian Donald Trump. His rhetoric is even more indecorous. In 2016 Mr Bolsonaro dedicated his vote to impeach Dilma Rousseff, then Brazil's president, to the dictatorship's chief torturer, Carlos Alberto Brilhante Ustra. (Ms Rousseff herself, once a member of an urban guerrilla group, had been tortured by the military regime.) In 2014 he told a congresswoman he wouldn't rape her "because you don't deserve it".

Mr Bolsonaro, whose middle name is Messias (Messiah), talks little about what he would do as president, apart from restoring law and order. He admitted in a recent interview with Bloomberg to a "superficial understanding" of economics. He holds some mainstream views, such as favouring gradual reform of the ruinously expensive pension system. Less conventional is his wish to loosen gun-control laws, restrict Chinese investment in Brazil

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and cosy up to Mr Trump. He opposes gay marriage (legal since 2013) and adoption by gay parents. "His political instincts are to radicalise rather than moderate," says Paulo Sotero of the Brazil Institute at the Woodrow Wilson Centre in Washington.

Public opinion is becoming more militant, too. The influence of social conservatism appears to be growing. In September Santander, a bank, abruptly closed an exhibition of "queer art" in Porto Alegre in southern Brazil, which included a painting that showed someone having sex with an animal. Campaigners said it promoted blasphemy and bestiality. Around a thousand people joined a "Christian march for Brazil" on October 16th in São Paulo. Some held banners that called for the military to take over the country. Mr Bolsonaro, who was baptised in the Jordan river last year, will attract support from evangelicals. They make up a fifth of the population, according to the census taken in 2010; three decades before, they were one in 15.

Anger about the economy, crime and corruption will add to Mr Bolsonaro's support. Despite a recent pickup in economic growth, the unemployment rate is still high at 12.4% and poverty is increasing. The murder rate is rising. Michel Temer, the current president, survives in office only because congress has twice rejected appeals by prosecutors to put him on trial for corruption. His approval rating is a risible 3%. Just 13% of Brazilians think democracy works well; a third would back another coup. Nearly 60% want a president from outside one of the three biggest parties.

Mr Bolsonaro has belonged to seven during his 26-year congressional career. He is now a member of the Christian Social Party, which has just 11 of the 513 seats in the lower house. He pays a price: public money for campaigns and time on television and radio are distributed according to par- ▶▶

ties' share of seats in congress. But money has become less important since recent reforms capped campaign spending and prohibited corporate donations. Mr Bolsonaro boasts that he will spend just 1m reais (\$310,000) on his campaign (in 2014 Ms Rousseff spent 300 times as much).

He is betting on social media. He has 4.8m followers on Facebook, more than any other Brazilian politician, and posts several videos a day, many of which are viewed by more than 1m people. His campaign is well organised. In Belém it deployed women to deal with any female protesters who might show up; sending

men to confront them might have produced ugly press coverage.

"Bolsonaro is the only honest candidate we have," explains Bárbara Lima, a 27-year-old volunteer. "There is no proof that he is racist or homophobic." Older supporters remember the military dictatorship fondly. "My childhood was one of the happiest times of my life. I had liberty, security and health," recalls Tom Meneses. "Then the socialists came to power."

Despite fury and nostalgia, the odds are against Mr Bolsonaro becoming president. A third of Brazilians rule out voting for him in the first round. As the economy im-

proves, fewer may gamble on a radical presidency. The two-round electoral system makes it hard for extremists to win; in a run-off, the moderate majority rallies to the more mainstream contender.

The only candidate with higher rejection rates than Mr Bolsonaro is Lula, but he may be not be able to run if a higher court upholds his conviction. His disqualification would make things still more difficult for the Rio radical. Even so, Mr Bolsonaro's strong early showing is a warning sign. Centrists must prove that they are better equipped than extremists to repair the damage politicians have done. ■

Bello | The war of the rose

The FARC is now a political party. Get used to it

A STORM that filled Bogotá's streets with ice on November 1st was the second freakish event of the day in Colombia's capital. The first took place in a hotel conference room, where the FARC, a guerrilla army turned political party, announced its candidates for presidential and congressional elections to be held in 2018. Before a screen emblazoned with the FARC's pacific new logo—a rose with a red star at its centre—its leaders did their best to sound like normal politicians. Imelda Daza, the vice-presidential candidate, promised a "more inclusive model" of government that would overcome poverty, hunger and barriers to education.

Most Colombians know the FARC as a lawless army whose 52-year war against the state was at the centre of a conflict that caused more than 200,000 deaths and displaced 7m people. The party is not trying hard to disguise its origins. Its new name, the People's Alternative Revolutionary Force, uses the old bloodstained acronym. Its presidential candidate, Rodrigo Londoño, aka Timochenko, has led the FARC since 2011. Although he has become a peacemaker, he is wanted by the United States for trafficking cocaine, kidnapping and murder. The FARC remains on the State Department's terrorist list under its old name.

The idea of President Timochenko is an absurdity. In August, before the FARC became a political party, 84% of Colombians had a negative view of it and just 12% a favourable one (though traditional political parties were even more despised). Timochenko himself was ill in Havana while the FARC was presenting its line-up in Bogotá. That does not betoken a serious intent to win the presidency.

Even so, to many Colombians the FARC's candidacies are an outrage. Although Timochenko has no chance, other

FARC leaders will be elected to congress. The party is guaranteed ten seats for the next two electoral cycles under the peace accord signed last year by President Juan Manuel Santos. To let unpunished "kingpins" hold office is to endorse impunity and encourage lawlessness, says Iván Duque, a senator from the conservative Democratic Centre party.

Mr Duque is part of a rearguard resistance to the agreement led by Álvaro Uribe, a former president. Foes of the accord narrowly defeated a first version in a plebiscite last year. Mr Santos pushed a revised accord through congress. Now the fight is over legislation to implement it. Whatever happens, the debate about whether or not the FARC is fit for politics will carry on through the elections, which may be the bitterest in years.

Those who think it unfit are focusing on a proposed law to set up a special peace tribunal (JEP), before which the FARC's leaders will be required to confess their crimes. The tribunal will be able to sentence them to up to eight years of restricted liberty, but not to serve time in jail. The anti-FARC brigade want to bar ex-guerrillas guilty of the

worst crimes from holding elected office until they have served their sentences.

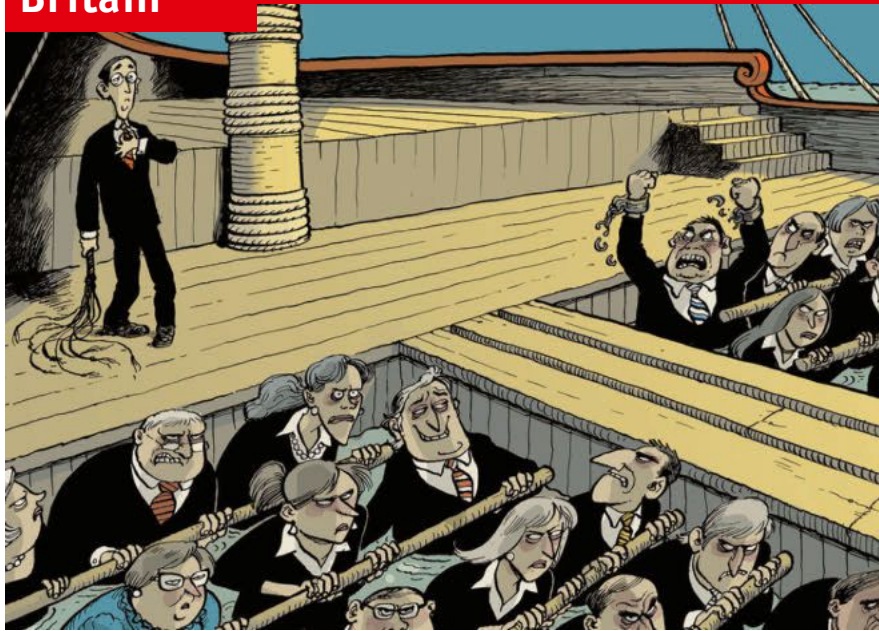
That wish is understandable, but misguided. Political participation and light sentences were the price of peace. The FARC has fulfilled its side of the bargain. By August its 7,000 fighters had turned in their weapons. The end of war has spared more than 3,000 people from death or injury since mid-2016, by one estimate.

The implementation of the peace process has problems, but they are more the fault of a weak state than of the FARC. Some areas it vacated have been occupied by organised-crime gangs formed from remnants of right-wing paramilitary groups; the ELN, a smaller guerrilla force; and renegade FARC fighters. The government's scheme to help coca growers switch to other crops is progressing slowly; that and forced eradication have provoked protests recently by thousands of indigenous people and *campesinos*.

The politicians trying to bar the FARC's leaders from office are, in effect, proposing to renege on the peace deal. That is dangerous. If the attempt succeeds, more ex-fighters could join armed deserters; prospects for an agreement with the ELN, which is now observing a ceasefire, will fade. The government may have enough votes in congress to repel the raid on the JEP law, but attacks on the FARC's political legitimacy will continue. A right-wing president could undermine the peace agreement in other ways, such as withholding money for implementing it.

Colombia's future would be brighter if politicians could agree that the FARC's leaders are no longer terrorists. The United States could help by removing the group from its list of terrorist organisations. Timochenko and his comrades deserve Colombians' scorn. The way to show it is not to vote for them.





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Life in Westminster

Cracking the whips

As British politics sinks into chaos, the whips—the backroom fixers with the task of restoring order—face problems of their own

GIVEN the departure of two cabinet ministers within a week, a growing sexual-harassment scandal and the general air of pandemonium that permeates the party, it is easy to forget that the Conservatives still have a country to run. Yet the wheels of government have to turn. The people with the job of keeping the show on the road are the whips: the MPs who corral their colleagues into backing their party's policies. But the "neglected toilers in the engine room of Parliament", as one former whip calls them, are showing signs of flagging, too. A parliamentary institution whose origins stretch back to the 18th century is starting to creak.

The multiplying allegations of sexual misbehaviour by MPs on all sides demonstrate the flaws of an ancient system in a modern age. A complaint to the whips is one of the few avenues available to young parliamentary staffers with little job security. The whips' office has to fill the void where a proper human-resources department should be, says Rob Wilson, a former Tory whip. "It's not cut out for it," he says. Whips have demonstrated a blasé attitude to sexual misdemeanours in the past. "Sexual misconduct can probably be dealt with," writes Helen Jones, a former government whip, in a recent book. "It will be awful for the person involved, and even worse for his wife or family, but the damage often fades with time."

This approach may not be surprising

given that the whips' job is fundamentally amoral. Their business is to ensure that the government can pass its legislation—or, for opposition whips, that it is defeated. During Labour's minority administrations in the 1970s, six MPs died after being dragged to Parliament to vote in varying degrees of ill health, according to one whip from the period. The content of legislation is of no concern. "We don't do policy, we do process" was a refrain of Nick Brown, chief whip in the government of Gordon Brown.

To get the votes, whips apply pressure in various ways. They are in charge of dish-ing out parliamentary quarters, and because these offices range from airy spaces with glorious views of the Thames to windowless cupboards, this can be a potent force for MPs' loyalty. Whips have over the years cultivated an air of secretive menace. One likens his role to that of an Elizabethan spy, picking up any whiff of plot or sedition—or salacious gossip—and feeding it back to the "chief". Conservative MPs fear the "black book" that whips are said to fill with details of their misbehaviour.

Yet these powers are fading. One former MP compares whips to the Wizard of Oz: pull back the curtain and, instead of the all-powerful figure of legend, you find a "confused middle-aged man". Whips themselves admit that they know less than they let on. "Like all police work, it is based to some extent on a confidence trick," admitted Stephen Dorrell, a former Tory

whip, when interviewed in the 1990s. Following the sexual-harassment scandals, they may be less inclined to boast about their black books. Whips in both main parties now face questions about whether they knew about claims of harassment.

Whips have also lost some of their formal powers. They no longer select the chairmen of parliamentary select committees, who are now elected by MPs. And changing social norms have put paid to the horror stories of MPs being bullied—sometimes physically—into voting the correct way. "The dark arts of whips are less dark than they were," says Mr Wilson. "They are more grey arts."

While their weapons have been blunted, their charges have become more rebellious. In the first four post-war parliaments, more than 90% of votes passed without a dissenting vote from a government backbencher, according to research by Philip Cowley of Queen Mary University in London. During the 1950s, two parliamentary sessions saw no government backbench rebellion at all. By contrast, in the first four years of the Conservative-Lib Dem coalition of 2010-15, nearly 40% of votes featured backbenchers rebelling. Once it begins, such sedition is contagious, argues Mr Cowley: "Rebellion breeds rebellion."

The increased willingness to defy the whips is partly due to MPs' greater fear of their constituents. Websites such as TheyWorkForYou.com make it possible to find out an MP's voting record in a few clicks, rather than by wading through Hansard. A vote that angers local constituents will no longer go unnoticed. No subject has made this clearer than Brexit. In the vote in January to allow the government to trigger Article 50 and begin the process of withdrawal from the European Union, 47 Labour MPs, mainly from constituencies that had voted for Remain, rebelled against the party's in- ▶▶

struction to back the measure.

MPS are also more able than in the past to build their profile without the help of their party. Central offices provide enthusiastic door-knockers at election time and co-ordinate coverage in the national media—and may threaten to withdraw both if MPS misbehave. But social media have helped to short-circuit this system, allowing MPS to show off about their achievements and run their own campaigns via Twitter and Facebook.

At a time when they are weakened, whips' work is more important than ever. Both the main parties have been fractured by Brexit and must be whipped into voting for or against the mountains of Brexit-related legislation due in this parliament. The finely balanced state of the Commons means that every vote counts. The deal with the Democratic Unionist Party that keeps Mrs May in Downing Street was signed by her then chief whip, Rupert Harrison, a former Tory adviser, declared at the time: "In a minority government it's the chief whip who is really in charge." ■

Political connptions

Unparliamentary behaviour

Sex scandals and ministerial missteps sap the May government

IF A week is a long time in politics, try a fortnight. A string of sexual-harassment scandals in Westminster and beyond has been followed by some crass ministerial errors. The combination exposes the weakness of Theresa May at a crucial moment in the Brexit negotiations.

The growing reports of sexual harassment claimed a minister when Sir Michael Fallon resigned as defence secretary over past behaviour that had fallen below standard. Mrs May faced criticism for replacing him with her chief whip, Gavin Williamson, a close ally with no ministerial experience. She was already tottering because her old friend Damian Green, the deputy prime minister, is under investigation by the Cabinet Office over claims of sexual harassment (and possession of porn on an office computer), which he strenuously denies. Mark Garnier, a trade minister, is also being investigated.

Ministerial blunders have further weakened the prime minister. This week she summoned home the international-development secretary, Priti Patel, who resigned after improperly and secretly meeting senior Israeli officials, apparently without telling either the Foreign Office or Mrs May in advance. Boris Johnson, the foreign secretary, is in hot water for erroneously

The queen's personal finances

Daylight upon magic

Should the monarch pay tax?

THE grandest name associated with the "Paradise Papers", leaked documents that shine light on offshore transactions (see page 62), is that of Queen Elizabeth. The papers reveal that the Duchy of Lancaster, her private estate, invested millions in a Cayman Islands fund. Many of her subjects are non-plussed. Jeremy Corbyn, the leader of the Labour Party, implied that she should apologise, though there is no suggestion of wrongdoing. Yet despite her offshore dealings, the queen actually pays more tax than legally required, not less.

As head of state, she enjoys lots of weird exemptions. Civil and criminal proceedings cannot be taken against the sovereign under British law. Passports are issued in her name, so it is unnecessary for her to possess one.

These oddities extend to tax, which is collected by an office called Her Majesty's Revenue & Customs. The sovereign is not legally liable for income, capital-gains or inheritance tax. The arrangement has a certain logic to it. The queen is supposed to be impartial with respect to government policy, and might be less so if politicians' decisions on tax determined her take-home pay. (This argument is somewhat undermined by the energetic lobbying of the government by Prince Charles, her heir and fellow offshore investor.) Other monarchs enjoy similar exemptions: the Dutch king does not pay tax on income from his kingdom.

Yet there is a difference between what the law requires and what happens in reality. In 1992 a row broke out over demands that taxpayers should contribute to the repair of Windsor Castle, which had been damaged in a fire. The queen subsequently agreed to pay tax on two of her three streams of funding.

telling MPS that Nazanin Zaghari-Ratcliffe, a British-Iranian woman imprisoned in Iran, had been teaching journalists, when in fact she was on holiday—and refusing to apologise even though his mistake may mean an extra jail term for her. Mrs May might have fired him too, but she seems unable to dump so prominent a Brexiteer.

Amid reported lists of MPS accused of inappropriate behaviour, several have been referred to the police or subjected to disciplinary proceedings. In the Tories, Charlie Elphicke and Chris Pincher are under police investigation; Daniel Kawczynski and Dan Poulter are among those subject to disciplinary inquiries. Labour has



Royal rumbled

First, she pays taxes on her private income, such as investment income. The details are private, as they are for anyone. Second, she pays taxes on some income and capital gains from the Privy Purse, which is part-funded by the Duchy of Lancaster, the estate at the centre of the Paradise Papers leaks. Last financial year the net income of the Duchy was £19.2m (\$25.2m), so in theory the queen could have been liable for over £8m in income tax. Her third stream of income, the sovereign grant, is disregarded for income-tax purposes because it is used for spending related to her official work.

The queen also pays council tax, voluntarily. Buckingham Palace is registered as a "Band H" property for this purpose, and thus attracts an annual bill of £1,376 from the local council.

suspended an MP, Kelvin Hopkins, and an aide to Jeremy Corbyn, David Prescott. A Welsh Labour ex-minister, Carl Sargeant, killed himself after being suspended.

A few supposed offences may have been minor. In some cases, too, the presumption of innocence has been forgotten. But all three main parties are looking into allegations of rape that confirm the vulnerability of many who work in Westminster to harassment and assault. Amid claims that victims feel unable to complain, Mrs May is setting up a cross-party grievance procedure and launching a support service for staff. If recent weeks' allegations are a guide, it can expect a heavy workload. ■

Bagehot | Weak and stable

Don't expect Theresa May to be gone anytime soon



AND another one bites the dust. A week after Britain's defence secretary, Sir Michael Fallon, resigned over a sexual-harassment scandal, Priti Patel, the international-development secretary, has resigned over an international-relations scandal. There may be more to come. Boris Johnson, the foreign secretary, is yet again skating on thin ice. He incorrectly told a parliamentary committee that a British-Iranian, Nazanin Zaghari-Ratcliffe, was "teaching journalism" while in Iran, giving the Iranian regime an excuse to add an extra five years to her prison sentence. Damian Green, the deputy prime minister, is fending off claims of sexual misconduct with all the legal and rhetorical force he can muster.

Can Theresa May hold on to her job as her government collapses into chaos and confusion? Nigel Farage, a former leader of the UK Independence Party, pronounces that she will be gone by Christmas. Some Tory MPs give her even less time. Leading allies of Jeremy Corbyn are confident that they will be in office within a year. European Union officials worry that they are negotiating with a government that is on the verge of vanishing.

A charitable view of Mrs May is that she is the victim of terrible misfortune. A less charitable view is that she is the victim of her own appalling misjudgments: embracing a "hard" Brexit after the narrowest of victories for the Leave side; triggering Article 50 without making adequate preparations (the equivalent of putting a loaded gun in your mouth and pulling the trigger, according to a prominent Leaver); calling a general election to increase her majority and then running the most dismal campaign in living memory. But either way, her premiership is turning into a tragedy of small disasters, punctuated by big disasters, punctuated by even bigger disasters.

Yet perhaps the most awful curse of the May administration is that it is doomed to go on—perhaps until March 2019, when Britain is due to leave the EU, or perhaps beyond. Friedrich Nietzsche liked to say that, "That which doesn't kill us makes us stronger." With Mrs May, what doesn't destroy her premiership makes her more indispensable. The more fractious the political situation becomes, the more terrified the Conservatives are of defenestrating their prime minister and opening the way to a civil war or a general election.

Westminster's sexual-harassment revelations have the para-

doxical effect of making Mrs May's day-to-day life more difficult but also strengthening her grip on power. The public (rightly) expects the work of driving away the sex pests of Parliament to be led by senior women such as Mrs May, on the right, and Harriet Harman, on the left. And any man who aspires to the highest office during the current crisis will (rightly or wrongly) be subjected to an unusual degree of scrutiny over his past behaviour and attitudes. David Davis, the Brexit secretary, once surrounded himself with female supporters in T-shirts with the phrase "It's DD for me" emblazoned across their chests. Mr Johnson has an action-packed private life. When it comes to scandal-avoidance, you can't do better than the vicar's daughter who claims that the naughtiest thing she has ever done is run through a field of wheat.

Mrs May is also the beneficiary of the continuing civil war within the Conservative Party between Remainers and Leavers. This is partly because she straddles the divide, having voted to remain before delighting her party's right wing with her "Brexit means Brexit" speech. It is also because she is the incumbent, making it impossible to replace her without a bloody battle over whether the successor should be a Leaver or a Remainer. The current favourite is Amber Rudd, the home secretary. But Brexiteers would be unlikely to tolerate the promotion of a prominent Remainer to the top job, particularly as they have lost one of their own from the cabinet, with the defenestration of Ms Patel.

Mr Corbyn completes Mrs May's weak-and-stable formula. The stronger Mr Corbyn becomes, the more desperately the Tories cling to the status quo. It is not just that Conservative MPs are terrified that their party's own civil war might lumber the country with the most left-wing leader since the English civil war (and that the Conservatives' Northern Irish allies are even more terrified of a man whom they regard as little more than an IRA sympathiser). The broader British establishment shares the same fears. Iain Duncan Smith lost the Tory leadership because party donors stopped funding him. Sir John Major lost momentum because businesspeople realised that they could work with Tony Blair. Neither donors nor company bosses show signs of jumping ship from Mrs May to Mr Corbyn.

Too frail to fail

A glance at two previous administrations—James Callaghan's government of 1976-79 and the Major governments of 1990-97—suggests that British prime ministers can survive the most extraordinary amount of humiliation. Callaghan quickly lost his majority and kept his government in office only by forming an unstable pact with the Liberals. Every day seemed to bring industrial action of one sort or another. Sir John was "in office but not in power", as his chancellor later put it, from the moment that Britain was expelled from the European Exchange Rate Mechanism on Black Wednesday, September 16th 1992. He was tormented by rebellious Eurosceptics (the "bastards"), embarrassed by randy ministers and outmanoeuvred by Labour, and yet he managed to hold on to power until 1997.

The situation today is more imponderable than it was in the 1970s or 1990s. Britain faces bigger decisions and the atmosphere is more deranged. Mrs May is not as robust as Callaghan. She suffers from diabetes and looks tired and ashen. Yet Bagehot bets that Mrs May is safe in her gilded prison in Downing Street for at least another year: embarrassed by scandal, overwhelmed by problems, battered by crises but nevertheless clinging on to office, the great limpet of Brexit Britain. ■

The
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November 11th 2017



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The leapfrog model

Technology in Africa is making huge advances, says Jonathan Rosenthal. But its full benefits will be reaped only once basics like power supplies and communications are widely available

TO FLY NORTH from Bangui, the capital of the Central African Republic (CAR), is to look down on a country that has become hell. The dark shadow cast by the UN helicopter passes over mile after empty mile of green, fertile land. The few signs of former habitation—a homestead on top of a hill, the remains of a once-ploughed field—have been burned to the ground or overrun by bush. After an endless succession of conflicts, almost all the people have fled to refugee camps guarded by the UN.

There are many reasons why the CAR is in such a wretched state, but high among them is that it is Africa's most remote country, with almost no connections to the outside world. Even ideas struggle to cross its borders. Fast internet and mobile-phone reception is available only in and around Bangui. Its people are largely illiterate. It is, in short, a country that technology has skipped over.

Yet the CAR is an exception. Across the rest of sub-Saharan Africa, countries are on the cusp of a tech-driven transformation that is already beginning to make people healthier, wealthier and better educated at a pace that only recently seemed unimaginable.

The first taste of these new possibilities came when mobile phones swarmed across the continent a decade ago. Within just a few short years hundreds of millions of people were able to phone and text for the first time, bypassing monopolistic state-owned phone companies that kept customers waiting for landlines indefinitely. And leapfrogging over old technologies and business models with mobile phones quickly made other sorts of leaps possible. Thanks to M-

Pesa, a service that lets people send money through their phones, everyone with a phone suddenly also had, in effect, a bank account in their pocket. As mobile money has lowered transaction costs, it has brought down barriers to innovation in all sorts of other areas, allowing lenders quickly to assess credit risks, insurers to sell life and medical cover in small chunks and new energy firms to sell electricity by the day or week.

Some of these innovations are emerging from the thriving tech hubs that are popping up across Africa, but most of the technology transforming the continent comes from elsewhere. The \$50 smartphones on which apps connect motorcycle taxis and customers in Rwanda are Chinese, for instance. However, these technologies are often being combined in new ways to solve uniquely African problems. If you want to book a truck to move your cow, or get an ambulance to go to hospital, you will probably turn to an African startup.

For an example from the field of medicine, take Dougbeh Chris Nyan, born in Liberia and educated in Germany, who spent most of his career in America, developing tests for infectious diseases. Since moving back to Liberia after its Ebola epidemic in 2014-15, he has been working with scientists both there and in America on a battery-powered device ▶▶

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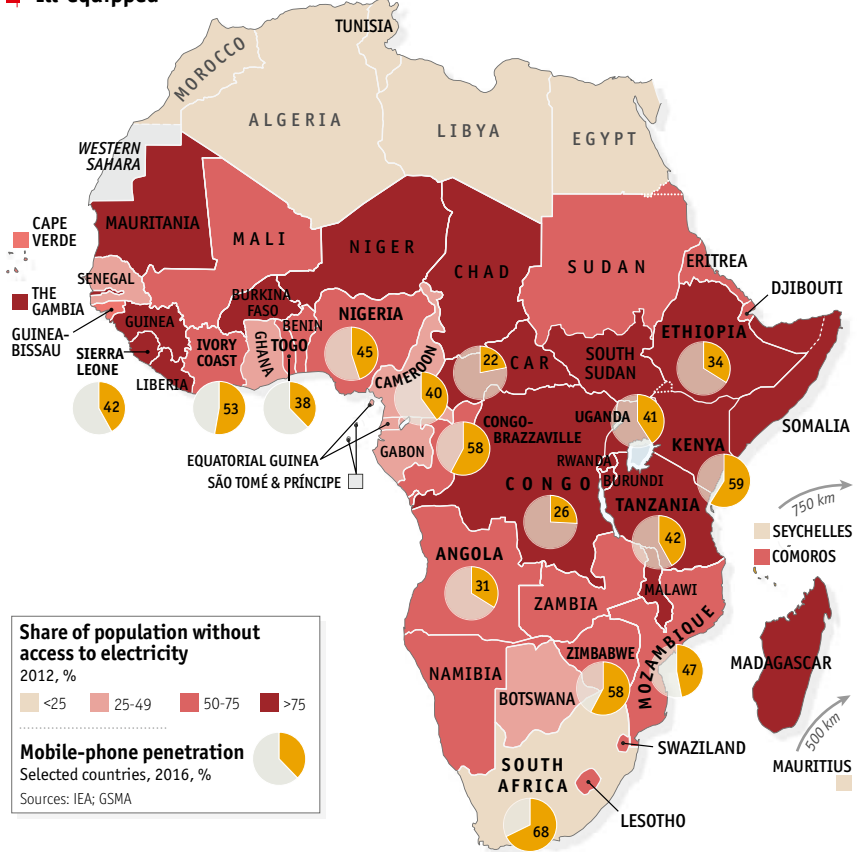
- 5 Energy**
Good night, gloom
- 6 Connectivity**
The right connections
- 8 Agriculture**
Yes, we have no bananas
- 8 Conservation**
Someone to watch over them
- 9 Health care**
Doing more with less
- 10 Industry**
Robots in the rainforest
- 10 Africa's sharing economy**
Four legs good, four wheels better
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Light in the tunnel



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Ill-equipped



▶ that provides a quick and cheap test for six different infections at a time. It is fairly common in Africa (though rare in the rich world) to see patients with multiple diseases such as malaria, yellow fever and HIV. Mr Nyan's machine "is an Africa-induced innovation", he says. "We are forced to be inventive to become masters of our destitution."

Much of the money going into African technology comes not from philanthropists but from hard-nosed investors looking for attractive returns. In 2016 African tech firms raised a record \$367m. Although paltry by the standards of Silicon Valley, this is helping to stimulate the setting up of firms such as Flutterwave, a Nigerian payments company, and Zipline, which uses drones to deliver blood to clinics in Rwanda.

To be sure, the argument that Africa can catch up with the West through technical wizardry has many critics. To begin with, hundreds of millions of Africans are still without power or safe drinking water, never mind phones or the internet (see map). Corruption and misrule are widespread, and too many economies depend on commodity exports. In 2016 weak commodity prices were partly responsible for a slowdown in economic growth across sub-Saharan Africa to 1.4%, its most sluggish pace in more than two decades. With the population growing by about 3% a year, people on average got poorer last year.

Moreover, technology is advancing far more slowly in Africa than it is in the rich world, so the gap has been widening in recent years. "The poverty gap is a technology gap," says Kwabena Frimpong Boateng, Ghana's science and technology minister. It is also a knowledge and education gap. Three-quarters of children in their third year of schooling in Kenya, Uganda and Tanza-

nia are unable to explain the meaning of the sentence "The name of the dog is Puppy" after reading it aloud. If the education system cannot prepare youngsters for jobs in a tech economy, Africa risks falling even further behind.

Yet a school in Mpigi, a town near Kampala, Uganda's capital, shows that technology can also make teaching far more effective. A class full of children in bright yellow uniforms chant in unison after their teacher: "The letter q sounds like kw, the letter s sounds like sss" as she holds up flashcards with letters on them. The school, run by Bridge International Academies, represents the biggest and boldest effort yet to improve teaching in poor countries by putting technology in teachers' hands.

Each teacher works from an electronic tablet that has scripted lessons. This enables the head teacher, as well as staff at Bridge, to follow the progress of each class. It becomes instantly obvious if teachers fall behind with their lessons or do not show up for work. Last year Liberia handed over the management of 93 state schools to various private operators, including Bridge. A follow-up study showed that children at the Bridge schools learned about as much in one year as their peers in the state system did in two.

Other firms are experimenting with putting technology in the hands of students rather than teachers. At the low end of the cost scale is Eneza Education, a Kenyan firm that allows students to revise and take mock tests using text messaging on basic mobile phones. At the other end are initiatives such as the Kio Kit, a set of rugged tablet computers that can be used by children in the classroom.

Many of these initiatives are still embryonic, so data on which ones work are scarce. But there are some encouraging signs that even simple interventions can make a big difference. A study of adult education in 160 villages in Niger by Jenny Aker of Tufts University and Christopher Ksoll of the University of Ottawa looked at whether weekly phone calls from researchers to teachers and their students would improve the quality of learning. Remarkably, those calls seemed to result in much higher grades for the students.

Tech-friendly

This is not just a top-down process in which people with technology force it upon others. Given an opportunity to grasp that technology, many in Africa do so with both hands. In a tech hub in Lagos, Nigeria, enthusiastic youngsters tap away on laptop computers, practising coding skills that many have picked up through online portals such as Udacity or by watching YouTube videos. Jean-Claude Bastos, who sponsors an annual innovation prize in Africa as well as a tech hub in the slums of Luanda, Angola, recalls how alarmed he was when he first put a 3D printer into the centre, only to find that the youngsters there immediately dismantled it. "They took it apart, then put it back together, then did it again. Now if anything in it breaks they rebuild it on intuition, like it is a motorbike or car," he says.

In that spirit, this report will argue that a cluster of new ▶▶

▶ technologies promise to have a huge impact on Africa, not least because they can help solve some of Africa's biggest and longest-standing problems. These include weak state-run education systems, a high burden of disease, broken infrastructure and low productivity on farms and in factories. What made mobile phones so much more important in Africa than in the rich world was that for hundreds of millions of people they were the first and only form of telecommunication available. Equally, if a vaccine is developed for malaria, it will make little difference in the rich world but could save millions of lives in Africa. "Investments in health R&D for HIV, tuberculosis, malaria and other diseases will be a massive boon for poor countries where the disease burden is highest," says Bill Gates, whose foundation funds some of this research. "The same is true for innovations like better seeds that enable poor farmers to increase crop yields."

What will all this technology add up to, and will it be enough to help Africa close its gigantic income gap with the rich world? The first thing that needs to happen is for the continent's people to gain broad access to the most basic technological building blocks: electricity, phones and internet connections. "You cannot have a 21st-century economy without power and connectivity," says Erik Hersman, a founder of several startups in Kenya. "But if you have those, you can do almost anything else." ■

Energy

Good night, gloom

Africa might leapfrog straight to cheap renewable electricity and minigrids

WHEN SATELLITES TRAIN their cameras onto Africa at night, it is almost as if they are peering back to an age before electricity. The rich world is awash with great glowing orbs for the main population centres and orange tentacles for the roads that link them. But apart from speckles of light around the biggest cities, much of Africa is dark.

Of all the measures of the continent's poverty, few are starker than that about two-thirds of its people have no access to reliable electricity. The Africa Progress Panel (APP), a group of experts led by Kofi Annan, a former UN secretary-general, puts the number of Africans without any power at 620m, most of them in villages and on farms. The panel found that in nine African countries fewer than one in five primary schools had lights. A study by the World Health Organisation found that about a quarter of clinics and hospitals in 11 African countries have no power of any kind, and many of the rest get it from generators that often break down or run out of fuel.

Such power shortages cost lives. In Nigeria each year an estimated 36,000 women die during pregnancy or childbirth, many because they deliver their babies in the dark in clinics such as the one in Makoko, a slum perched on stilts above a lagoon in Lagos, Nigeria's biggest commercial city. It has just a few rough wooden beds in a small room with a doorway so low that people have to stoop to enter it. Straightforward deliveries are done by candle and torchlight, says one local resident, a fisherman. If anything goes wrong, the mother is carefully passed down to a small fishing canoe and taken to a bigger hospital across the lagoon. By then it is sometimes too late. Without power even the simplest health precautions can become difficult. "If you don't have electricity you don't have a fridge, and if you don't have a

fridge you can't store vaccines," says Jasper Westerink, who runs the African business of Philips, a Dutch multinational firm.

Businesses across the continent have to contend with frequent blackouts, known as *dumsor* in Ghana, from the Asante words for "off and on". They rely on expensive backup generators, so the electricity they use is among the costliest in the world. The full impact of intermittent and high-cost energy on Africa's economy and society is hard to measure, but it seems safe to say that this is the biggest single barrier to development.

The World Bank reckons that if they had continuous energy supplies, sub-Saharan Africa's economies could be growing by two percentage points a year faster, on average, than they do now. A more limited study looking at the impact of blackouts on small firms in Ghana found that power shortages sometimes almost halved their revenues, and in aggregate cost the economy about 2% of GDP. Putting this right will require a huge investment in generating capacity. But thanks to a happy combination of innovation and falling costs for renewable energy, Africa may now be able to leapfrog ahead not once but twice, skipping both polluting fossil fuels and, often, the electricity grid itself.

Last year Africa added a record 4,400MW of renewable-power capacity, roughly enough to meet Nigeria's current consumption, according to the International Energy Agency (IEA). This is partly due to falling costs: the price of solar panels has come down by more than 80% since 2010, and that of wind turbines is also dropping fast. A recent study led by Anton Eberhard of the University of Cape Town found that grid-connected wind and solar renewable energy in South Africa is now among the world's cheapest.

But the dash for renewables also has to do with geography. One of the fastest-growing sources of renewable energy in Africa is hydropower as Africa dams its biggest rivers, including the Blue Nile, across which Ethiopia is building the Grand Renaissance Dam. When it is finished in a few years' time it will more than quadruple the country's electricity-generating capacity, from about 2,200MW to 8,700MW. The Congo river, for its part, has the potential for the world's largest hydropower station, with a theoretical output of about 40,000MW, where it plunges down a set of rapids between Kinshasa, the capital, and the sea. If it were ever built, it would generate about 20 times more power than the Hoover Dam in America, enough to light up South Africa, the continent's most industrialised country.

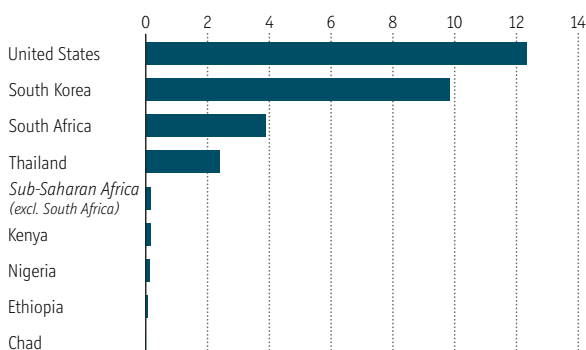
Yet generating power is useful only if it can be sent to where ▶▶

Prices of small solar-powered lights fell by 80% between 2010 and 2015



In the dark

Electricity consumption, MWh per person, 2014



Sources: Energy Information Administration; United Nations

▶ it is needed, and in many parts of Africa electricity grids seldom stretch beyond big cities. Adding a house to the grid even in a compact country such as Rwanda typically costs about \$2,000, which is more than the country's average annual income per person. The APP reckons that expanding grid power across Africa to reach almost everyone would cost \$63bn a year until 2030, compared with the \$8bn a year that is being spent now.

Solar gain

Another set of innovations is offering to sidestep this problem with mini rooftop solar installations that can power a home, or slightly larger “micro-grids” that can light up a village. Rooftop solar systems usually consist of a small solar panel and a small rechargeable battery and controller which typically powers four lights, a radio and a phone charger. Most systems have a built-in connection to the mobile-phone network that allows the provider to switch it on or off remotely. Instead of shelling out \$250 or so upfront for an entire system, customers can buy electricity for the equivalent of 50 cents a day using mobile money. If they run out of cash, their power is cut off until they are in funds again. Thanks to this new “paygo” model, venture capital is pouring into an industry that now has at least half a dozen significant firms. The largest of them, M-Kopa, has electrified more than 500,000 homes and is adding almost 200,000 more a year. Across the industry as a whole perhaps a million families now have rooftop power. At current rates of expansion, the total may double every 18 months or so.

Prices for these systems are also falling fast. The Global Off-grid Lighting Association reckons that prices of small solar-powered lights fell by 80% between 2010 and 2015. It forecasts that those for a large home system, including low-powered lights, television and radio, will fall by 45% between now and 2020.

The electrifying growth of rooftop solar energy is now sparking another round of innovation, some of which may in time travel back to the rich world. Azuri Technologies, a company based in Cambridge, England, is programming its systems to forecast how much power each household will use that evening. It then subtly adjusts the brightness of lights or the television to reduce power consumption on cloudy days.

The main problem with rooftop solar systems is that they produce only small amounts of power. They enable clinics to keep functioning at night and to keep vaccines cool, and small shops to stay open longer and offer chilled drinks. But they cannot run power-intensive machines such as welders or mills, which require much larger solar installations and bigger batter-

ies. Still, in the past few years a growing number of energy-intensive businesses such as mines have been putting up solar panels to replace diesel generators. The IEA reckons that this can cut a firm's energy costs by half.

These bigger systems are also beginning to play a role in powering villages with “minigrids”, which are much cheaper and easier to install than full-scale national power grids. Data on the spread of minigrids and their economic impact in Africa are scarce, but a study by the Rockefeller Foundation in India found that when minigrids were installed in villages, small businesses increased their sales by 13% and incomes rose across the area. “If you want to drive the productive use of electricity and move people up the economic ladder, then you need a minigrid,” says Deepali Khanna of the Rockefeller Foundation. The Smart Villages Initiative, which has brought together scientists from Cambridge and Oxford Universities to get minigrids adopted more widely in poor countries, found that once smallholder farmers have electricity, they quickly adopt a range of other technologies such as irrigation pumps and smartphones to get long-term weather forecasts. “You then soon find support industries springing up to feed this higher level of economic activity in the villages, together with a general increase in well-being,” says John Holmes, a co-leader of the initiative.

Minigrids have been relatively slow to take off because of their high capital costs, but several organisations are trying new business models to spread the expense. The Rockefeller Foundation is exploring whether mobile-phone companies can become anchor customers of minigrids. That would help to secure the finance needed to build the grid, but also to reduce one of mobile-phone companies' biggest expenses: diesel for the generators that power their masts. By one estimate this accounts for as much as 60% of the cost of operating their networks in Africa. Minigrids can thus help to spread not just energy but, just as important, phone and internet connectivity. ■

Connectivity

The right connections

Beefing up mobile-phone and internet penetration

WITH ITS SNAZZY technology hubs and army of bright young programmers, Kenya can rightly claim to be east Africa's tech startup nation. It was here that mobile money first took off, and it is here that off-grid solar power is making its biggest impact. Even the election in August was meant to be a showpiece of tech wizardry, with voting stations automatically beaming the results via mobile internet to a computer in the capital, Nairobi, to prevent tampering. But it turned out that about a quarter of the country's 41,000 polling stations did not have mobile-phone reception and sent in incomplete results, leading to allegations of vote-rigging. That helped persuade the courts to order a re-run.

Most other countries are far worse placed. On average, not even one in two people in Africa has a mobile phone, and many have to walk for miles to get a signal. The economic costs of this low penetration are enormous: every 10% increase in mobile-phone penetration in poor countries speeds up GDP growth per person by 0.8-1.2 percentage points a year. And when people get mobile internet, the rate of growth bumps up again.

Apart from being useful in their own right, mobile phones ▶▶

▶ enable a range of other innovations such as mobile money that improve lives and speed economic growth. A study in Kenya by Tavneet Suri of MIT and Billy Jack of Georgetown University found that M-Pesa, the mobile-payments system, alone lifted almost 200,000 families (about 2% of Kenyan households) out of poverty between 2008 and 2014.

If phones are powerful tools for alleviating poverty, broadband internet is even more potent. Jonas Hjort, of Columbia University and the International Growth Centre in London, and Jonas Poulsen, of Uppsala University, looked at African economies before and after they got connected, between 2006 and 2014, to the big undersea internet cables that now cocoon the continent. They found that connection caused a huge jump in employment in areas that were able to access fast internet as companies set up websites or used e-mail to sell their goods abroad. Not only were people much more likely to have jobs, those jobs were more likely to be good ones. The study also found that once countries got fast internet connections, the number of new startups rose and companies increased their exports. "I'm a firm believer in the hypothesis that some of these transformative technologies can help Africa leapfrog," says Mr Hjort. One example of how this also works for entrepreneurs is found in Nairobi's slums, where the arrival of fast internet connections led to the emergence of a cottage industry selling video-editing services abroad.

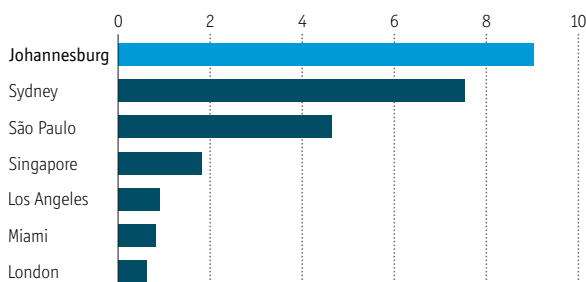
Broadening out

For all the good the internet can do, its reach in Africa is still limited. In some poor countries, such as Niger, Burundi and South Sudan, less than 5% of people have access to mobile internet. Across the continent as a whole only a quarter of Africans can get the internet on their phones, according to the GSMA. Even fewer have access to fast broadband delivered by cable; the International Telecommunications Union (ITU) says that under one in 100 people in Africa has cable internet, compared with about a quarter in rich countries. Those who do mostly live in big cities such as Johannesburg, Lagos or Nairobi. And even there the internet is expensive, partly because the data have to travel thousands of kilometres through cables under the sea. TeleGeography, a research firm, reckons that the wholesale cost of internet connectivity in Johannesburg is about \$9 a month for each megabit per second of capacity, about 20 times as much as in London and about ten times as much as in Los Angeles, even after big falls over the past few years (see chart).

When these fat cables are connected to mobile-phone towers and the data beamed out, the costs rise yet again. The ITU calculates that in poor countries the average cost in 2016 of the smallest mobile-internet package was equal to 14% of the average national income per person, putting it out of most people's reach.

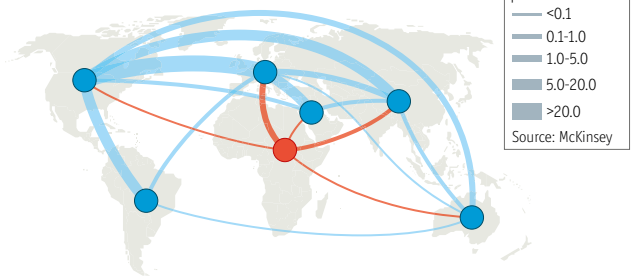
Handicapped

Data transfer costs*, selected cities, Q2 2017, \$/Mbps per month



A bigger commons

Cross-border bandwidth used



That forces users to buy their internet access in small chunks, sometimes for as little as five cents at a time, which they then hoard, turning on their phones' data connection to send messages and then off again. "People use the internet in ways that we would not recognise in the West," says Andy Halsall, chief executive of poa!, a Kenyan startup offering cheap internet access. "Here you wouldn't click on an advert or update an app because it will use up your day's allowance of data."

Three complementary developments promise to help spread affordable phone and internet connections to all but the most remote villages. The first is a huge increase in the capacity of the undersea internet cables connecting Africa to the rest of the world. Since 2015 the total bandwidth available has more than doubled and next year it will increase again as several new cables come ashore. The effects of competition on prices are already being felt. The cost of a connection between Johannesburg and London is now less than one-fifth of what it was in 2014, according to TeleGeography. In other African countries prices have dropped even more, says Nic Rudnick, the chief executive of Liquid Telecom, Africa's biggest broadband internet company. "You can now take a megabit of data from London or Paris and deliver it to Lagos for about \$2," he says. "Just a few years ago that would have cost you \$600."

That still leaves the problem of getting fast internet from the backbone out to homes and offices. Much of this last-mile connectivity relies on mobile-phone networks, but crowded and expensive radio waves are keeping the costs of mobile internet high. "Fibre-optic cable makes up the arteries of the internet, but wireless is the capillaries," says Steve Song at the Network Startup Resource Centre. "But there is this massive bottleneck because regulators are struggling to make spectrum available."

This provides an opportunity for a new breed of startups that are disrupting mobile-phone and cable internet companies by offering Wi-Fi internet access. Wi-Fi signals can carry a lot more data per second than those used by 3G or 4G phones. And Wi-Fi equipment is cheap because it is mass-produced by many competing firms. Radio transmitters able to beam Wi-Fi signals over a distance of up to 50km cost less than \$1,000, compared with hundreds of thousands of dollars for those used by mobile-phone firms. And unlike the spectrum used by mobile phones, which is usually auctioned off and then taxed, the radio waves that carry Wi-Fi are free. That allows firms such as poa! to sell internet packages with unlimited downloads in Kenya's slums for as little as 50 cents per day. Other firms, such as BRCK, which also builds its own rugged wireless networking equipment, hope to push costs low enough to provide connections without charging the consumer, relying on advertisers instead.

Cheap mobile-phone calls and internet access, in turn, will pave the way for innovation in all sorts of areas, from farming to health care to manufacturing. Start with agriculture. ■

Agriculture

Yes, we have no bananas

How technology can cure market failures

WITH EMERALD-GREEN tea plantations stretching out as far as the eye can see, the town of Nandi Hills has its fortunes planted firmly in the rich, red soil of Kenya's highlands. In the cool of a dark market, women traders surrounded by beans, mangos and bananas wait for custom. Bananas seem an uncomplicated crop, but Pauline, a middle-aged tea farmer who also grows fruit and vegetables, says she used to find it hard to know when to harvest and send them to market. They stay fresh on the tree for weeks, but ripen quickly once harvested. If she and several other farmers tried to sell them on the same day, there would be a glut and she would not even recover the cost of taking them on the half-hour journey. "Sometimes I would just bring them back to the farm and feed them to the animals," she says. Yet on

other days there might be no bananas available to buy at all.

This market failure, leaving both farmers and customers unhappy, is caused almost entirely by poor communications. It is also easily solved. 2KUZE, a simple e-commerce system devised by MasterCard with funding from the Gates Foundation, is now linking up thousands of farmers and traders in a virtual marketplace, using text messages on basic mobile phones. A trader might type in a request for honey that goes out to all the beekeepers in the area. Those with honey to sell will respond. A middleman who aggregates many such orders will then collect it, paying the farmer on the spot using mobile money, before delivering it to the market.

Such simple technologies might not seem to amount to much in rich countries, but in many parts of Africa they can make a big difference, improving farmers' incomes as well as cutting prices for consumers. They can also have a huge impact on farm productivity and crop yields, which in Africa have been largely stagnant for decades even as they have soared elsewhere. Farming accounts for about a third of sub-Saharan Africa's economy and employs more than half its adults. Most farms are tiny and methods are much the same as they have always been, not least because teaching millions of small farmers about modern agronomy and animal husbandry is cumbersome and expensive. Yet even a little knowledge can go a long way. On a hillside about an hour north of Nairobi, David Twara points to his coffee bushes and explains how simple changes to the way he farms, such as carefully applying fertiliser from a plastic bottle top and pruning back old stems, has increased his output by about 50%.

Someone to watch over them

Electronic surveillance may save the rhino

FOR EACH OF the past three years South Africa has lost more than 1,000 rhinos to poachers, despite intensive efforts to protect them using armed rangers, drones and specially trained tracker dogs. Guarding rhinos is particularly difficult because they roam across vast areas of veld where poachers can hide easily. But two novel approaches using artificial intelligence may help rangers catch their hunters. The first was developed by a group of computer scientists who had previously used artificial intelligence to detect roadside bombers in Iraq and in-

surgents in Afghanistan. In South Africa they used machine learning to predict where rhinos were most likely to be feeding the following day. The computers also crunched historical data on poaching incidents to identify areas where they were likely to happen. Rangers and drones could then be sent to patrol in areas most likely to have both poachers and rhinos, says V.S. Subrahmanian, who worked on the project at the University of Maryland.

Scientists from IBM used a different approach to protect rhinos in the Welgevonden game reserve near Johannesburg in South Africa, using radio collars and a data network. The collars they have developed can beam back the position and the speed at which the animals wearing them are moving. Instead of attaching these to the rhinos, they are collaring other animals such as impala or zebra that normally move alongside rhinos. The data being sent back are constantly monitored by computers for specific patterns of movement. If a natural predator gets into a herd of zebras, they will scatter. But if a man with a gun approaches, the animals will all start to move in the opposite direction, providing the rangers with an early warning of intruders. So instead of relying on just a dozen rangers to keep an eye on things, the park benefits from hundreds of four-legged sentinels, each one connected to a computer in the cloud.

Mobile phones and computers can play a big role in spreading this knowledge. A number of large agricultural firms such as Olam, one of the world's biggest buyers of cocoa beans, are trying out ways of using mobile phones and text messages to connect with tens of thousands of small farmers. Olam has mapped the location of each of its smallholder cocoa suppliers, using smartphones, which enables it to share information on market prices and farming techniques. Wefarm, a company based in Britain, has established a social network for farmers that lets them exchange information by text message. It already has more than a quarter of a million members in Kenya and Uganda.

Have you done your weeding?

Have you done your weeding?

Such initiatives can make a big difference. A study in Kenya by researchers from Harvard and Stanford universities found that farmers who were sent text messages with simple advice such as "remember to weed this week" increased their yields of sugar cane by 11%. As sensors become cheaper and internet connectivity spreads, smallholder peasants in many parts of Africa will be able to gather data on soil and weather conditions and get tailored farming advice from intelligent computer systems. They can also upload pictures of pests from their mobile phones for identification. And in- ➤



Collared

Internet-connected sensors are already making their mark in combination with mobile financial services. Acre Africa, based in east Africa, offers smallholders insurance for their crops and animals. If its automatic weather monitors in the field detect a drought, farmers receive a payout through their phones without having to put in a claim. Computers are also helping protect rhinos and other endangered animals from poachers (see box on the previous page).

There are still big gains to be had from planting better seeds. Ethiopia's government, for instance, has doubled the yield of crops such as chickpeas and lentils by investing in crop research. But one of the most useful recent innovations is surprisingly low-tech. Trials conducted by Britain's aid department and the Gates Foundation have found that rugged triple-layer plastic bags for storing harvested crops are remarkably effective in reducing losses from pests, which often eat as much as a quarter of what has been gathered. Use of the airtight bags, which cost around \$2 each and hold about 100kg, boosted farmers' incomes by as much as 50%. Multiply improvements like this by 5m—the number of farms in Africa—and the numbers quickly add up. ■

Health care

Doing more with less

Technology can make scarce medical resources go further

AT THE END of a long row of benches where young mothers wearily try to soothe their squirming babies is a clue to both the enormous challenge involved in reducing infant mortality in Africa and the huge potential for doing so. Perched on the edge of an examination table in the only clinic offering care in a community north of Nairobi is a small silver-coloured horn that looks a bit like a trumpet. Known as a Pinard horn, it is used to check the heartbeat of a baby in the womb. In the rich world the device, invented in 1895, was long ago replaced by doppler ultrasound machines, which do a much better job. Yet in many parts of Africa it remains in widespread use because it is cheap and does not need electrical power.

It is partly for want of better equipment that some of the world's highest rates of infant mortality are found in African countries. The continent accounts for about two-thirds of all deaths relating to pregnancy and childbirth around the globe, even though it makes up only one-sixth of the world's population. And one infant in nine dies before their fifth birthday, many for lack of simple diagnostic tools. But that may be changing. An innovation hub in Nairobi set up by Philips, a Dutch electronics firm, has developed a wind-up portable doppler ultrasound machine that needs no power and provides a digital readout of a fetus's heartbeat. A trial that pitted wind-up ultrasound monitors against Pinard horns in Uganda found that the digital ver-

sion identified 60% more cases urgently needing treatment.

Another innovation from the same hub is a chest monitor that straps onto a baby and measures its rate of breathing to help diagnose pneumonia. The company plans to package both devices into custom-made backpacks kitted out with a solar panel, a rechargeable light and battery-powered phone charger for use by midwives and community health workers. This kind of equipment is part of a plan to reshape primary health care in Africa, using technology for cheaply diagnosing illnesses and making better use of the limited numbers of doctors and nurses.

Talk therapy

Babylon Health, a British startup that raised \$60m to provide health advice in the rich world via a smartphone app, set up an operation in Rwanda about a year ago. It now has more than 600,000 Rwandan clients, who pay less than a dollar for each telephone consultation with a doctor assisted by a computer.

Artificial intelligence is also helping to solve more complex problems. IBM has research centres in Nairobi and Johannesburg where it is turning computers loose on issues such as how drug-resistant TB spreads through communities and understanding how genes that offer protection against malaria contribute to an increased risk of certain cancers.

Robots, too, are making an appearance in health care. Of the 7m people infected with HIV in South Africa, which is suffering the world's largest epidemic of the disease, only about half are currently being treated. The long queues of patients lining up at the Helen Joseph hospital in Johannesburg, South Africa's busiest HIV clinic, show just how desperate the need is. The disease is already pushing South Africa's public health system to breaking-point.

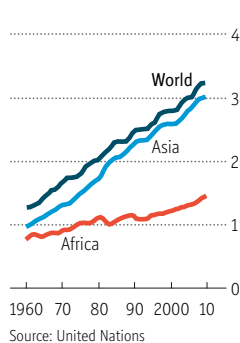
Epidemiologists hope to bring HIV under control by doubling the number of people getting treatment. But the health system cannot afford to double the number of doctors, nurses and pharmacists it employs, so it is turning to technology, including robots. At the Helen Joseph, which sees 750 patients a day, a robot pharmacist is already at work helping to pick out drugs and wrap them up for patients. Humans still check its work and hand over the drugs, but waiting times in the clinic have come down from more than four hours to less than 20 minutes. Researchers are now working on ATM-style dispensaries that will be able to provide patients with medication even faster.

Mobile phones can also play a role. Amref Health Africa, a not-for-profit group, is working on a mobile-phone app that can be used to train community midwives and health workers. Médecins Sans Frontières, a medical charity, is experimenting with smartphone cameras to diagnose malaria, and researchers in Australia are working on a smartphone app that can tell whether a patient's cough indicates asthma or pneumonia.

Africa's shortage of professionals such as doctors and pharmacists is forcing it to experiment with technology, says Solomon Assefa, the head of IBM's research effort in Africa. Rich countries are not yet under the same pressure, but ageing populations and a rising burden of chronic diseases are already stretching their budgets. The lessons learned in Africa may soon come in useful in the West, too. ■

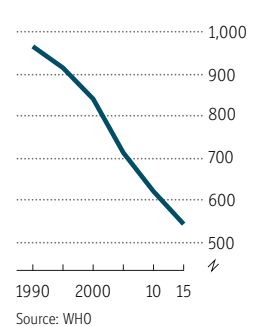
Stunted

Cereal yield, tonnes per hectare



Happy news

Africa, maternal-mortality rate Per 100,000 births



Industry

Robots in the rainforest

Technology may help compensate for Africa's lack of manufacturing

ALONG A WINDING road down the edge of an airport near Pretoria, South Africa's capital, is an aeronautical version of a Mad Max world. An old UN cargo plane rusts in a field. Jammed up against fences are aeroplanes of various vintages and states of disassembly. "Airheads" (aviation enthusiasts) scrounge for parts to get their machines aloft again.

Just around the corner is one of the most modern aircraft assembly plants anywhere in the world. In it stand two brand new prototypes of the Advanced High Performance Reconnaissance Light Aircraft, or AHRLAC, designed to fill a gap in the market for a rugged aeroplane jam-packed with sensors that can patrol borders, look for poachers and drop guided weapons on insurgents.

This is not the first military aircraft designed in South Africa. During apartheid the country circumvented an arms embargo by building its own attack helicopters. But these planes are a private venture aimed at a niche in the export market. The firm that makes them, AHRLAC Holdings, has had some early successes. On the production line a wing that will be mounted on

the first aircraft for export is taking shape. The factory is preparing to churn out between two and four planes a month, though it will not say who has ordered them, or in what quantities.

Significantly, these planes were designed and built in an entirely novel way using the latest computers, which reduced the time it took to develop them from decades to just a few years. The digital design is so precise that its robot-made parts fit together like a child's Meccano set, making assembly quick and cheap. "It is easier designing something new with a completely clean sheet of paper," says Andries Uys, a metallurgist working on the plane. Legacy aircraft firms such as Boeing would "have to change 50 years of procedures and practices" to adopt such techniques.

The new plane is more than just a business venture for its backers, which include Paramount Group, Africa's biggest defence firm. It started as a project to preserve engineering skills and reverse a brain drain of young local aerospace graduates who were leaving to work abroad, says Ivor Ichikowitz, Paramount's founder. But it has morphed into a multimillion-dollar venture that is spurring the development of other technologies across South Africa. One taking shape in a nearby government laboratory is the world's largest 3D printer, which can print aircraft parts from powdered titanium.

In many parts of the world advanced robotics and 3D printers are seen as a threat to manufacturing jobs. Yet in most of Africa manufacturing has never taken off, contributing just 5% of the continent's jobs, compared with 15-18% in other developing regions, so robots will not kill many jobs. Instead, they offer the opportunity to create new ones by helping African firms overcome

Four legs good, four wheels better

The sharing economy, African style

IN HOTEL BARS in many parts of Africa, foreign businessmen like to regale each other with tales about the difficulty of arranging even simple things like accommodation or a safe ride from the airport. The head of a big American investment bank recalls how he bagged the last available room in a swanky Lagos hotel, only for the door to fall off as he entered. When he complained, the receptionist said, "No problem" and sent up two burly guards to stand in the doorway all night. Your correspondent's contribution to this fund of stories is about the disturbed night he spent in a brothel after unwittingly booking into a hotel with a reassuringly international franchise in its name.

Nowadays such mishaps are becoming rarer, thanks largely to the sharing economy. A business traveller can hail a car from the airport using a smartphone app and travel directly to an apartment in Lagos or Accra rented through Airbnb, at a fraction of the cost of the offerings of the formal travel industry and with much less hassle. That lets him sidestep two of the main impediments to trade and investment in many parts of Africa. But new apps and startups will have an even greater impact in areas where they solve



Appier experience

specifically African problems.

Take Moovr, an Uber for cows that was founded by a group of students at King's College London. They hope to connect truck drivers with farmers in remote areas who want to get their cattle to market. For now many of those farmers will each walk a single cow to town, sometimes taking a week or more, and then have to accept whatever price they are offered.

Or consider Flare, which bills itself as an Uber for ambulances. Nairobi does not have a centralised ambulance-dispatch system. Getting one can take hours and require calls to as many as 50 hospitals and ambulance companies. Flare hopes that, through a smartphone app, it can dispatch ambulance drivers to patients in much the same way that cab-hailing companies link taxis and riders. "The really cool thing about what we're doing is that it is cloud-based and smartphone-driven," says Caitlin Dolkart, one of Flare's co-founders. LifeBank, a startup in Lagos, is working on a system that will do much the same for blood deliveries in a city without a centralised blood bank.

Meanwhile entrepreneurs in Nigeria are looking at a tractor-sharing service, and a group in Kenya is trying out an app that will link people who want to ship goods with those who have empty or idle trucks. "Africa has a lot more inefficiencies [than rich countries], but that also means more opportunities," says James Middleton, one of the co-founders of Moovr. "Just as Africans skipped past fixed phone lines straight to mobile phones, they can skip past owning a vehicle straight to the shared economy."

► bottlenecks in production and by lowering barriers to making and selling things to the world. Without the rapid advances recently seen in digital design and manufacturing, the AHRLAC would never have taken flight.

Other examples abound. In IBM's new innovation centre in Johannesburg a 3D printer turns out cases for wearable electronics that IBM is developing to track the spread of infectious diseases. Additive manufacturing is helping to lower the cost of innovation for firms across Africa. Until recently, when BRCK wanted to make a prototype for its Wi-Fi transmitters, it had to order it from abroad, wait for weeks and pay up to \$250 in shipping and taxes for a small part. Now that 3D printers are available in Nairobi, BRCK can get new prototypes made in days for about \$25.

Yet there are many aspects of technology where Africa is not moving fast enough. In 2016 it bought only 400 industrial robots, or less than 0.2% of the world's total. The lion's share, 86%, went to Asia.

One reason why Africa buys so few is that its labour costs are low and finance is difficult to come by. Besides, it does not export a lot of manufactured goods. That is a problem, because it runs huge trade deficits with the rest of the world and needs to export more than just raw materials to provide jobs for the millions of youngsters leaving school every year. It also matters because African firms that export tend to grow faster and raise their productivity more quickly than those that do not, says Dirk Willem te Velde of the Overseas Development Institute in London. Africa's weak infrastructure and inefficient ports have put many potential exporters off investing there. However, Andela, a high-tech firm, demonstrates how pure brainpower can be exported from a snazzy office block in Lagos to sophisticated customers halfway round the world without going near an overcrowded port or broken railway line.

Andela was founded on the premise that "talent is distributed evenly around the world but opportunity is not," says Jeremy Johnson, the firm's chief executive. It finds talented young computer programmers (many of whom have taught themselves to code online, using websites), trains them intensively and gets them to work remotely with mainly American tech firms. The company (which counts Facebook's Mark Zuckerberg among its investors) says its model is different from that of Indian outsourcing firms such as Tata Consultancy Services because its developers become fully fledged team members of the firms they are contracted to, even though Andela bills for them and provides ongoing training. For example, Andela collaborates with Fathom, a company in Austin, Texas, that provides cloud-based software used by water utilities across America, so in one corner of the Lagos campus large blue banners proclaim "Fathom Team East". Fathom's office in Austin has a similar sign saying "Fathom Team West".

Part of Andela's appeal is that the cost of hiring a Nigerian developer is less than half that of a similarly qualified worker in Texas or California. More important, it helps tech firms overcome a desperate shortage of good programmers. "We're trying to find the best talent in every corner of the world, which means looking beyond our own backyard," says Chris Lambert, chief technology officer of Lyft, an American ride-hailing firm, who recently visited Lagos to see Andela.



AHRLAC planes were designed and built in an entirely novel way using the latest computers

The search for talent has brought other big tech firms to Africa too. Amazon, for instance, opened a large centre in Cape Town in 2004 where it developed much of the technology used in its Elastic Cloud Compute platform, now the main plank of its web-services business. "This is where we are building the next-generation technologies for Amazon Web Services," says Geoff Brown, AWS's regional manager for sub-Saharan Africa. "In 2015 we continued expansion and opened an office in Johannesburg, and since then have added hundreds of jobs in the country to support the growth of AWS in Africa and around the world."

Such businesses employ only a minuscule share of the local workforce, so their direct impact is small, but the indirect effect will be significant. Andela takes about 40 people a month into its four-year work-and-training programme. Its first graduates are due to finish soon, having worked with startups across America. Many of them want to found their own technology firms, bringing to bear not just their newly acquired skills but also a Silicon Valley mindset that embraces entrepreneurialism and a willingness to experiment. "We are hoping that the people we are training in Andela today will become the founders of the next Andela in five years' time," says Seni Sulyman, who runs the Nigeria operation. In that sense, firms such as Andela may be helping to deal with the real deficit in Africa, which is not a shortage of technology but of people willing and able to adopt and adapt it.

"There is lots of tech already out there in the world. When we go looking for it we can find it," says David Kelly, who runs a venture-capital firm that starts greenfield businesses in agriculture and food processing throughout Africa. "It is the tech-adopters who are missing." ■

Potential

Light in the tunnel

Technology cannot solve all of Africa's problems, but it can help with many

AT LUNCHTIME IN Mombasa, Kenya's humid port city, groups of men gather in the shade for the day's *bunge la mwananchi* (people's parliament), where they debate the latest news and politics. Everyone takes his turn to discuss whether the local governor is any good, or whether a group of men arrested on charges of drug-smuggling should be extradited to America. Then the debate turns to economics. "Why should we export all of our tea to Britain?" asks one man. "It is because of the law of comparative advantage," retorts another. "How will Kenya ever be able to catch up with the rich countries in Europe and America?" To this, nobody has an answer.

That tech and innovation can play a big role in making some countries richer than others is not in question. About half the differences in GDP per person between countries are due to ►►

▶ differences in productivity. Countries that encourage their firms to innovate, and that invest in educating their people and pushing the boundaries of science, generally grow richer than those that do not. Yet the hope that ideas and technologies would flow across borders like air and be adopted by poor countries, letting them catch up quickly, has been realised only in part of the world. Asian countries such as Japan and later Taiwan, South Korea and China embraced many of the world's latest technologies to build formidable manufacturing economies. But Africa was largely left out of the most recent waves of globalisation, in which labour-intensive manufacturing moved out of Europe and America and into Asia. In 1990 African countries accounted for about 9% of the developing world's manufacturing output. By 2014 that share had slumped to 4%.

One reason was pinpointed in a recent study by economists at the Centre for Global Development in Washington, DC. It found that labour costs in Africa are about 60% higher than in comparable countries such as Bangladesh. More striking still, the capital cost of employing a worker in Kenya, at \$10,000, is about nine times as much as in Bangladesh. This is partly because indirect costs caused by unreliable infrastructure, crime, corruption and poor regulation, among other things, can account for 20-30% of the total costs incurred by firms in Africa.

Run, or walk first?

So can technology help change the fortunes of Africa, or should the region's governments focus on getting ports and power to work? Among those arguing for concentrating first on power, telecommunications and transport is Calestous Juma, a professor at Harvard's Kennedy School, who sees these as "foundational infrastructure" upon which other industries can grow. It is wrong to assume that "Africa can leap into the service economy without first building a manufacturing base," he says. Akinwumi Adesina, the president of the African Development Bank, takes a similar view, even though he pioneered the use of mobile-phone wallets to distribute fertiliser subsidies in a previous role as Nigeria's agriculture minister. "You cannot develop in the dark," he says. "It requires a major effort to fix structural problems as well as infrastructural problems in Africa, so we

shouldn't kid ourselves that we can just bypass those."

Yet there is also reason to hope that even if technology is not a panacea, it can still help reduce some of the costs and frictions of doing business in Africa. A recent paper for the World Bank found that African firms using the internet are nearly four times as productive per employee as those that do not. But until just a few years ago most firms on the continent did not get to enjoy the benefits of higher productivity for lack of internet connections.

In much the same way that solar power and minigrids are changing the lives of villagers, emerging technologies may provide big industrial firms with power on an industrial scale. One promising source is small-scale liquefied natural gas, which will deliver commercial quantities of gas without the need to build huge pipelines. "Technology is now letting you get atomised, bite-sized bits of infrastructure," says Tope Lawani, a co-founder of Helios, a private-equity firm with investments across Africa.

To be fair, not all infrastructure can be "virtualised", least of all ports, roads and railways. But technology is steadily dismantling barriers to growth. When venture capitalists made big bets on African e-commerce firms such as Konga and Jumia, they did not allow for the many difficulties such enterprises would encounter. Cities such as Lagos had no reliable street maps and addresses, no big logistics firms and no electronic payments systems to bill customers. Delivery drivers on motorcycles would keep having to ask for directions, so deliveries took much longer than expected. Often the buyers would have no cash and would refuse to accept the goods. "There was a lot of hype and people didn't take into account the complications of operating in Africa," says Manuel Koser, a founder of Silvertree Internet Holdings, which invests in internet retail companies across the region.

Now companies such as Flutterwave and Paystack are building electronic payments systems that will reduce costs across the economy and enable others to build internet-commerce firms on them. What3words, a British firm that has invented a way of mapping places down to a grid reference identified by three words, is helping governments like Nigeria's to assign a unique postcode to every home.

Whether such efforts will be enough to allow Africa to catch up with the rich world, let alone "leapfrog" ahead of it, remains far from certain. Yet that may be the wrong question to ask. A more nuanced one would be whether the technologies discussed in this report—from the internet and mobile phones to simple plastic bags—can help overcome some of the barriers that have long held back Africa's economies and people. And on that the evidence is clear, whether in the form of better health care for mothers, more effective education for children or bigger crops and higher prices in the market for farmers. All this adds up to grounds for optimism. ■



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The shake-up in Saudi Arabia

All the crown prince's men

RIYADH

Muhammad bin Salman has made himself the sole arbiter of Saudi policy

NO ONE is quite sure what to call it. The arrest of scores of people in Saudi Arabia on November 4th has been variously dubbed a coup, a counter-coup and a purge. Those detained range from billionaire businessmen, such as Prince Alwaleed bin Talal, to a contender for the crown, Prince Mutaib bin Abdullah. " Saudis do not know what happened," says a professional in Riyadh, the capital. "It is a shock." One thing, at least, is clear: power is now concentrated in the hands of the young crown prince, Muhammad bin Salman, who orchestrated the blitz in the name of his frail 81-year-old father, King Salman.

For decades, Saudi kings tried to forge consensus within the sprawling royal family. Change was incremental and power was balanced delicately, particularly among members of the so-called Sudairi Seven branch—the sons of King Abdel-Aziz, the founder of the state, by his favourite wife, Hussa bint Ahmed Al Sudairi (see family tree on next page). One Sudairi, Prince Sultan, served as defence minister for 48 years. Another, Prince Nayef, and later his son Muhammad, controlled the interior ministry for more than four decades. And from 1963 the National Guard was the preserve of Prince (later King) Abdullah and his clan.

All three positions are now under the control of Prince Muhammad or his allies. The crown prince became defence minis-

ter just hours after his father (also a Sudairi) ascended the throne in 2015. In June the ruling duo sacked the interior minister, Muhammad bin Nayef, a former crown prince, and placed him under house arrest. On November 4th they finished the job by sidelining Prince Mutaib, the second son of the late King Abdullah, who had once been mooted as a possible future monarch. They also announced several changes to government ministries and the creation of a new anti-corruption committee, which approved the arrests—and is headed by Prince Muhammad, of course.

The iron throne

To some, the shake-up is a sign of the crown prince's vision. Prince Muhammad has laid out a sweeping agenda that aims to wean the kingdom off oil, modernise the economy and attract foreign investment. He hopes to sell off a portion of Aramco, the state-owned oil company, next year and recently announced plans for a \$500bn economic zone, called NEOM, to be staffed by robots.

The old, sclerotic system of governance would have made it difficult to implement such reforms; allowing corrupt and privileged princes to continue milking the kingdom would have undermined them. "You cannot reform the country without a rupture with the past," says Bernard Haykel of Princeton University.

Just as ambitious are Prince Muhammad's efforts to loosen stifling moral codes, enhance cultural life and promote a "moderate Islam open to the world and all religions". That approach is a stark contrast to the puritanical version of the faith that the kingdom has long exported around the world. Yet in this area he has already made progress. A royal decree, proclaimed in September, will allow women to drive next year, ending a ban that has lasted decades. Saudis may soon be allowed to go to the cinema, too.

"In order to do something like that you need to have a firm fist," says Hoda al-Hellaissi, a member of the Shura Council, the royally appointed proto-parliament.

The palace has been clear: support the reforms or face the consequences. With more than their usual zeal, the authorities have clamped down on dissent under King Salman. Those who tweet criticism of Prince Muhammad's agenda have been thrown into prison. In September police detained dozens of critics, from Muslim clerics to human-rights activists. Last year the crown prince curbed the *mutaween* (religious police). He has told other Islamic leaders to speak up for religious toleration. The Council of Senior Scholars, Saudi Arabia's top religious body, backed his latest round-up, saying that Islamic law "instructs us to fight corruption and our national interest requires it".

There is a strong whiff of populism to the latest crackdown. As part of the reform drive, Prince Muhammad aims to cut subsidies for things such as energy and water. But ordinary Saudis have bristled at the austerity, causing the government to back-track. Salary and benefit cuts for state employees were reversed in April and other cuts have been postponed. Some Saudis questioned why they should make sacri- ▶▶

► fices while rich princes continue to feed at the kingdom's trough. (Prince Muhammad himself is reported to have bought a \$500m yacht in 2015.)

The round-up of fat cats has gone down well on the street, especially with young Saudis: 70% of the population is under the age of 30. "The noose tightens, whoever you are!" read the headline in one Saudi-owned newspaper. Many rejoiced at the downfall of Prince Turki bin Nasser, the wheeler-dealer behind controversial arms deals between Saudi Arabia and Britain. Prince Alwaleed was mocked for his jet-setting lifestyle.

And despite grumbles over austerity, young people are largely supportive of Prince Muhammad, with some comparing him to Lee Kuan Yew, the authoritarian who modernised Singapore. It therefore came as something of a surprise to Saudis when foreign investors raised concerns over the arbitrary nature of the arrests (see next story).

The domestic turmoil comes at an already fraught moment for Saudi Arabia. Its two-and-a-half-year war in Yemen, meant to crush Houthi rebels who ousted the Yemeni government in 2015, has turned into a costly quagmire. Though the Houthis have lost territory, they still control most of northern Yemen, including the capital, Sana'a. On November 4th the Saudis intercepted a ballistic missile fired at Riyadh. Adel al-Jubeir, the Saudi foreign minister, blamed Iran for supplying the rocket and Hizbullah, its Lebanese client militia, for

launching it from Yemen. "We see this as an act of war," said Mr Jubeir.

More such attacks are likely from Yemen, say analysts, which, in turn, may lead to more foreign adventurism. Prince Muhammad is also embroiled in a diplomatic assault on Qatar, which was meant to force the gas-rich emirate to drop its support for Islamist groups. Instead, it has divided the Gulf Co-operation Council and caused Qatar to turn for help to Iran, which is gaining influence across the region. Indeed, on the same day as Prince Muhammad's shake-up, Saad Hariri, Lebanon's pro-Saudi prime minister, resigned. Mr Hariri made his announcement from Riyadh,

blaming Iran's malign influence on his country (see next page).

There are some who think the prince's missteps abroad will undermine him at home—and that the recent purge reflects nervousness about internal resistance. But other royals seem too intimidated, fragmented or lazy to challenge him. Prince Mutaib aside, the blacklisted officials are a weak lot.

Still, the arrests send a message to would-be critics or challengers. Prince Muhammad, more than any other leader in decades, has fashioned himself the sole maker of Saudi policy. If his plans falter, Saudis will know whom to blame. ■

Investors' fears

Princely sums

The Saudi purge will spook global investors and unsettle oil markets

DOING business in Saudi Arabia has long involved accepting a trade-off between stability and sclerosis. Although power-sharing among the ruling family has kept the kingdom united, rule by elderly monarchs and a corrupt system of cronyism, or *wasta*, has made change agonisingly slow.

Last weekend's purge of princes, officials, billionaires and businessmen by King Salman and his 32-year-old son and crown prince, Muhammad bin Salman, tears the old rulebook to shreds. Some businessmen welcomed it, hoping that a reduction in graft and cronyism will create space for young entrepreneurs. "This is the closest thing in the Middle East to *glasnost*," says Sam Blatteis, a former head of public policy in the Persian Gulf for Google.

But others drew wary parallels with the assault by Russia's president, Vladimir Putin, on oligarchs for political ends. Above all, they expressed concern that it would make the prince the sole arbiter of important economic transactions in the kingdom, as he rushes to transform the economy and sell a 5% stake in Saudi Aramco, the world's biggest oil company.

Outside the kingdom, the impact will be felt in business, finance and oil markets. Foreign businessmen are puzzled by the arrest of Prince Alwaleed bin Talal, an outspoken multibillionaire whose holdings include Citigroup; Twitter, a social-media site; and Lyft, a ride-hailing service. Some put it down to rivalry; intriguingly, the Saudi state's Public Investment Fund has backed Lyft's competitor, Uber.

The effect on his \$16bn net worth is potentially dwarfed by that on the financial system in general. The *Wall Street Journal* reports that the Saudi government is targeting cash and assets worth as

much as \$800bn. As many as 1,800 accounts have already been frozen. That—and questions about how fair the justice system will be towards the detainees—will worry investors, such as petrochemical companies, that Prince Muhammad is trying to woo into Saudi Arabia.

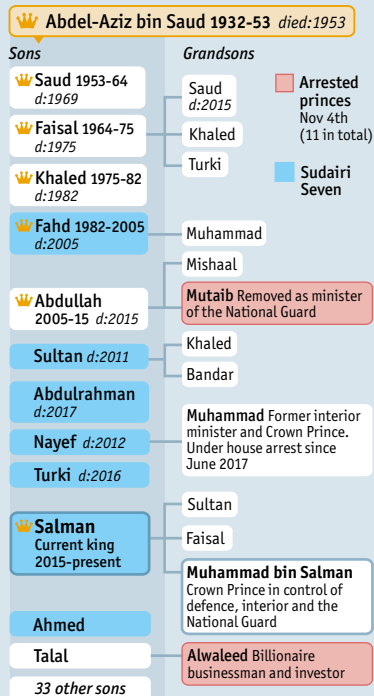
Another shock for global businessfolk is the detention of Adel Fakeih, the economy and planning minister. His office, nicknamed "The Ministry of McKinsey" last year, oversees an army of foreign consultants who helped draw up plans to move the kingdom beyond oil. Analysts speculate that his arrest may be linked to his former role as mayor of Jeddah, where devastating floods occurred in 2009. But it also casts a pall over the kingdom's bold economic reform plan, known as Vision 2030.

Financially, the ramifications are likely to be amplified by the kingdom's growing dependence on foreign sources of capital. The Tadawul stockmarket, where Prince Muhammad hopes to entice foreigners to take an early tranche of Aramco shares, has been shaken by the purge, and prices of bonds—sold by the kingdom to offset the impact of falling oil revenues—have also declined. Some fear capital flight and downward pressure on the riyal, Saudi Arabia's currency.

Oil prices have surged above \$63 a barrel (for Brent crude) since the crack-down, partly because of heightened regional tensions. Prince Muhammad may be pleased; pricier oil would make Aramco more attractive to investors and hence more valuable. Provided, that is, minority investors are not put off by a reformer who, instead of winning over opponents by the force of his arguments, locks them up and seizes their assets.

Sons and brothers

Saudi Arabia, a very selective family tree, 2017



Sacrificing a Lebanese pawn

The other palace coup

Saudi Arabia brings down Lebanon's government to confront Iran

AS IF shuffling one government were too slight a task, Saudi Arabia's ambitious young crown prince, Muhammad bin Salman, has changed two. On November 4th, the same day as the Saudi purge, Lebanon's prime minister, Saad Hariri, unexpectedly appeared on television to announce he was resigning. Although he said he was stepping down because his life was in danger—he denounced Iran and its powerful Lebanese ally, Hizbullah—there was little to disguise the Saudi hand in his statement. The announcement was recorded in Riyadh, the Saudi capital, and broadcast on a Saudi television channel. Since then he has stayed out of reach under Saudi guard and possibly under arrest.

A few days earlier the kingdom's Gulf affairs minister, Thamer al-Sabhan, had promised "astonishing" developments to topple Hizbullah, a Shia militia-cum-political-party that calls the shots in Lebanon.

At first glance Saudi Arabia's desire to oust Mr Hariri, a Saudi-born Sunni, makes little sense. The kingdom and America had long supported him as a bulwark against Hizbullah. After taking office last December, Mr Hariri passed Lebanon's first budget since 2005 and secured agreement for the first parliamentary elections since 2009. Tourism in Lebanon has been picking up. Agreements for offshore oil projects were in the offing.

With Mr Hariri out of the way, Saudi Arabia can now denounce Lebanon's government as a stooge of Iran and its Shia proxy. It may have a point. The Taif agreement that ended Lebanon's long civil war in 1989 disarmed all sectarian militias bar Hizbullah's. That may have been justifiable when the group was fighting against Israel's occupation of its self-declared "security zone" in the south. But since Israel withdrew its troops in 2000, the group has torpedoed every political and military attempt to make it lay down its weapons.

Rafik Hariri, Saad's father and a popular former prime minister, was assassinated in 2005 when he tried to disarm the group. Several of its members are being tried in absentia in The Hague, where they are accused of involvement in his murder. And Israel's efforts to defang Hizbullah during a short war in 2006 ended in stalemate. Since then the group has pushed far beyond its southern confines. In 2008 its militiamen briefly took over the capital, Beirut, and thousands of its fighters have fought against Sunni rebels in Syria.



Can I go now?

They have returned battle-hardened. Earlier this year they defeated jihadists who flew Islamic State's black flag over their encampments in Sunni parts of Lebanon's mountainous north. Now Hizbullah's green-and-yellow flags flutter above checkpoints on roads between Sunni villages. Its secret policemen round up dissenters and its fighters work closely with the supposedly neutral Lebanese army. No other force—the army included—can match its clout.

Yet Saudi talk of removing Hizbullah sounds like little more than bluster. The kingdom is already bogged down in one war with Iranian proxies in Yemen and could not sustain another. And even though Israel worries about Hizbullah's growing arsenal of rockets and missiles, it will not fight to a Saudi timetable.

Still, Saudi Arabia has other cards to play. Without its financial backing, Lebanon will struggle to stave off bankruptcy. Saudi deposits prop up Lebanon's banks and about 400,000 Lebanese nationals work in the Gulf, sending home a large chunk of the remittances that make up 20% of Lebanon's economy.

Mr Hariri's resignation has already sent Lebanese bonds spiralling and prompted warnings of a cut in its credit rating. Financial sanctions that America imposed on Hizbullah in October will further tighten the screws. A donor conference on aid to 1.5m refugees that was expected before the year's end could be postponed.

Hizbullah's leader, Hassan Nasrallah, is not one to buckle under pressure. But he may be forced to compromise to salvage the economy. The Saudis hope that popular pressure could force him to give priority to butter over guns. ■

The nuclear deal with Iran

To fix or to nix?

JERUSALEM AND LONDON

Binyamin Netanyahu has some ideas

NO LEADER was more vocal in his opposition to the nuclear deal signed in 2015 by Iran and six world powers than Binyamin Netanyahu. The Israeli prime minister gave a speech to America's Congress denouncing the pact, under which Iran accepts limits on its nuclear programme in exchange for the removal of sanctions. But Mr Netanyahu has changed his tune of late. The day after celebrating the centenary of the Balfour Declaration in London on November 2nd, he said that he favoured "fixing" the deal, not "nixing" it.

The decision by Donald Trump to "decertify" the deal in October has raised the possibility of new American sanctions on Iran, which could scuttle the deal. The other signatories, Britain, China, France, Germany and Russia, want to save it. So, given Mr Netanyahu's influence in Washington, they are now willing to consider his proposals. He has discussed them with Theresa May, Britain's prime minister, Angela Merkel, the German chancellor, and Vladimir Putin, Russia's president.

Mr Netanyahu accepts that the deal has succeeded in limiting Iran's production of highly enriched uranium, which can be used to make a nuclear weapon. But he says, correctly, that the agreement does not cover long-range missiles, which might deliver a nuclear bomb. Nor does it allow the International Atomic Energy Agency (IAEA), which monitors the deal, to enter military sites freely (it must request access). This lets Iran continue research and development on nuclear warheads, says Mr Netanyahu. When the deal ends in 2030, he says, Iran will be able to expand uranium enrichment and produce "a hundred bombs" within a short time.

Mr Netanyahu's proposal is to slap heavy sanctions on Iran's missile programme, widen inspections and lay out "red lines" to curb its nuclear ambitions even after the deal runs out. These changes would not require renegotiating the deal, but might prompt Iran to pull out. Some doubt that Mr Netanyahu is sincerely trying to save the deal, which he once called "a bad mistake of historic proportions".

Ultimately, Iran can probably build a bomb if its rulers decide that this is in their interest, despite the risks such a move would entail. The current deal seeks to change Iran's cost-benefit calculation—if it survives.

Culture in the Gulf

Letting the light in

ABU DHABI

Louvre Abu Dhabi is the UAE's new beacon to the world

AS EMMANUEL MACRON and Muhammad bin Zayed, the president of France and the crown prince of the United Arab Emirates (UAE), walked towards the Louvre Abu Dhabi (LAD) for its grand opening on November 8th, their eyes were fixed on the magnificent silvery domed roof—as heavy as the Eiffel Tower—that appears to float above the galleries. They might more usefully have gazed down at the floor.

For there, in the entrance, is a map of the UAE's coastline. All along the shore, listed as if they were ports on an old parchment, are the names of towns around the world that manufactured the hundreds of objects on display inside. Each one is spelled out in its own language; 26 in all. There is Greek, Spanish, German, Chinese, Russian and Arabic. There is even one in Hebrew, for Qa al-Yahud, the old Jewish quarter in Sana'a, Yemen, where the LAD's medieval Torah was made.

Designed by Jean Nouvel, the building is a triumph. A 30-year contract, signed in 2007, will pay €974m (\$1.1bn) to the Louvre and its partner museums in France, which have lent the LAD 300 objects. The museums will mount four exhibitions annually in Abu Dhabi for the next 15 years. The Louvre also advises on acquisitions for the LAD's own collection. Prince Muhammad calls the project, which could cost more than €2bn, the “crown jewel” in his country's relationship with France. The UAE also hosts a French military base.

Across 12 galleries, the museum presents a thematic narrative of world history.



Build it and they will come

The shift from hunter-gathering to sedentary life produced the first villages, is symbolised here by a monumental, 8,500-year-old plasterwork statue with two heads. That led to the first great powers in the fertile valleys of the Tigris, Euphrates, Nile, Indus and Yellow rivers around 3000BC, which, in turn, led to the first empires, the universal religions and the continental trade routes. Pioneering voyages offered new perspectives on the world, and, in time, led to new ways of living and governing. For the LAD, globalisation is a very old idea and a cause for optimism.

The LAD is the first universal museum to be built in the 21st century and the first in the Arab world. Manuel Rabaté, the French director, describes it as an “adaptation or renewal” of the Enlightenment idea that led to the original universal institutions (ie, ones that try to explain the world through art history). Some may feel it is a bit rich for a country that has limited free speech and a history of using imported indentured labour on its construction sites to ask people to “see humanity in a new light” or “recognise ourselves in each other”, as they are exhorted to by posters advertising the LAD on the highway through the city. But its fans are passionate. And the museum will draw tourists, distinguishing Abu Dhabi from the shopping malls of Dubai, an hour down the road.

Locally, the LAD is seen as a bastion against Islamic extremism and Iran. Abu Dhabi feels under threat. The iconography of fear runs through the museum—from Abel Grimmer's 1595 painting of the Tower of Babel to the final exhibit, Ai Weiwei's Babel-shaped “Fountain of Light”.

Once the French loans stop, the galleries will be filled from the LAD's own collection. Meanwhile, staff should take another look at the map on the floor of the entrance. The Hebrew word for Qa al-Yahud, the old Jewish quarter in Sana'a, has been written back to front. ■

Pastoralists in Africa

Cows, cash and conflict

NAIROBI

How cattle breed violence (and hide ill-gotten wealth)

AT THE start of every dry season fires creep southwards across the Central African Republic (CAR). Kasper Agger, a Dane who works for African Parks, a South Africa-based conservation group, can see them on his laptop thanks to a piece of NASA-made software that plots benign-looking flame symbols like boy scouts' campfires onto a Google Earth map. Through December and January the fires edge close to Chinko, a vast nature reserve in the CAR. When the fires reach the park boundary, a light aircraft is dispatched to shower leaflets over the smoulder. Below, herders who come from hundreds of miles away receive illustrated messages in Sango (a local language), Arabic and French, warning them not to chop down trees, carry guns, hunt game or poach elephants within the park.

For herders to encroach on government and private land is normal in Africa, but the size of the herds, the involvement of political and military bigwigs as cattle barons, and the proliferation of weapons have all got out of hand. They are increasingly fuelling conflict and eroding authority in states that are already fragile. Pastoralism has had to adapt so radically that it is often barely recognisable as the way of life that has been followed for hundreds of years.

Rapid population growth, the spread of fences and cities, and the annexation of herders' land have shrunk the space where pastoralists can roam. Governments tend to favour settled farmers over mobile or nomadic ones, and to see food security in terms of maize and cassava rather than meat and milk. Climate change makes herders' livelihoods ever more precarious. An African Union study in 2010 estimated that 268m Africans (about a quarter of the population at the time) were pastoralists. But that number is steadily shrinking.

In some places, one-time nomads are becoming uncomfortable town-dwellers. Others are paid by wealthy urbanites to fatten their cows on other people's land.

Band of botherers

That trend is starkest in the Sahel, a chronically unstable region that stretches across the continent in an arid band just south of the Sahara. “In the most basic sense we are here to protect the grass,” says Mr Agger. “In each dry season big herds of cattle come down from Chad and Sudan for grazing. We are talking of massive herds, up to 800 cattle, herded by young men.” The ▶▶

men are usually armed, sometimes accompanied by uniformed soldiers, and indifferent to international borders, park boundaries and customary land rights. They both exploit and exacerbate conflict. These armed herders moving through the CAR bear the superficial trappings of pastoralism but have shed their traditional restraints and are freed from social anchors. They rustle livestock from other pastoralists, smuggle alluvial gold and diamonds, poach and trade in ivory and bush meat, says Mr Agger.

The blame for this subversion of traditional pastoralism can largely be laid on new paymasters. "You have urban elites, members of the government or military in Chad or Sudan, with roving bank accounts and massive herds of cattle that are being pushed into frontier zones where there's limited governance, ample resources and herders armed to the teeth," says Matthew Luizza of the American Association for the Advancement of Science. He calls the new trend "neo-pastoralism". "At its root this is about natural resources, but it's no longer just a conservation issue, a security issue or a development issue: it's all three," he says. Some American officials are particularly worried by similar developments farther west, in Mali and Niger, where they fear that ungoverned spaces are being taken over by criminal traffickers and jihadists. "We're late to the game," warns Richard Ruggiero of the United States Fish and Wildlife Service.

The UN's Economic Commission for Africa shares those fears. This year it reported that pastoralists were involved in the majority of ongoing African conflicts, including those in the CAR, Chad, Mali, north-eastern Kenya, Somalia and Sudan and were implicated in international crime networks. These encompass human trafficking, drugs, illegal migration and jihadist and religious extremist groups.

Conservationists tend to be hostile towards pastoralists, sometimes disparaging them as "parasites" who damage the environment, spread disease, cause desertification and poach Africa's wildlife, including elephants and rhinos. Earlier this year

herds of livestock, reckoned at one point to number as many as 100,000 cattle, invaded private land in the Laikipia region of Kenya. The incursions were encouraged by unscrupulous politicians as well as drought. Scores of people died in the resulting raids and clashes. Eventually the army began to evict the herders and quelled most of the violence.

The loss of family herds due to drought, disease, conflict or theft often leaves the herders with little choice but to offer their services to others more powerful than themselves. It can be hard to identify pre-

cisely who owns herds. So they are a convenient means for businessmen and politicians (often one and the same) to store their wealth, avoiding the kind of scrutiny that can be applied to bank accounts or property. Moreover, you do not have to buy the land where the cattle graze. "The rich herders are now in Nairobi," says Jarso Mokku of the Drylands Learning and Capacity Building Initiative, an NGO based in Nairobi, Kenya's capital, that promotes the cause of pastoralists in the Horn of Africa. "They are here and they are effectively in charge of an army," he says. ■

Fat-finger trading

A graph to protest graft

JOHANNESBURG

A trader finds an artful way to complain about Jacob Zuma

JAMES GUBB was finishing off the knuckles when the Johannesburg Stock Exchange (JSE) shut him down. Trading single shares between two accounts, Mr Gubb had managed to "draw" the image of a fist with an upright middle finger onto the share-price chart for Oakbay Resources and Energy Limited, a company controlled by the Gupta brothers, cronies of President Jacob Zuma, that is at the centre of allegations of "state capture" in South Africa.

Mr Gubb, a former hedge-fund manager, considers his middle-finger salute to be protest art. South Africa is in the grip of a sprawling corruption scandal; the Guptas are accused of abusing their close ties with Mr Zuma's family to influence cabinet appointments and win government contracts worth hundreds of millions of dollars (they deny allegations of wrongdoing). Mr Gubb created his artwork after Mr Zuma fired a respected finance minister. "Protest art has a very strong foundation in South Africa, crude as this might be," Mr Gubb says.

Regulators were less amused. Last month they fined Mr Gubb 100,000 rand (\$7,000) for transactions that "created a false and deceptive appearance" of trading activity and an artificial price for the Oakbay share. Mr Gubb, who spent a mere 400 rand on the trades, says that because Oakbay shares traded so rarely, it was easy to place matching buy and sell orders through his accounts at an online stockbroker at the same time. He argues that his artistry harmed no one since the amounts traded were trivial, and that he planned to ensure that the closing share price was unchanged from the day before. In a submission to regulators Mr Gubb said his trades were "an initial artistic exploration of the financial media as a platform for protest art" that could be compared to graffiti art.



A crowdfunding campaign to help pay Mr Gubb's fine has raised more than 40,000 rand. Donors who contribute 1,000 rand each receive a T-shirt that declares "I gave the Guptas the middle finger." Sadly the artwork itself has been lost, thanks to an act of iconoclasm by regulators who cancelled the trades and thus erased the squiggles on the chart. If only the authorities showed similar zeal when it comes to investigating real malfeasance: no one has yet been charged in relation to allegations of state capture.

Oakbay, meanwhile, has been forced to remove its shares from the JSE after its bankers, accountants and financial sponsor said they wanted nothing more to do with the firm. Regulators are now investigating possible manipulation of its shares around the time they were listed in November 2014.





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Europe's refugees

Dublin down

AMSTERDAM AND DÜSSELDORF

The EU is struggling in its efforts to build a coherent asylum system

YOU would be hard-pressed to find a more unlikely supporter of Geert Wilders, an anti-immigrant Dutch politician, than Khalid Jone, a Sudanese asylum seeker. Mr Jone lives in an empty office building in Diemen, near Amsterdam, where 60 failed asylum-seekers have been squatting since April. In 2002 he fled to the Netherlands from his native Darfur, escaping ethnic cleansing. He was denied asylum and has been in limbo ever since, filing appeals.

There are hundreds of thousands of migrants like Mr Jone across Europe, caught in the gears of asylum systems. He is so fed up with the uncertainty, he says, that he wishes Mr Wilders had won the Dutch election in March: "At least he is not lying to me." More important, Mr Wilders wants to pull the Netherlands out of the European Union, and Mr Jone hopes that this would "get rid of the Dublin agreement"—the EU rule that migrants can apply for asylum only in the first member state where they set foot.

On this point many policymakers agree with Mr Jone: to fix Europe's asylum system, the Dublin agreement needs to be revised. The reform camp includes the European Commission and the governments of Italy and Greece, where most migrants first arrive in Europe. Under Dublin rules, those two countries would have had to accommodate nearly all of the people flooding in from the Middle East and Africa, more than 1.5m of them since 2015.

Since the migrant crisis started, it has been clear that this system is inadequate, and that some of the burden must be borne by Europe's wealthy northern states. For a while Germany, Sweden and other countries waived the Dublin rules. In 2015 the EU instituted a temporary scheme to redistribute 160,000 asylum-seekers among member countries.

Wir schaffen das, now you chip in

Now the EU's reformers want a more permanent arrangement. In 2016 the commission proposed changing the Dublin accord as part of a comprehensive European migration system. In October a committee of the European Parliament approved the

idea. The proposed law calls for agreements with source countries to send failed asylum-seekers home quickly, and would allocate asylum-seekers among EU countries, lightening the burden on Mediterranean states. The commission also wants new places for legal immigrants, to encourage them to apply for visas rather than turning to smugglers.

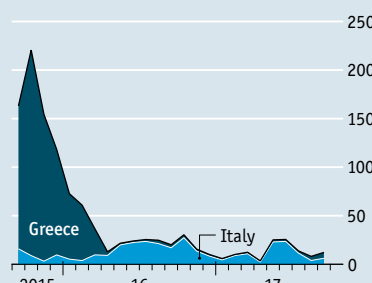
But these proposals face tough going in the EU's Council of Ministers. A group of central European countries vehemently opposes the plans. Hungary and Poland are led by populist governments that have campaigned against Muslim immigration. Hungary and Slovakia challenged the relocation scheme of 2015 in the European Court of Justice, with Polish support. The court ruled against them in September, but whereas Slovakia has backed down, Hungary and Poland have not, and strongly oppose the plans. The proposed changes "take away elements of sovereignty", says Zoltan Kovacs, a Hungarian government spokesman; he talks of a "quota system that we flatly reject".

Germany, which has taken the lion's share of Europe's asylum-seekers, is the biggest force behind the drive for a shared EU system. The chancellor, Angela Merkel, is determined to show Germans that her refugee policies have not left their country taking the whole burden, and has warned that countries which fail to show "solidarity" will face consequences. France's president, Emmanuel Macron, is also on board.

Once the system's details are ironed out (perhaps next year), Germany and its allies could push it through the council by majority vote, as they did with the first relocation scheme in 2015. But they are reluctant to deepen Europe's troubling east-west divide. Already, the European Commission is pursuing infringement proceedings ►►

After the spike

Migrant arrivals, '000



Source: UNHCR

▶ against Hungary and Poland.

The scheme that angers the Hungarians and Poles has not accomplished much. It aimed to relocate 160,000 asylum-seekers through 2017, but handled just 31,472 by November 3rd. About 10,000 migrants remain crammed into camps on Greece's Aegean Islands. In Italy, where 112,000 migrants have arrived this year, an estimated 200,000 or more are still in reception centres. Gerald Knaus of the European Stability Initiative, a think-tank, fears the debate "is constantly ideological, without reference to whether it can be implemented".

Europe's asylum systems are vastly improved since 2015. German authorities' average processing time has fallen from ten months to two; applicants get an initial interview within a few days. Düsseldorf hosts 6,000 asylum-seekers in 17 centres run by the Diakonie, a big social-services organisation linked to Protestant churches.

Container-sized housing units have been assembled into gaily painted complexes surrounded by playgrounds. "We have less need for emergency help now, and more for integration," says Daniela Bröhl, a consultant for refugees at the Diakonie.

The repatriation of failed asylum-seekers has picked up. To stay in control of refugee flows, countries must ensure that those who do not qualify go home. This year Germany's voluntary returns surged from 1,392 in January to 24,569 in September. The EU has won time by reducing the inflow. A deal with Turkey in March 2016 has slashed arrivals in Greece. Migration to Italy has plummeted since July, as it has begun training and supplying the Libyan coastguard—and, allegedly, local militias—to stop smugglers. (Italy denies aiding the militias.) EU programmes in Niger have encouraged that country to block migration across the Sahara.

But the respite is fragile. The calm in the Aegean is dependent on the goodwill of Turkey's mercurial president, Recep Tayyip Erdogan. Greece, for its part, has failed to fix its glacial asylum process, and rejected applicants are swelling in number on the islands rather than being sent back. In Libya, human-rights advocates warn that the militias holding back migrants also engage in trafficking. "This is not a management strategy, it's a triage strategy," says Elizabeth Collett of the Migration Policy Institute Europe.

Italy has sped up its initial reviews, but its appeals process runs through its ponderously slow courts. And in Germany the Green Party is stonewalling coalition negotiations over the government's decision to deport Afghan failed asylum-seekers. The politics of refugees are hard enough to handle within countries. At the EU level, they are that much harder. ■

Balkan diplomacy

Terminals with attitude

PRISTINA

Renaming airports to annoy the neighbours

ACROSS the western Balkans, gleaming new airport terminals are being built—and named in ways that upset the neighbours. A futuristic new facility opened in March in Zagreb, the Croatian capital. It has been renamed Franjo Tudjman airport, after the father of Croatia's independence movement. He fought a vicious war with Croatia's Serbs who, backed by Serbia, set up a short-lived breakaway Serbian republic on a third of Croatia's territory. In 1995 most of the Serbs in Croatia were sent packing.

Among those victims of ethnic cleansing were relatives of the world's most famous Serb, Nikola Tesla, an inventor. Tesla was born a Serb in 1856 in what is now Croatia, but emigrated to America; both Serbs and Croats claim him. Since 2006, Belgrade airport has annoyingly (to some Croats) borne his name.

There is more. Eighteen years after the end of the Kosovo war you still cannot fly from Nikola Tesla to Adem Jashari, in whose honour Pristina airport has been named since 2010. Jashari was one of the founders of the Kosovo Liberation Army who died along with dozens of his extended family after a Serbian siege of his compound in 1998. Today he is a Kosovo Albanian hero—and to Serbs, a devil.

The Greeks started the airport name game in 1992, by renaming Thessalonika's airport as Macedonia. Greece and Macedonia have been locked in a row since Macedonian independence in 1991; Greece says that Macedonia's name implies a territorial claim on that part of



historic Macedonia which lies in Greece. The Macedonians retaliated by changing Skopje airport's name to Alexander the Great in 2007, after the ancient Greek conqueror claimed by both countries. However, Macedonia's new government wants better relations with Greece, so a new name change is now possible.

Some names have not changed. In Bosnia, Sarajevo airport remains plain old Sarajevo. An attempt in 2005 to rename it for Alija Izetbegovic, the wartime leader of Bosnia's Muslims, was vetoed by the then international proconsul, Paddy Ashdown. Podgorica also remains Podgorica—except on your luggage tag. There, it remains TGD, a reminder that the Montenegrin capital was once named Titograd for Josip Broz Tito, the Yugoslav leader who died in 1980.

Climate-change policy in Germany

Huffing and puffing

BERLIN

As climate talks open in Bonn, Germany's green credentials suffer

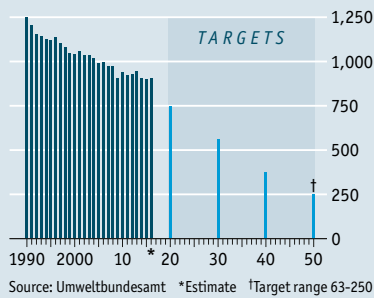
THE PR arm of Germany's environment ministry has had a busy autumn. Over the past two weeks, colourful posters advertising the government's global initiatives against climate change have gone up all over the country. In Bonn, where thousands of delegates gathered this week for the COP23 round of international climate-change talks, journalists are being encouraged to tour the area's green projects. Barbara Hendricks, the environment minister, opened proceedings by pledging additional funds to help developing countries adjust to global warming. The world is supposed to see a pioneering green nation "ready for the future", as the poster campaign has it.

But look more closely, and that is only half-true. In October the government was forced to concede that Germany will probably break its commitment to reducing greenhouse-gas emissions (to 40% below the 1990 level by 2020) by a wide margin: without drastic adjustments, emissions are predicted to fall by only 32%.

The main reason for the shortfall, which is larger than expected, is the country's continued reliance on coal, particularly filthy brown coal (lignite), to generate power. The problem was exacerbated by the panicked decision to switch off nuclear power stations (which emit very little CO₂) after the Fukushima disaster in Japan in 2011. The government's projections also failed to allow for a stronger economy and lower oil prices, which encouraged the use ▶▶

Not green enough

Germany, greenhouse-gas emissions
Tonnes of CO₂ equivalent



Source: Umweltbundesamt *Estimate †Target range 63-250

of oil for heating homes and delighted car-loving Germans with cheap petrol and diesel. The *Energiewende* (energy transition) policy focused on subsidising renewables without paying enough attention to phasing out fossil fuels. “Our assumptions were too optimistic,” says Jochen Flasbarth, one of Germany’s COP negotiators.

The setback comes at an awkward time. After America’s exit from the Paris climate accord, Germany, along with other European countries, was expected to take the lead in implementing it. That process is supposed to make headway in Bonn. Germany will hardly be a credible leader, however, if it cannot reach its own emissions targets.

The task of salvaging the country’s green credentials will fall to the new governing coalition that Angela Merkel’s Christian Democrats (CDU) are negotiating with the Christian Social Union (CSU), their sister party, plus the Greens and the Free Democrats (FDP). Climate wonks think that the parties’ immediate priority should be to make a coherent plan to get out of coal. In the short term, this may involve putting some of the dirtiest plants on the back burner, says Patrick Graichen of Agora, an energy think-tank. In the longer term, many economists favour the introduction of a carbon tax. But whatever measures are taken, says Mr Graichen, “by 2040 at the latest, the last coal plants must be turned off.”

Such a plan looks far off. Among the coalition negotiators, only the Greens are pushing for a swift exit from coal. The FDP dislikes the level of state intervention that switching off power stations might involve, and frets about the damage such plans would do to Germany’s industrial heartlands. That also worries some Christian Democrats: in North Rhine-Westphalia, newly governed by the CDU, thousands of jobs are still tied to lignite mines and power stations. Christian Lindner, the FDP’s leader, suggested on November 5th that Germany might have to scale back its ambition. A compromise is needed. Maybe the scrutiny of international delegates in Bonn will help to speed it along. ■

Internal security in France

Two years after Bataclan

PARIS

France wrestles with how to remain liberal while fighting terrorism

IT WILL be a sobering tour. Emmanuel Macron is to place flowers at the Stade de France, the Bataclan theatre and elsewhere in Paris on November 13th, marking the places where gunmen killed 130 people and injured over 400. Two years and several murderous assaults later, France’s president says such Islamist extremists remain the greatest threat to internal security. He argues, too, that a country ill-prepared in 2015 to fight “jihadist terrorism” is improving its capacity.

He is probably right on both counts. Mr Macron’s government plans to recruit an extra 10,000 police by 2022. After years of neglect, it will promote community policing—sensible, because day-to-day encounters, for example with immigrant groups in poor districts, should provide helpful intelligence. As important, in June it created a National Centre for Counter-Terrorism in the Elysée Palace, led by a well-respected ex-chief of counter-espionage, Pierre de Bousquet de Florian.

That new body co-ordinates all intelligence work and passes advice quickly to the president. Its creation was long overdue in a country that has been the target of a large share of plots against the West by Islamic State terrorists. Parliament had previously found, in assessing the failures of 2015, that operational co-ordination between rival security services was poor. With luck, that should no longer be so.

France has also, at last, ended a 719-day-long state of emergency first declared by François Hollande, the previous president, on the night of the attacks in November 2015. That was not an easy step. Polls show most voters relish tough, illiberal security measures. (They like, for example, seeing 10,000 heavily armed soldiers patrolling streets as part of *Opération Sentinelle*.) Intelligence assessments also suggest that more than 30 other attacks were foiled while the emergency was in force.

Ending the emergency is welcome. Human-rights groups and lawyers say, convincingly, that police at times abused the special powers it conferred, in searching or detaining suspects in their homes. Rights groups say emergency powers led to harsh treatment of Muslims in particular, who number around 4m. The law, renewed six times, also undermined claims that France is safe for tourists and investors.

Yet liberals are hardly cheering. In place of the emergency, France this month got a more narrowly focused but permanent

anti-terrorism law. MPs passed it by 415 votes to 127. Its terms may be less sweeping, but some measures again limit individual rights. The interior minister gets to decide on limiting movement of suspects. Officials, rather than judges, can order intrusive police searches of personal property, or the closure of places of worship if intelligence suggests members are preaching hostility towards France.

Activist groups such as Human Rights Watch warn that abuses will grow more common as judicial oversight is weakened. France’s constitutional court, or the European human-rights one, may yet be pressed to rub off the harder edges of the law, maybe on rules regarding restrictions of individuals’ movements.

Mr Macron walks a fine line. He talks of protecting legal rights, as in a recent speech to the European court in Strasbourg when he warned against “illiberal democracy” and vowed to fight terrorism only “under the control of courts”. But he also knows a wider public expects resolute measures against potential, not only proven, threats. After six months in office, polls show only lukewarm overall support for him. But voters mostly like his national-security efforts and the new terrorism law. He will take popularity where he can get it. ■

Tourism in Turkey

Sin city

VAN

A Turkish town turns into a playground for repressed Iranians

TWO women in their 60s, one boasting a shock of bleached hair, the other in a loose headscarf, are dancing alongside a teenage girl in a white tube top. Families crowd behind tables weighed down by narghile pipes, glasses of overpriced beer and plates of sliced carrots and cucumbers. When a popular song comes on, a little boy begs his mother to join him on the dance floor. The venue is an underground nightclub in Van, a dusty, unremarkable city in Turkey’s south-east. But everyone inside, from the DJ to the barmaids to the patrons themselves, is from Iran.

Rocked by a series of terror attacks, a failed coup attempt and an ongoing crackdown by President Recep Tayyip Erdogan’s government, Turkish tourism has been suffering. Foreign arrivals slumped from 36m in 2015 to just 25m last year. Westerners were especially likely to stay away. Though business has picked up this year, many hotels in Istanbul and along the Mediterranean have had to slash prices to stay afloat.

In Van, about an hour’s drive from the Iranian border, things could not be more ►►

▶ different. In the first nine months of 2017 the city welcomed a record 388,000 visitors from Iran, up from 264,000 during all of last year, an influx nearly the size of its own population. Local hoteliers cannot keep up with demand. On a weekday in September, your correspondent had to ring 14 different hotels and the city's lone youth hostel before finding a bed for the night, and that only thanks to a late cancellation. So many Iranians poured into the city earlier this summer that the governor had some of them put up in student dormitories and others in private homes. When an Iranian musician banned from performing in his home country arrived for a concert, he was greeted by an audience of 5,000 compatriots. "At times you feel like a foreigner in your own city," jokes an official at the local chamber of commerce. With the visitors leaving behind tens of millions of dollars, mostly in cash, no one seems to mind. The city recently started to offer Farsi language courses to local business owners.

Even as Turkey struggles to lure back tourists from Europe and America, visitors from the Middle East are coming in droves. Over 2m Iranians are projected to travel to Turkey this year, a new record. More tourists than ever are arriving from countries like Kuwait, Bahrain and Saudi Arabia.

The Iranians who flock to Van—one of the few parts of the south-east spared the clashes between Kurdish insurgents and Turkish troops that have ravaged the region since 2015—do so for a number of reasons. Some come for the sights, including the vast lake that borders the city, the 1,100-year-old Armenian church built atop one of its isles and the remarkable cats, known for their white fur and odd-coloured eyes, which inhabit the area. Others come for the shopping malls, stuffing their suitcases

with trousers and polo shirts that cost a small fraction of what they do in Iran.

Many, though, come simply (and often literally) to let their hair down. Late into the night, streams of unsteady patrons, including elderly couples and women in heavy make-up and miniskirts, stream in and out of basement nightclubs, many of which cater exclusively to Iranians. On warmer days, the revelry continues on boats dotting the lake. Drinking and public dancing are forbidden by the mullahs running Iran. The headscarf is mandatory for women above the age of seven. In Turkey, a predominantly Muslim but constitutionally secular country, no such restrictions exist. Van itself enjoys a reputation as a relatively freewheeling town in an otherwise conservative part of the country. Bahar, a housewife vacationing in Turkey for the first time, says she and her teenage daughter had been anxious about heading out for a night on the town without wearing the hijab. "It turns out it's no problem," she says. "We feel relaxed here."

Yet the tide of Islamism that flooded Iran four decades ago is now on the rise in Mr Erdogan's Turkey. Soaring consumption taxes and restrictions on marketing are turning alcohol into a luxury. Schools that specialise in teaching Islam are mushrooming. References to Darwin and the theory of evolution have been removed from the curriculum. The secular Iranians on the streets of Van dismiss the idea, sometimes invoked by Mr Erdogan's harsher critics, that Turkey is on the verge of becoming a theocracy. But they too say the omens are worrying. "The ruling mentality is similar," says Majid, a teacher from Tabriz, across the border, relaxing at a local restaurant with his family. The more Turkey starts to resemble Iran, he says, the less it will appeal to Iranians. ■

Italian politicians

Kings of swing

ROME

Party-hopping MPs hit new records

ONE Italian commentator compares them to so many Tarzans, gliding from tree to tree through the jungle of Italian politics. The latest was Giovanni Piccoli. On October 31st the 59-year-old senator swung back to Silvio Berlusconi's Forza Italia party, a mere 21 days after deserting it. According to Openpolis, an NGO, Mr Piccoli's rethink was the 533rd time an Italian parliamentarian had changed sides since the start of the current legislature in 2013. Of the 945 deputies and senators elected then, 342 have felt moved by conscience, or other considerations, to change parliamentary groups; in many cases, more than once.

The phenomenon is so common that there is a word for it: *trasformismo* (also used in Italian to describe the art of the theatrical quick-change artiste). Though a prime source of political instability and an important reason why Italian voters find it so difficult to decipher their country's politics, *trasformismo* is seldom a subject for public discussion. But then the freedom of lawmakers to abandon the party they were chosen to represent is endorsed by the constitution.

A new electoral law, approved on October 26th, might limit that freedom, if only slightly. One reason so many parliamentarians override their constituents' wishes is that they are largely unanswerable to them. Since 2005 they have been chosen in multi-seat constituencies from slates crafted by party leaders who decide which candidates stand the best chance of election (only in the anti-establishment Five Star Movement do the rank and file determine the order of candidates on each slate). The new law means that some lawmakers, though still barely a third, will be chosen at the next election on a first-past-the-post basis in single-seat constituencies.

Although recent years have seen an upsurge in *trasformismo* (the rate of party-hopping has doubled in the current legislature), it is as old as Italian democracy. In the late 19th century the progressive leader Agostino Depretis was renowned for his skill at luring opponents to his side. But not even he could have envisaged a parliamentarian as restless as Luigi Compagna from Naples. Mr Compagna has been a Republican, a Liberal, a Socialist and a Christian Democrat. In 2013 he was elected for Forza Italia, but left five days after the opening of parliament. Eight further changes of allegiance followed.



You can't do that in Tehran

Charlemagne | The audacity of L'Europe

Emmanuel Macron revolutionised French politics. Now he wants to repeat the trick in Europe



YOU might think Emmanuel Macron deserves a moment to catch his breath. Just half a year ago he pulled off one of the most audacious political coups in recent European history, trouncing a tired political establishment to become France's youngest leader since Napoleon. He created a political party from scratch and took it to a triple-digit majority in parliament. He has energetically set about reforming France's labour market and tax system. Yet having pulled off all this at home, Mr Macron now hopes to repeat the trick across the European Union.

Surveying the continent, Mr Macron spots similar dysfunction to that he observed in France and wants to apply similar remedies. Allow globalisation to run untempered, he reckons, and you generate vicious backlashes à la Brexit and Donald Trump. Animated by a mission to save the EU from populists like Marine Le Pen, whom he bested in the presidential election on the most pro-European platform French voters had seen for a generation, Mr Macron has an answer: "a Europe that protects".

His fellow leaders have quickly learned what this means. Mr Macron has tried to slam the brakes on speedy trade deals that may inject a dose of growth into Europe's economy but that he fears could alienate citizens and parliaments. He has trained his guns on rules that allow eastern Europeans to avoid expensive social charges in the west. Ask French workers to swallow labour reforms while they are undercut by Poles working alongside them, Mr Macron judges, and you do Ms Le Pen's work for her. (A recent deal on these "posted workers" gave Mr Macron his first big European win.) No matter if such efforts do little for Europeans' pockets; Mr Macron believes in symbols.

He also believes in reform, especially to the EU's semi-built common currency. Mr Macron is desperate to dispel suspicions in Germany that he wants a "transfer union" in which prudent northern European taxpayers are shaken down to subsidise the indolent elsewhere. That is indeed a gross caricature of a vision that, at its best, combines financial, macroeconomic and institutional proposals to help the euro weather the next storm. But the long years of internecine euro-zone conflict have left deep scars. There is a striking disconnect between the optimism that persists in Paris and the steady downward ratchet of expectations in Berlin as Angela Merkel's difficult coalition talks grind on.

Most disruptive of all could be Mr Macron's attempt to overhaul the EU's party politics before the European Parliament elections in 2019, rather as his *La République en Marche* tore up the French system. The parliament's groupings bundle together supposedly like-minded parties from across the EU: the European People's Party houses the centre-right, the Socialists and Democrats group caters to leftists, and so on. Unlike almost every other national party in Europe, Mr Macron's is aligned to none of them.

That is partly because it is barely 18 months old. But Mr Macron's advisers reckon Europe's flabby and incoherent groups are ripe for disruption. The EPP, for instance, bunches Mrs Merkel's centrist Christian Democrats with the Hungarian nationalists of Fidesz. Just as they did in France, Mr Macron's advisers want to reconfigure European politics to set advocates of openness and collaboration against populists and Eurosceptics, and seek partners who share this view. Feelers have been put out to pro-Europeans in Spain, the Netherlands and elsewhere. As time is tight, ALDE, a grouping of liberal centrists, though small, could possibly serve as a base.

Through a series of "democratic conventions" across Europe (another idea tried out in France) shepherded by Nathalie Loiseau, his Europe minister, Mr Macron will seek to assemble a programme for the 2019 election, and perhaps the basis for his own group in the parliament. That will give him a platform to help determine a replacement for Jean-Claude Juncker, who will retire as president of the European Commission, the powerful Brussels bureaucracy, soon after the election. One name doing the rounds in Paris is Margrethe Vestager, the commission's competition tsar. Her flair, taste for public relations and punchy attacks on tax-dodging tech firms make her a natural fit for Mr Macron.

Appetite for destruction

Europe had become so resigned to a weak France that it has struggled to adjust to what Pascal Lamy, a French former director-general of the World Trade Organisation, calls "Macron's method of motion". Mr Macron's energy has electrified Europe, but also raised fears—and not only in the east—that if left untrammelled it could prove more divisive than constructive. Mr Macron enjoys picking fights when expedient, especially with Poland. Ivan Korkoc, Slovakia's Europe minister, compared Mr Macron's European approach to dashing up the summit of Mount Everest without oxygen. Better to wait at base camp to ensure the whole team is present. Others suspect they are witnessing no more than a re-dressing of old French protectionism in shiny clothes.

This presents a new challenge for Mr Macron. He spotted before anyone else that French voters were ready for a fix to their broken politics, and seized the moment to provide it. The parallel in Europe is not precise. One sympathetic observer warns that some Europeans will be reluctant to join Mr Macron's "Napoleonic endeavours" if he seeks to scramble their domestic party politics. More pressingly, Mr Macron will have to find a way to yoke his energy to the caution of Mrs Merkel as she plods towards her political twilight.

Slightly tempered ambition might be no bad thing for a president with a tendency to hubris. Europe's multiple fissures and identity neuroses do not lend themselves to straightforward solutions. "Macron is the candidate of rationality in a continent torn by passion," says Dominique Moïsi, a scholar at the Institut Montaigne, a Paris-based think-tank. France was ready for Mr Macron's revolution. Europe may need a little more time. ■



Plea-bargaining

A deal you can't refuse

Long central to American justice, deals between defendants and prosecutors are becoming more common elsewhere

A PROTEST in Madrid about the cost of the pope's visit in 2011, when Spain's economy was moribund, was not the first Flavia Totoro had attended. Marching alongside families, she was unconcerned about her safety. But after an altercation with police she and seven others were arrested. She was charged with assaulting an officer. Just before her trial she was offered the chance to plead guilty, in which case she could avoid a possible 18-month prison sentence and merely pay a fine. If all the defendants pleaded guilty, none would be imprisoned, the prosecutor said. But if she insisted on going to trial, the others would go, too. Unwilling to jeopardise other people's freedom, she accepted, though she still maintains she was innocent and could have proved it in court.

In plea-bargaining, as the promise of a lesser penalty in return for a guilty plea is commonly known, prosecutors offer to drop some charges, to replace the original charge with a less serious one or to seek a lower sentence. It has long been central to America's criminal-justice system. But over the past three decades it has spread across the world. A study of 90 countries by Fair Trials International, a campaigning group, found that in 1990 just 19 used some form of plea-bargaining. Now 66 do.

Plea-bargaining took off in America around 1920 with Prohibition, which led to a steep increase in the number of criminal offences. By 1930 the number of federal

prosecutions under the Prohibition Act alone was eight times the total figure for all federal prosecutions in 1914. Bargaining with defendants to plead guilty in return for lighter punishment seemed like the only way to cope. Prohibition ended in 1933, but plea bargains did not. Since 1970, when the Supreme Court ruled that they were permissible, they have become ubiquitous. In 1980 some 19% of federal defendants went to trial. In 2010 the share was below 3%, where it remains.

Practice in other countries varies widely. In Australia, England and Russia more than 60% of cases are resolved with plea bargains. In Chile, India and Italy, the share is less than 10%. Some recent converts to plea bargains have adopted them with vim. In Georgia, which has allowed them since 2004, the share of convictions that involved a plea bargain rose from 13% in 2005 to 88% in 2012.

Export deals

The central role of plea-bargaining in America goes some way to explaining its spread elsewhere. America's criminal-justice system has a big influence globally, with legal training often forming part of its foreign-aid efforts. The Office of Overseas Prosecutorial Development Assistance and Training (OPDAT), part of the Department of Justice, was established in 1991, after the break-up of the Soviet Union and as the war on drugs in Latin America inten-

sified. Among the countries where America helped new governments with legal reforms are Bolivia, Colombia, Poland and Russia. Plea-bargaining was often among the suggested reforms.

OPDAT is now helping to write guidance on criminal procedures, including plea-bargaining, in Croatia and the western Balkans. In Ukraine it trains justice officials in the system. Last year it started work with Guatemala on introducing plea-bargaining to clear a backlog of cases.

American influence, however, is not the only reason for plea bargains' spread. Transitions to democracy often involve shifting from "inquisitorial" systems associated with discredited regimes, in which judges play an investigative role, says Rebecca Shaeffer of Fair Trials International. As countries adopted adversarial systems, in which judges act as referees between the prosecution and defence, they also sought to expand capacity—and introducing plea-bargaining enabled them to handle more cases.

More broadly, plea-bargaining can cut costs and delays. Without an incentive to plead guilty, even defendants facing overwhelming evidence may decide to take their chances in court. Finland brought in plea-bargains in 2015 after a series of cases in which the European Court of Human Rights ruled that it had violated citizens' right to a timely trial.

A plea bargain can even offer an immediate route out of jail. Around the world almost 3m people are held in pre-trial detention. Many defendants spend longer in pre-trial detention than the maximum sentences they face. At that point, "of course they want to plead guilty to get out of prison," says Isadora Fingerhann, a Brazilian former criminal lawyer who now works in criminal-justice reform.

Another benefit of plea-bargaining is ►►

▶ that it helps to tackle organised crime. A law passed in Brazil in 2013 allowing public prosecutors to slash sentences for defendants who made full confessions and provided detailed evidence against their accomplices was essential to Operation Lava Jato (Car Wash), an investigation into graft at the state-controlled oil firm, Petrobras. It has since cut a swathe through the country's once-untouchable politicians, thanks to the evidence provided by bribe-paying businessmen desperate to stay out of jail.

The strong arm of the law

When America's Supreme Court gave its seal of approval to plea bargains in 1970, it did so on the understanding that they would not be used to press innocent defendants falsely to admit guilt. But since then a series of miscarriages of justice and new psychological research suggest that, all too often, that is what happens.

In 2002 Brian Banks, a high-school football player, was accused of rape and kidnapping by an acquaintance. After his arrest, prosecutors offered him the chance to plead guilty and spend just a few years in jail, or to go to trial where he could face up to 41 years if convicted. He took the deal. After he was released, his alleged victim contacted him. They met and, in a conversation which he recorded, she admitted that she had invented the incident. In 2012 he was exonerated.

Mr Banks is not alone in pleading guilty to a crime he did not commit. Of the 149 Americans absolved of crimes in 2015, 65 had pleaded guilty. The Innocence Project, an organisation that uses DNA evidence to re-examine convictions, has proven the innocence of 300-odd people, most of them convicted for rape and murder. At least 30 had pleaded guilty. According to the National Registry of Exonerations, a collaboration between several law schools, a quarter of Americans cleared of murder between 1989 and 2012 had confessed. But such figures only hint at the scale of the problem. Often, plea bargains are conditional on giving up the right to challenge a conviction later. And exoneration efforts focus on serious crimes, where sentences are long and there is more likely to be forensic evidence.

Researchers are starting to demonstrate how common false confessions are likely to be. In a study in 2013 by Lucian Dervan of the Belmont University College of Law, together with Vanessa Edkins, a psychologist at the Florida Institute of Technology, students were asked to solve logic problems, first in a team and then alone. An accomplice of the researchers asked half the participants for help on the second set. All were then accused of cheating and offered a "plea bargain" to avoid penalties that could include losing the payment for participation and having their supervisors notified. Nearly 90% of those who had aid-

ed the accomplice confessed. But so did a majority of those who were innocent.

Mr Dervan is now running studies in Japan, which is introducing plea-bargaining, and South Korea, which may do so. Japan, where criminal suspects may be held for 23 days without charge, often with only minimal contact with a lawyer, perhaps deprived of sleep, is already worryingly good at extracting confessions. Plea bargains are being brought in as part of the horse-trading over a larger criminal-justice reform, in which prosecutors opposed to routine recording of interrogations have managed to limit it, in exchange for formal recognition of plea-bargaining and other aids to investigating complex crimes.

Early results suggest that the "innocence issue" is universal, says Mr Dervan. Differences in legal systems do not change the rate of false confessions much. Another study he is conducting suggests that guilty participants are no more likely to plead guilty if offered a big incentive rather than a small one. Innocent ones, however, become more likely to make false confessions as the incentive—in other words the penalty for rejecting the deal—rises.

The fear that plea bargains may induce false confessions means many countries have strict rules regarding their use. Japan will limit them to serious crimes where the accused informs on someone else. In Germany, South Africa and Spain defendants are shown all the evidence to be presented against them before they decide whether to accept a deal. In Germany, the discounted sentence cannot be less than the statutory minimum for that crime. In England, sentences can be cut by at most a third.

In America, by contrast, prosecutors have broad freedom to slash sentences, including for crimes that carry the death penalty. Extremely long sentences, mandatory-sentencing rules and untrammelled

prosecutorial discretion add up to a system that almost seems designed for abuse.

And yet so entrenched are plea bargains in America that the occasional attempts to do without them have failed. Between 1975 and 1990 they were banned in Alaska. Even then, they happened informally. Judges made implicit deals with defendants who pleaded guilty. One study found that sentences after trials for violent crimes were, on average, 445% longer than those given after pleas. For fraud, they were 334% longer. The Texan city of El Paso banned plea-bargaining in 1975. During the following two years the trial rate doubled and the two judges assigned to criminal cases could not cope. Ten more were assigned to help them, but even so prosecutors started to strike secret bargains, with judges' encouragement. The ban was eventually rescinded.

The extensive use of plea-bargaining can reshape an entire criminal-justice system. By definition, it means fewer trials—and therefore fewer occasions on which police and prosecutors must make a solid case in an open courtroom. The ability to carry out investigations can atrophy. And statutes that are vague or unjust may go unchallenged because so few cases go to trial.

For defendants who plead guilty, the consequences go beyond any (reduced) sentence they must serve or fine they must pay. In Europe criminal records are usually wiped clean of all but the most serious offences after some time, provided people do not re-offend. In the meantime, however, sensitive jobs such as teaching or public administration are likely to be off-limits. And minor transgressions, such as traffic offences, may be punished more harshly.

In many American states the consequences are more severe and long-lasting. Criminal records may never be expunged and may mean being barred from voting, evicted from public housing, denied welfare or turned away when applying for a job. The extra legal restrictions placed on people with criminal records, some bizarrely specific, mean they are more vulnerable to future charges. In Illinois, for example, it is a crime to own a dog that has not been spayed or neutered—but only for people with a criminal record.

Tilting the scales

All this suggests that defendants should carefully weigh the long-term consequences of a guilty plea. But it seems they do not—even when explicitly nudged to do so. In a separate study, Mr Dervan found that informing participants about those consequences made little difference to the likelihood that they would accept a deal. "If pleading guilty means you get to go home, most will plead guilty," he says. When the justice system is stacked against defendants, they are unlikely to gamble their futures for its greater good. ■





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The world's largest tech deal

Welcome to the wild

SAN FRANCISCO

Broadcom's \$130bn bid for Qualcomm shows how mature and how ruthless the chip business has become

AT FIRST glance the chip business and the Serengeti appear to have little in common. But both are arenas where large predators hungrily stalk big game. On November 6th Broadcom announced its intention to buy its rival, Qualcomm, for around \$130bn, including debt. If successful, it would be the largest deal in the history of the technology business (see table).

And like the African plains, the semiconductor industry supports a complex food chain with different species of chip-makers hunting each other. Qualcomm is already trying to swallow another chip firm, NXP, from the Netherlands, in a deal worth \$47bn. In 2015 NXP, which makes chips for automobiles and other markets, itself completed a merger with Freescale, another large chip company. Meanwhile, Broadcom has become the world's fifth-largest semiconductor firm by snapping up rivals. It has pulled off five big acquisitions since 2013 and is seeking approval for its \$5.9bn bid for Brocade, yet another semiconductor company. If it successfully ingests Qualcomm, the combined group would become the world's third-largest chipmaker, behind only Intel and Samsung Electronics, and a dominant supplier of many components in smartphones.

Consolidation in semiconductors is only speeding up, both in memory chips and, as with this proposed transaction, in microprocessors. Between 2006 and 2016

deals worth a total of \$556bn were struck as chipmakers sought to expand in a rapidly maturing industry. Previous sources of brisk growth, such as the spread of personal computers, tablets and smartphones, have dried up. Global sales of chips reached \$344bn in 2016, but in the past five years they have flattened.

It is against this backdrop that Hock Tan, chief executive of Broadcom, continues to hunt for new targets. His firm switched its name to Broadcom after the company he once ran, Avago, acquired it in 2015 for \$37bn. This month he stood next to President Donald Trump as he announced that he would move Broadcom's legal headquarters from Singapore to America, a move surely designed to encourage American regulators' approval both for his acquisition of Brocade and the subsequent bid

for Qualcomm.

Mr Tan and his firm keep a low profile and are barely known outside the semiconductor industry, but his techniques have a following. In particular, he has connections to America's private-equity industry. Silver Lake, a prominent buy-out firm that owns a stake in Broadcom, is providing \$5bn in financing for the proposed takeover, alongside banks.

Most semiconductor firms are run by electrical engineers who see engineering as the solution to their problems, says Mr Tan, who was born in Malaysia, studied engineering at the Massachusetts Institute of Technology and then business at Harvard Business School. He tackles his industry more like a private-equity boss, finding firms that are bloated and cutting costs. "He ran through Broadcom with a machete," says Stacy Rasgon of Bernstein Research. According to Linley Gwennapp of the Linley Group, a consultancy focused on semiconductors, Mr Tan eliminated an entire layer of management at Broadcom and now has around 20 business units reporting directly to him.

Scale helps semiconductor companies greatly because the business is so capital-intensive. Broadcom also sees benefits ▶▶

Techtonics

Biggest technology mergers and acquisitions, worldwide*

Target	Deal value, \$bn	Acquirer	Date
Qualcomm†	130.3	Broadcom	2017
EMC	64.6	Dell	2015
NXP Semiconductors†	47.0	Qualcomm	2016
Broadcom	36.1	Avago	2015
ARM (98.6%)	31.8	SoftBank Group	2016
Rockwell Automation†	28.9	Emerson Electric	2017

Source: Dealogic

*At November 8th 2017 †Proposed

▶ from Qualcomm's investments in areas such as 5G technology, where it falls short itself. If Qualcomm's purchase of NXP is approved, Mr Tan would also gain exposure to the automotive market and to self-driving cars, another area of promise for chipmakers.

Qualcomm has recently suffered legal wounds, which will have helped draw Broadcom in for a kill. It makes the majority of its revenue from patent licensing, but in January America's consumer watchdog, the Federal Trade Commission, sued it, alleging it was abusing its monopoly position in order to extract high licensing fees for baseband chips, used in smartphones. Regulatory bodies in China, South Korea and Taiwan have levied hefty fines on Qualcomm for anticompetitive behaviour. One of the semiconductor industry's most powerful customers, Apple, has also sued Qualcomm over its licensing terms, and iPhone manufacturers have started withholding royalty payments, depriving Qualcomm of billions in sales as the dispute rages on. There is no end in sight.

Mr Tan has suggested that new ownership could lead to a more amicable relationship between Qualcomm and customers such as Apple, although there is little evidence for that view. In a few areas, including connectivity chips that enable Wi-Fi and radio-frequency chips, Broadcom and Qualcomm compete; having a giant firm with more market power is not likely to please chip buyers. If they combined, with no divestments, Qualcomm and Broadcom would control between 50%-60% of the market for Wi-Fi chips and 27% of radio-frequency chips for mobile devices. According to Mr Gwennap, Broadcom has raised prices in some markets where it has a dominant share, such as Ethernet switches for data centres, and customers are unhappy.

Chip, chip, chip, chip hooray

Qualcomm's board is said to be preparing to reject the offer, which it considers to be too low. Broadcom could raise its price to see through a deal, or pursue a hostile bid. But even if Broadcom wins the support of Qualcomm's bosses and shareholders, there are large risks, says Geoff Blaber of CCS Insight, a research group. With Qualcomm's pending purchase of NXP and Broadcom's of Brocade, what looks at first glance like a merger between two giants is actually a four-sided deal. It would be difficult to unite so many different divisions and business units all at once.

A second risk is regulatory. The European Commission's ongoing investigation of Qualcomm's proposed acquisition of NXP is suggestive of the close scrutiny that another mega-deal in chips could receive in Europe, says Thomas Vinje, head of anti-trust at Clifford Chance, a law firm, in Brussels. China's antitrust regulators could also

prove difficult. They may want to protect their own, home-grown chipmakers.

Some have interpreted the bid as an attempt by Broadcom to enter future fast-growing areas, such as chips for connected devices, collectively called the "internet of things", and artificial intelligence, where Nvidia, another chipmaker, dominates. But the combined entity may actually be too focused on maturing semiconductor markets; by swallowing Qualcomm, Broadcom would be doubling down on smartphones rather than diversifying away from them.

Yet Mr Tan sees this as a good thing. "Focus is the key to success as the industry consolidates," he says. "We try to progress innovation in areas we are already good at." Perhaps he thinks that he can buy into new categories in the chip business when he is ready to roll them into his giant company. Skilled hunters learn never to reveal where they might be planning to attack next. ■

American business and tax

Give and take

NEW YORK

Business reaction to the Republicans' big tax-reform plan is mixed

"CUT, cut, cut!" That is what President Donald Trump wanted to name an eagerly awaited Republican proposal for reforming America's tax code. He vows that slashing the rate of corporate tax will create millions of jobs. In the end, on November 2nd, Republican leaders in the House of Representatives unveiled the modestly named Tax Cuts and Jobs Act.

Some business leaders cheered. The US Chamber of Commerce called it a "once-in-a-generation opportunity to fix the problem". The National Association of Manufacturers declared the plan "a grand slam for hardworking manufacturers". The bill is expected to reach a vote this month in the House, after which it must be reconciled with a Senate tax bill due soon.

The centrepiece of the plan is a big reduction in the headline rate of corporate taxation from 35% to 20%. The proposal also allows capital investment to be deducted in full immediately, rather than over time. It would move America to a territorial system that taxes firms on income where it is earned, while taxing the \$1.3trn or so of cash parked overseas by American multinationals (MNCs) at 12%. That all broadly pleases business.

But there is less there than meets the eye. American firms do appear to pay nearly the highest rates in the world, but thanks to existing deductions, credits and loopholes, the actual tax rate paid by firms is al-

ready closer to 20% than 35% (see chart). The laudable proposal to allow them to write off investments in full immediately is scheduled to expire after five years. And the reform of MNC taxation includes an excise tax of 20% on all payments made by firms in America to foreign affiliates, a mischievous border tax that angers MNCs as it would disrupt global supply chains.

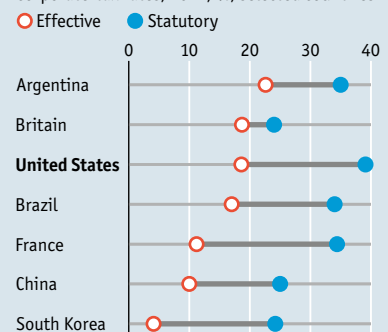
Those grumbles point to a bigger problem for Mr Trump. Though billed as a boon for business, the House tax plan has numerous provisions that threaten powerful industries. These vested interests are now busy twisting arms on Capitol Hill. Homebuilders and real-estate agents are fuming about a change to a long-standing subsidy for homeowners. The proposal would cap the deductibility of interest paid on mortgages (see page 63). Today, people can deduct interest on home loans worth up to \$1m. Under the House proposal, this would be cut to \$500,000. The National Association of Homebuilders warns this could cause a housing recession.

The National Federation of Independent Business also opposes the bill, claiming it "leaves too many small businesses behind". The House plan introduces a 25% tax rate for non-corporate "pass-through" businesses, such as partnerships and corporations, which today pass on business income directly to shareholders for taxation on their personal tax returns. Owners of such companies, who currently pay individual tax rates approaching 40%, would benefit greatly—but the 25% tax proposal mostly excludes doctors, lawyers and accountants.

The business constituency that may be most unhappy with the bill is the private-equity (PE) industry. The tax plan would restrict the amount of interest that most firms could deduct from taxes at 30% of earnings before interest, taxes, depreciation and amortisation. Since taking on large amounts of debt to buy companies is central to the PE business model, this proposal is a serious threat to future returns. The barbarians at the gate are unlikely to go down without a fight. ■

Myth and reality

Corporate-tax rates, 2012, %, selected countries



Source: Congressional Budget Office

Japanese exports

Nature calls

KITAKYUSHU

Japan's top two lavatory-makers have different ways of expanding abroad

WHEN staff at the Louvre in Paris head to the bathroom, the toilet lid opens as they approach, a warm seat heats their *derrières*, and, once done, their nether regions are washed and dried precisely. Selling the equipment is a coup for Toto, Japan's biggest producer of "shower toilets".

Toto and its rival Lixil carve up the Japanese market for fancy, multi-function loos between them. At home they have market shares of 60% and 30% respectively, according to Nomura Securities, a brokerage. Yet they have struggled to win foreign bottoms over to luxuries enjoyed in Japan for many decades.

Today 26% of Toto's and 30% of Lixil's revenues come from abroad (much of it from products other than shower toilets). The Japanese market is profitable, but their loos are already ubiquitous there (including in public facilities, from Tokyo's metro system to remote hiking trails); the majority of domestic sales come from the renovation of private homes and hotels. And whereas Japan's population is declining, in other countries sanitaryware is a rapidly growing market as people get richer, says Daisuke Fukushima of Nomura Securities.

But it is not an easy sell abroad. In Japan, shower toilets appeal because of their heated seats in dwellings that are usually kept cold, and due to a Japanese obsession with hygiene and a horror of inconveniencing others (some models play music to hide noises). Other cultures are less stringent. And the toilets are expensive; Toto's "Neorest" model ranges in price from ¥270,000-¥540,000 (\$2,365-\$4,730), before tax.

Toto and Lixil differ in their approaches to these challenges. Toto is expanding under its own name, opening showrooms and getting its loos into hotels and buildings where lots of people will see them. "People have to experience it to want to buy it," says Madoka Kitamura, its president, who wants to create "Toto fans". In contrast, Lixil, formed in 2011 by a merger of five Japanese companies, is buying foreign competitors. In 2013 it acquired American Standard and a year later Grohe, a German bathroom-fittings giant. It sells a high-tech toilet under the Grohe brand.

Lixil's strategy is sensible. It does not have quite the same brand recognition as Toto. Kinya Seto, its president, who took over last year, readily admits that Toto currently betters it abroad as well as at home. He is trying to make the company a little

less Japanese, whereas Toto is more culturally conservative (a motto, "take pride in your work and strive to do your best," is recited by every worker in every factory every day to aid team-building). Mixing Japanese technology and Grohe's European design could give the smaller firm an edge.

Lixil is also casting its net wider in terms of products. Toto is putting more emphasis on those that are not available abroad—meaning high-tech lavatories. In some countries, such as India, Lixil is selling (and donating) basic, cheap kit—plastic pans to use with pit latrines—betting that in several years people will get richer and upgrade.

No market can match the potential of China, yet many mainlanders opt for products from lower down the price range. So for near-term profits, the two companies

are looking to America and Europe. There they encounter obstacles such as strict regulations (on water use, say), an absence of sockets in bathrooms and the lack of a "wet culture" beyond southern Europe.

But Toto's positioning of its toilets in America as better for the environment is going down well. And Lixil launched a new Grohe-branded shower toilet worldwide last year which is selling particularly well in Germany. It is designed to look good from the side (Japanese toilets are usually in a separate tiny room, so are seen only from above) and is made from ceramic (in Japan plastic seats are the norm). Aficionados will be glad that other features, such as a remote-control panel with multiple buttons and anatomical diagrams, remain the same. ■



Social media and newspapers

Just the two of them

NEW YORK

Publishers are wary of Facebook and Google's heft, but have no choice but to work with them. The second in our series on the future of journalism

IN RECENT months Google and Facebook have made changes that may escape the notice of most of their billions of users, but not of news organisations. Facebook began displaying the logos of publishers in some of its posts, so readers can identify the news source. And Google for the first time gave publishers the ability to control how many times the search engine's users can visit news sites free of charge. Both will directly help papers to sell subscriptions.

To critics of the social-media giants, that might look like wolves offering to help the sheep while still feasting on the herd. The business of both Facebook and Alphabet, parent of Google and YouTube, is to occupy people's time and attention with their free services and content, and to sell ads against those eyeballs. For them, quality journalism is just another hook.

Facebook calls its "News Feed" offering its most important product, but in recent years it has tweaked the feed in ways that

de-emphasise actual news, instead prioritising updates from friends and family over those from publishers. The associated ad revenues for many publishers have been either nominal, in the case of Facebook's fast-loading "instant articles", or as yet mostly non-existent, in the case of videos they make for the social network. News sites have found they have no choice but to work with the two tech giants, however: Facebook, with its 2bn users, and Google, which directs 10bn clicks a month to publishers, are where their readers are.

So there is no confusion about where the power lies. That is unlikely to change much in future, although publishers are fighting back a bit. In America a consortium of nearly 2,000 news organisations, the News Media Alliance, is asking Congress for an antitrust exemption to allow publishers to negotiate collectively with the two firms. David Chavern, the consortium's president, lists some of the de- ▶▶

mands: more ad revenue; the sharing of data about their audiences on the tech platforms; better branding for publishers, as the use of logos is very limited (people simply say, “I read that on Facebook”, says Mr Chavern); and support for subscriptions.

That the tech giants are making concessions on some of these points may be because they sense that the political mood is turning against them in America and in Europe, or because of genuine concern for the media ecosystem. Recently Google News Lab, formed in 2015, helped fund “Report for America”, which will put an initial 18 reporters in small-town newsrooms across the country, with more to come in future years. Facebook started a “Journalism Project” in January to help develop news products in collaboration with newspapers.

Several newspaper executives say Google’s dealings with them seemed more sincere than Facebook’s. But both firms’ changes to click-through policies are significant. Google’s old policy for users directed to make their first visit to a newspaper website was called “first click free”, but it actually gave users three free clicks on a newspaper’s site every day. As more publishers put up paywalls online, they lobbied Google to limit free access. Google prefers an entirely free, open web—the better for searching and for ad placements—but in the end it relented.

“We’re pleased that the conversation has moved on from this ideological position that all content should be free,” says an executive at the *Wall Street Journal*, which charges readers for digital access. Earlier this year the *Journal* opted out of “first click free” and experienced a 50% decline in traffic from Google. It also saw a quadrupling of conversions to subscription among those who came to the site and hit the paywall. To the *Journal*, both data points confirmed the sheer power of tech platforms over publishers.

As for Facebook, users today get all instant articles free of charge. It has signed up ten publishers (including *The Economist*) for a trial that gives some users of Facebook’s mobile app access to ten free instant articles per month but then sends them to a publisher’s paywall. Even so, many readers are not likely to encounter one.

Media executives at firms that rely more on selling ads than subscriptions are more enthusiastic about Facebook and Google. “We see them as a friend,” says Paul Zwillenberg, chief executive of Britain’s *Daily Mail* and General Trust, owner of the *Daily Mail*. Mail Online has doubled daily visitors and engagement in part by making videos for Facebook and YouTube. That does not mean giving up on direct internet traffic (on which Mail Online can sell ads without sharing revenue with Facebook or Google). About 35% of Mail Online’s traffic in America still comes directly to the news site’s homepage, or “front door”, according

to SimilarWeb, an analytics firm, which is slightly higher than the rate for the homepages of the biggest American papers.

But selling digital ads on their own websites is a challenge for most news organisations, in part because of the competition from the duopoly. Facebook and Alphabet will take the majority of all digital-ad revenue globally this year, and, by some measures, have recently taken 80-90% of the growth in such revenue. Their data on users’ browsing activities give them a huge advantage in micro-targeting users. Wherever journalism turns, Facebook and Google loom large. Their recent moves, although welcome to many publishers, are unlikely to alter the trajectory of the relationship. ■

AT&T and Time Warner

Dropped connection

As media giants look to consolidate, the climate for mergers gets chillier

THE titans of media in America have decided this is an opportune moment to join together in mega-mergers, the better to take on the giants of Silicon Valley. The problem for them is that the Department of Justice (DOJ), and President Donald Trump himself, are less keen.

On November 8th reports surfaced that the DOJ is preparing to block a proposed \$109bn acquisition by AT&T of Time Warner, owner of CNN, HBO and the Warner Brothers film studio—a deal that was announced a year ago and which had been expected to win approval by the end of 2017. The DOJ have reportedly told AT&T executives that to get the merger through they

would have to sell off assets: either Time Warner’s Turner Broadcasting division, including CNN, which Mr Trump has repeatedly attacked as “fake news”, or DirecTV, the wireless giant’s satellite-TV business. Randall Stephenson, AT&T’s chief executive, said on November 8th he would not sell CNN to secure the deal.

Time Warner’s share price fell by 6.5% in one day, to nearly \$20 below the agreed acquisition price of \$107.50 per share. A possible court battle looms, at a time when other industry players are eyeing consolidation. It was also reported this week that Disney has had talks with 21st Century Fox about buying much of the group; although the discussions ended inconclusively, Rupert Murdoch and his sons, James and Lachlan, who together oversee Fox, may be open to the idea of selling. The travails of AT&T and Time Warner could give clues to the fate of other possible media deals.

Some suggest politics is at work: that Mr Trump intervened with the DOJ to scuttle a deal that he criticised during his election campaign as a symbol of unfair concentration of media power. But if Mr Trump is not directly involved, what else is going on? The acquisition does not involve conventional antitrust concerns, in that it is a vertical integration of distribution (wireless, broadband and satellite-TV) and content (TV networks, HBO and films). In the past the DOJ has been more concerned with horizontal mergers that create market dominance in one industry.

Yet there is legitimate reason for scrutiny. AT&T’s commanding presence in distribution, especially in wireless—it has but one like-sized rival, Verizon—raises the potential for abuse as it sells content. It is true that regulators could seek a promise from AT&T that it not favour its own networks, such as HBO, and that it not discriminate against rival companies’ networks as it sets carriage terms. Similar assurances were extracted from Comcast when it bought NBC Universal in 2011, a vertical merger that went through. But it is difficult to enforce such behavioural conditions.

Nor would a forced sale of assets necessarily solve competition issues. Selling DirecTV would not dent the carrier’s strength in wireless. Selling the Turner networks would still leave AT&T with the firm’s most valuable content brand, HBO. Either sale might be so onerous to execute, however, that it would probably stop the merger.

Whatever the DOJ decides, the logic of mergers remains. Netflix delivers content to 109m customers; Amazon is doing the same for tens of millions of Prime customers. To compete in the future TV market, media executives believe that they need to achieve scale in both distribution and content. They may have persuaded Wall Street of their case but not, it seems, the right people in Washington, DC. ■



In the eye of a storm

The internet of things

Bish bash Bosch

GERLINGEN

A conservative German hardware giant tries to turn itself into a new kind of ultra-secure technology platform

BOSCH is everywhere. It has 440 subsidiaries and employs 400,000 people in 60 countries. Its technology opens London's Tower Bridge and closes packets of crisps and biscuits in factories from India to Mexico. Analysts call it a car-parts maker: it is the world's largest, making everything from fuel-injection pumps to wind-screen wipers. Consumers know it for white goods and power tools synonymous with "Made in Germany" solidity.

The company itself prefers to be called a "supplier of technology and services", or "the IoT [internet-of-things] company". On a hill overlooking Stuttgart, robotic lawnmowers whizz around its headquarters and a window displays dishwashers and blenders. Inside are signs of a company in transition: posters call on staff to rip off ties, celebrate "error-culture" and "just do it" opposite a quote from Robert Bosch, the founder: "Whatever is made in my name must be both first-class and faultless."

The 130-year-old giant's attempts to become more like a tech company reflect a world where value comes increasingly from software, services and data, not things. When software and hardware meet, as they do in the field of autonomous cars or the IoT's world of internet-connected objects, manufacturers risk becoming mere commodity suppliers. Part of Bosch's answer is to position itself as a trusted custodian of data. "Orwell's 1984 is kindergarten compared to the IoT-world. When it comes, and people re-evaluate privacy, Bosch will be prepared," says Peter Schnaebele, its head of smart homes.

Soft power as well as hard

Bosch is 92%-owned by a foundation, freeing it to invest in long-term innovation. In 2016 it spent nearly a tenth of its revenue of €73bn (\$85bn) on R&D. Recently it opened a glitzy research campus in Renningen. It also has a €420m venture fund and a start-up incubator. In a converted warehouse in Ludwigsburg, north of Stuttgart, six teams of former employees work to turn more radical ideas into businesses.

Volkmar Denner, its CEO, says that he still sees Bosch's future as a product company, but one that is heavily involved in software and "middleware" and that provides services on top. It has invested in software; built a platform (on which it runs IoT services and apps and allows other firms to do the same), called Bosch IoT suite; and last year launched its own cloud



Bosch mobilises

and data centre. That is unusual; two other industrial giants, General Electric and Siemens, use Amazon's cloud to run their platforms. Bosch says it is seeking greater speed, flexibility and data security. It plans to open several more centres next year.

Bosch's mantra is to increase the value of hardware with a "3s" strategy: sensors, software and services. Over half of its electrical-product classes are web-enabled; by 2020 all should be. Among its more telling bets is a €1bn investment in a semiconductor plant in Dresden for chips and sensors, to act as the "eyes and ears" of the IoT.

The long-term prize will be to use the data to teach things to think—by, for example, training the lawnmowers to respond to unexpected objects. The company last year started an artificial-intelligence (AI) centre, with 100 employees in Bangalore, Palo Alto and Renningen.

Because machines will be only as smart as the data they are fed, Bosch—which already "hosts" over 100,000 terabytes annually (1 terabyte fills 1,428 CD-Roms)—is gathering as much as it can. It crunches data from some British Gas customers to anticipate energy-maintenance needs, for example; data also pour in from factory floors and farmers' fields filled with sensors. "Today we sell products and practically don't have to care for them again because—being German-made—they'll last,"

says Christoph Peylo, Bosch's head of AI. But in future products may need updating every two weeks, so "perhaps we'll charge by volume of data, not hardware."

Coup, an electric-scooter sharing scheme in Berlin and Paris (pictured), has no Bosch hardware at all. The company just provides the platform and buys the scooters in from Taiwan. It is Bosch's first direct-to-consumer business in "mobility". This area—loosely, anything that involves getting people from point A to point B—is crucial to Bosch, generating over half its revenue. The firm invests €400m per year in "electro-mobility", or developing parts for electric cars, bikes, charging stations and so on. Some 3,000 developers work on driver-assistance systems. It holds nearly 1,000 patents for automated driving and by 2019 expects to make €2bn from driver assistance (double what it earned in 2016).

Sharing economy

Whether it is cars or the IoT, partnerships have become an efficient way to innovate. It was not always in the company's culture to share with outsiders, says Lothar Baum, a data scientist at the firm. Indeed, Bosch is still seen by many as too conservative, cautious and cost-sensitive. But it is making connections with all sorts of other companies; from a map-building partnership with Apollo, a Chinese platform owned by Baidu, to working with Tesla on autonomous cars, to a deal with Amazon to use Alexa—its voice-controlled computer—to steer Bosch smart-home systems. "Especially in the pre-competitive stage, sharing makes sense," says Mr Baum.

The big unknown is what will happen in the competitive stage. The race among leading IoT platforms is wide open. Eric Lamarre of McKinsey, a consultancy, divides the field into the horizontal tech platforms, such as Amazon; the more vertical manufacturers, such as Bosch and GE; and start-up platforms. This is when questions around data become critical. Bosch thinks that customers will soon value data more than they do today. At the launch of the "Bosch IoT Cloud" Mr Denner noted that many companies and consumers say data-security concerns stop them using cloud technologies and connectivity products, offering its own cloud as an answer.

The firm hopes that manufacturing nous will still count for something, too. Even in a super-connected world "you don't want to be surrounded by shoddy devices which are cheaply built," says Mr Peylo. Last month Bosch's smart security camera won the German Design Award; its white goods are selling like hot cakes in Asia. The company will continue to make non-shoddy products and to put its sensors into factories, homes and cars. It will almost certainly remain a big part of the "T" in IoT. The question is whether it can become far more than that. ■

Schumpeter | And now for my next trick

3G Capital, magicians of the consumer industry, need to learn a new act



OCCASIONALLY a business idea emerges that is so simple you cannot believe it works. Consider the five founders of 3G Capital, an investment firm. Warren Buffett co-invests with them and calls them “among the best businessmen in the world”. They use debt to buy consumer-product firms, then they revamp their brands and slash costs. In total, since 1997, they have launched \$470bn of deals, through 3G Capital or earlier entities (for simplicity this article lumps these all together and calls them “3G”). That makes 3G the second most acquisitive organisation in modern history. It sells every Budweiser slurped, Whopper burger munched and bottle of Heinz ketchup squirted on the planet.

Yet despite its superb long-term record, 3G is losing steam. In the past two years its total portfolio has lagged slightly behind the S&P 500 index, Schumpeter estimates. Its two biggest firms, AB InBev, a beer giant, and Kraft Heinz, a food company, have returned 6% and 16% respectively, well behind the S&P 500 (29%) and a basket of 20 big rivals (24%). On November 1st shares in Kraft fell after poor results. Once, 3G seemed to be reinventing the consumer industry. Now a better description is that it brilliantly took advantage of a window of opportunity that is closing.

By their own description 3G’s founders started out, in Brazil, as mere “finance guys”. The first big deal was the acquisition of Brahma, a local beer firm, in 1989. In the booze industry they bought Interbrew in 2004, Anheuser-Busch, maker of Budweiser, in 2008, and SAB Miller in 2016. The resulting beer colossus, AB InBev, is Europe’s third most valuable company. In the food business, 3G took control of Heinz in 2013 in partnership with Mr Buffett. Heinz then bought Kraft in 2015, and the combined firm tried and failed to buy Unilever in February. 3G also controls Burger King, which it has merged with Tim Hortons, a Canadian fast-food chain where hypothermic Torontonians huddle in winter.

3G is expert at “zero-based budgeting”, a technique that involves scrutinising consumer firms’ bloated costs. But its magic rests on two simple insights formed decades ago. First, it noted that although the cost of debt financing was low, the yield on consumer firms’ shares was quite high, meaning a juicy spread. Second, conventional managers underestimated how resilient consumer-product firms’ sales are thanks to strong brands and oligopolistic market shares. So costs could be cut (including mar-

keting) without prompting a fall in the top line.

The takeover of Anheuser-Busch, worth \$62bn, shows these principles in action. The deal was mostly financed by debt with an annual post-tax cost of 3%. The firm being bought yielded 6% (its annual cashflow after capital spending, as a share of its market capitalisation plus net borrowings). Cost cuts eventually lifted that return to 8%. Normally such high leverage is reckless, because profits are volatile. But Anheuser was different. It had a 48% market share in America, with famous brands that people would keep chugging come hell or high water. After the 2007-08 financial crisis, share prices and interest rates fell, pushing the gap between the cost of debt and consumer firms’ yields wider still. 3G pursued big deals around the world, eventually paying \$123bn in 2016 for London-listed SAB Miller.

Those two original insights are getting tired, though. First, the gap between the cost of debt and the yield of consumer firms has narrowed as their market values have risen. The median yield for a basket of 20 big consumer firms has fallen from 7% in 2010 to 4% now, making deals less profitable. Some firms are pricier than they would otherwise be because their share prices reflect speculation that 3G might make a bid. Mondelez and others have all been rumoured targets in a Wall Street game of “who’s next?”. The cost of debt may start to rise as monetary policy normalises.

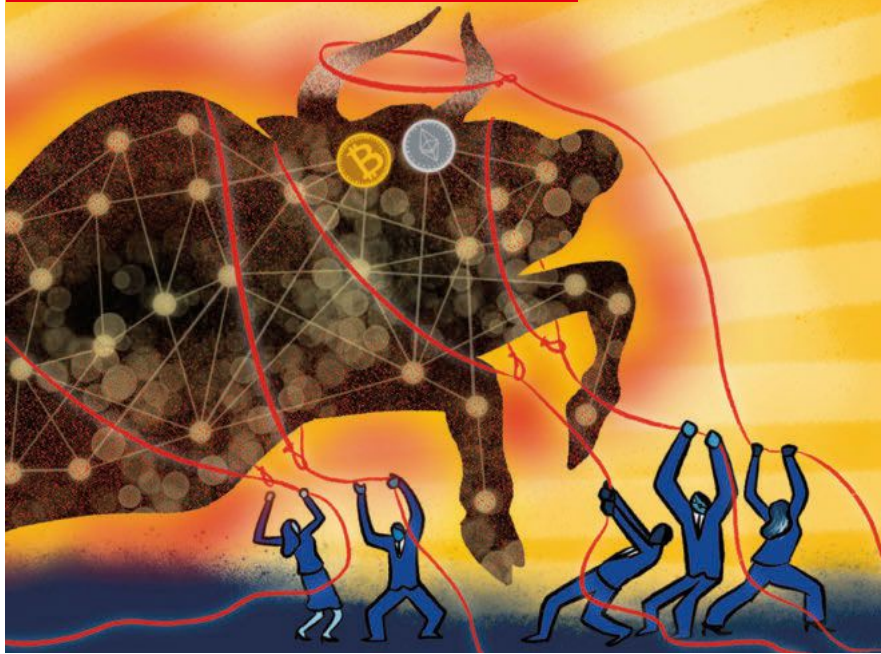
The second intuition—that consumer firms’ sales are near-indestructible—is no longer safe. Many customers are opting for niche brands; craft ales instead of Bud Light, or organic take-home meals instead of Kraft’s classic Macaroni and Cheese. In the last quarter, both AB InBev and Kraft Heinz reported stagnant volumes globally and shrinking sales in America. In the medium term e-commerce could reduce the power of big brands. Instead of having a privileged spot on Walmart’s finite shelf space, established consumer companies must now slug it out with smaller brands on Amazon.

Such shifts will not threaten 3G’s current firms. Cost savings are still going to help their bottom lines. Profits at AB InBev and Kraft Heinz would have to fall by two-thirds or more before they struggled to make interest payments. And their combined debt pile, though huge (equivalent to the fourth-largest of any non-financial firm in the world), is well-organised, with repayments spread out over years. Even so, a decade of mediocrity beckons.

The number’s up

One option is a final flurry of deals. The possibility cannot be ruled out—which is why consumer-product firms must stay on their toes. But as well as being expensive, cross-border deals and job cuts have become more politically sensitive (Kraft Heinz has cut 10,000 jobs since 2013). 3G’s bid for Unilever caused a stink in Britain and the Netherlands. Trustbusters would block another big beer deal. Perhaps reflecting this, 3G is trying a new approach, of expanding firms through investment and innovation. Here, AB InBev is in a reasonable position, given its exposure to fast-growing emerging economies and its experience of turning niche beer brands into big sellers. Energising Kraft is a taller order, since creativity is not in its DNA and 69% of its sales are in America.

3G’s pivot will be a struggle. But what a run it has had. It took advantage of a time when rates were low, stockmarkets were cheap, protectionist instincts subdued, anger over job losses muted and digital competition still nascent. Its adventures have not necessarily made the world a fairer place, but as a piece of intelligent, opportunistic investing they deserve three cheers. ■



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Initial coin offerings

Token resistance

NEW YORK

Regulators have intervened to rein in ICOs, but big legal questions remain

“I’M GONNA make a \$hit t\$N of money on August 2nd on the Stox.com ICO.” Written in July on Instagram, these words made Floyd Mayweather, a boxer, the first big celebrity to endorse an “initial coin offering”, a form of crowdfunding that issues cryptographic coins, or “tokens”. Stox, an online prediction market, went on to raise more than \$30m, some of which seems to have gone directly into Mr Mayweather’s pocket. Other VIPs, including Paris Hilton, a socialite, followed suit and endorsed ICOs. But this source of easy cash may now be drying up: on November 1st America’s Securities and Exchange Commission (SEC) warned that such promotions may be unlawful, if celebrities fail to disclose what they receive in return.

The endorsements and the SEC’s attempt to rein them in are the latest episodes of token mania. Virtually unknown a year ago, ICOs are now more celebrated than initial public offerings (IPOs), the conventional way of floating a firm. Over the past 12 months \$3.3bn has been raised in more than 200 ICOs, according to Coinschedule, a data provider—compared with only about \$70m in the same period a year ago. This surge is one reason for the boom in bitcoin, a crypto-currency, which was worth around \$7,500 on November 2nd. As Benjamin Lawsky, a former securities regulator in New York, put it recently: “Reg-

ulators have never seen a new financial product explode with the speed and velocity [of ICOs].”

Unsurprisingly, supervisors have stepped in. China and South Korea, where ICOs had become part of the local gambling culture, have already outlawed them. Many regulators in Western countries have by now made clear that they consider at least some of the coins (or “tokens”) that are distributed in an ICO to be securities, which need to be regulated as such, with all that this entails in disclosure and other requirements. Leading the pack, the SEC said in a report on the DAO, an ill-fated early ICO, that offerings of this kind need to be registered (or apply for an exemption). But big regulatory problems remain unsolved.

The most pressing open question is what a token really represents, says Peter van Valkenburgh of Coin Centre, a think-tank. Technically, the answer is straightforward, at least for those familiar with crypto-currencies. Tokens are mostly entries on Ethereum, a “blockchain”, or “distributed ledger”, copies of which live on many connected computers around the world—much like the one that underlies bitcoin. The Ethereum ledger, however, not only keeps track of a currency, called “ether”, but hosts what are known as “smart contracts”, programs that encode business rules. Investors send ether to an

ICO’s smart contract, which generates tokens that can be traded. The ICO’s issuer can keep the ether, and use the funds to develop its project.

Legally, things are more complicated, says Kevin Werbach of Wharton, a business school at the University of Pennsylvania. The SEC, for instance, argues that the technology is irrelevant: when tokens are used to raise funds, they are securities. By contrast, champions of ICOs hold that, although they are initially used to raise funds, they also often have a function in the projects they finance and hence should be treated differently. In Filecoin, an online market for digital storage that raised a record \$257m, the tokens will be used to pay or get paid for space on disk drives.

Tokens of affection

Most issuers will have a hard time convincing the SEC and other regulators that theirs is a “utility token”. For many existing firms, such as Kik, a messaging app, which raised nearly \$100m, raising funds seems the priority. For other issuers the problem is that the tokens they are selling are for projects that exist only on paper, and so have no other function than to bring in money. And most investors currently buy tokens not for their utility, but because they are betting that their value will rocket.

To avoid the heaviest regulation, issuers are keeping the lawyers busy. One increasingly popular legal construct in America is called SAFT (“Simple Agreement for Future Tokens”)—in effect, options to buy tokens, rather than tokens themselves, thus dodging the problem posed by projects that do not yet use the tokens. As raising money gets harder, marketing becomes more important. One result is the “pre-sale”, in which early investors often get a big dis- ▶▶

count to help boost demand for the ICO.

A second big open question is where tokens will fit into the regulatory landscape. Being pieces of code, they can take on the form of any financial product. "They collapse all asset classes into one," says Lex Sokolin of Autonomous Research, a consultancy. This will cause legal friction, particularly in America, where different asset classes are regulated by different agencies.

Other jurisdictions are easier to navigate. Many crypto firms are based in Zug, Switzerland, where they can save taxes and tokens are less likely to be considered securities. In January a "distributed-ledger

technology framework" will go into effect in Gibraltar (although it does not specifically address ICOs). A big unknown is China which, despite its ICO ban, is clearly interested in all things crypto, as long as it can control them.

And third, there is the question of how the organisations financed by ICOs will be governed. Finding robust solutions is vital: many of these entities see themselves as a new type of firm. The idea is that because founders, employees and users all hold tokens, their incentives are aligned: all have an interest in expanding their network, which will drive up the tokens' value.

These organisations will be "decentralised", meaning that no single group will be in charge, and they will be managed, at least partially, by smart contracts to keep them on track.

Making all this work will be hard, as shown by the case of Tezos, which raised \$232m to finance the development of another blockchain. Its version will come with a sophisticated governance mechanism to avoid the problems that beset bitcoin, which in August split in two when developers and firms that cryptographically mint ("mine") the currency disagreed on the way forward. (A further "fork" was just ▶▶

Buttonwood | Adjusting the CAPE measure

Equity valuations are high. But other asset classes look even worse

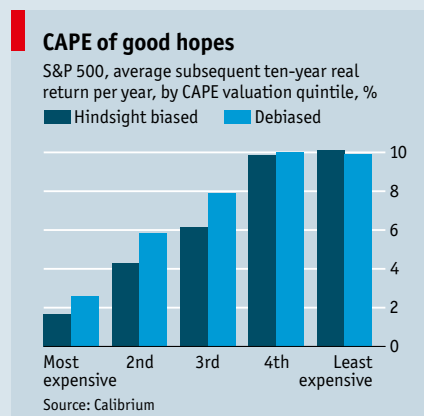
EVERY investor would like to find the perfect measurement tool to tell them when to get into, and out of, the stock market. The cyclically adjusted price-earnings ratio (CAPE), as calculated by Robert Shiller of Yale University, averages profits over ten years and is used by many as an important valuation indicator. Currently it shows that American shares have hitherto been more highly valued only in 1929 and the late 1990s, periods that were followed by big crashes.

That seems ominous. But as a paper by Dylan Grice and Gregor Obrecht of Calibrium, a Zurich-based private-investment office, makes clear, it is far from conclusive. The CAPE is not much use as a short-term indicator; it has been well above its long-term average for several years now, as it was in the late 1990s.

The main argument for the CAPE is a long-term one. If you divide all past CAPE values into quintiles, the annual returns earned over the subsequent decade by investing in equities when the CAPE was in its most-expensive quintile were more than eight percentage points below the returns earned when the CAPE was in its cheapest quintile (see chart).

However, the case is less cut-and-dried than those numbers seem. First, Messrs Grice and Obrecht point out that this approach is subject to hindsight bias. The long-term valuation range may be clear now; past investors did not know the range when they were actually buying shares. If the data are adjusted to reflect the historical data available to investors at the time, then the outperformance gap falls by more than a percentage point.

A more serious problem relates to the quantity of the data. Mr Shiller has 146 years of numbers for earnings; that breaks down into only 14 completely independent ten-year periods. It is pretty difficult



to create a robust statistical case from such a paucity of numbers.

The authors calculate that, based on current valuations, the best forecast for ten-year real annual returns from American equities is 2.6%, well below the historical average. But the range of returns can only be estimated with reasonable confidence to be between -3.4% and +8.7%; something that is likely to seem too broad to be of much use to professional investors.

These criticisms are fair. So why, nevertheless, does it still seem likely that a high CAPE portends lower future returns? Future equity returns can come from only two sources—growth in profits, or the market's placing a higher valuation on those profits. For example, a high CAPE might be justified when profits are unusually low, by the hope that earnings will recover.

However, profits are high, relative to GDP, at the moment. Perhaps this is the result of a shift in power in favour of capital, at the expense of labour; perhaps it is the result of the greater concentration of some industries, which has given certain businesses monopoly-like margins. It is possible that this shift is permanent, and that

profits will not fall back as they have in previous cycles. But it seems the height of optimism to believe that profits will grow faster than GDP, ie, that the overall share of capital will rise even further.

GDP growth is itself largely driven either by an increasing number of workers or by a rise in their productivity. Since the size of the workforce is rising more slowly (and is set to fall in some countries), and recent productivity growth has been disappointing, it is hard to be more optimistic on this score. So rapid growth in either GDP or profits looks difficult to achieve.

Turning to valuation, some believe that the CAPE has trended higher in recent decades because of better accounting standards and corporate governance. Earning high returns in an era of sluggish profits growth would require valuations to rise even further, reaching dotcom-era levels. Even a partial reversion to the mean (the long-term CAPE average is 16.8 compared with about 30 today) would be very bad news. Here, too, there is a natural limit on returns.

However, the authors point out that investors are not looking at equities in isolation; they are choosing between asset classes including cash (yielding virtually nothing) and government bonds. Government-bond yields are very low in historical terms; in other words, valuations are very high. A comparison of the expected returns from equities and bonds shows equities should perform much better, even given the high level of the CAPE.

That insight chimes with the views of many fund managers. They are nervous about equity valuations but they find government bonds deeply unattractive. So they are stuck with the stockmarket as the "least dirty shirt" on offer.

called off.) Holders of Tezos tokens will get a vote commensurate with their holdings or be able to delegate it to someone else.

Ironically, though, Tezos is the first substantial token-financed organisation that has run into serious governance problems. The founders opted for a complex legal structure, which involves a Swiss foundation that controls the proceeds of the ICO. They are now embroiled in a public quarrel with the head of this foundation over how it should be run. Moreover, the founders and others involved are being sued by an ICO contributor for alleged breaches of securities law, which Tezos denies.

Tezos's travails, as well as the general token mania, have pushed some issuers to rethink. Blockstack, whose ICO will start on November 13th, will do without a pre-sale, instead giving users a discount. It has also turned itself into a "public-benefit corporation", obliged to pursue the public good as well as profit. The firm, which is expected to beat Filecoin's fundraising record, has a lofty ambition: to develop software and services to bring the internet, now dominated by a few tech giants, back to its decentralised roots. If Blockstack runs into trouble, too, the very concept of distributed organisations may be at risk. ■

Venezuela's debt

Busted flush

Mystery surrounds Venezuela's approach to restructuring its massive debts

INVESTORS have long seen a default on Venezuelan sovereign debt as a question of when, not if. Its bonds have been priced at levels implying imminent bankruptcy, but somehow the cash-strapped oil exporter has stayed afloat. Until now. On November 2nd Nicolás Maduro, the country's authoritarian president, announced that he would order a "refinancing and restructuring" of foreign debt worth about \$105bn. The prices of government bonds fell by up to half. Markets braced themselves for one of history's most complex sovereign-debt renegotiations.

Mr Maduro's brief statement was cryptic as to the concrete steps he will take. He invited "everyone involved in foreign debt" to talks in Caracas, the capital, on November 13th. Many creditors want a neutral venue. Moreover, Mr Maduro appears to have pre-emptively dashed any hope of a voluntary agreement by naming his vice-president, Tareck El Aissami, as head of his debt-restructuring committee. America's Treasury department has designated Mr El Assami a drug kingpin, meaning that Americans cannot deal with him.

Sanctions also prevent American entities from buying any new debt issued by the Republic of Venezuela with maturities longer than 30 days, or 90 days for the debt of PDVSA, the state oil company—a problem if, say, a restructuring involved an exchange of defaulted bonds for new ones. In theory, President Donald Trump could adjust the rules but still prevent any new money from flowing to Mr Maduro. For now, however, no proposed changes to the American sanctions have been aired.

If Venezuela runs out of cash without reaching an agreement, it could simply stop paying its debts. But that would be

risky, because PDVSA holds valuable property abroad, including Citgo, a refiner in America, and a fleet of oil tankers. After a default, creditors might be able to seize those assets. That would severely disrupt PDVSA's operations and wreak further havoc on the Venezuelan economy, which has shrunk by over a third since 2013.

So Mr Maduro's plan is a mystery—if he has one at all. On the day he announced the refinancing, he also said that PDVSA would make the final \$1.2bn payment on a maturing bond. The money has yet to reach creditors, but most of it is reported to have left PDVSA's accounts. American sanctions have scared off banks, creating

logistical hurdles that can delay transfers. Another payment a week earlier was held up for days but eventually completed.

If Venezuela were indeed about to renege on its debts, an extra \$1.2bn would surely come in handy. One interpretation of Mr Maduro's perplexing approach is that he may hope to continue servicing PDVSA's debts but waltz on those contracted by the state. It is PDVSA that holds the vulnerable assets abroad. And more of its bonds than the Republic's lack "collective-action" clauses. That makes it impossible to force holdout creditors into a deal agreed to by a majority of bondholders.

However, foreign courts are likely to frown on any effort by Mr Maduro to pick and choose which lenders to snub. Separately, Crystallex, a Canadian mining firm, has filed a lawsuit in America claiming that PDVSA is an "alter ego" of the Republic. If it succeeds, government-bond holders could press claims against PDVSA.

Another theory, advanced by Rafael Guzmán, an opposition congressman, is that Mr Maduro may have wanted a sell-off of the country's bonds. Venezuela or its foreign patrons, mainly Russia and China, could then buy them up cheaply so Venezuela could retire its debt at lower cost, or leave it in the hands of sympathetic allies.

An even more conspiratorial explanation has been mooted by Javier Ruíz of Caracas Chronicles, an opposition-friendly blog. The government had spooked markets by using 30-day grace periods to delay interest payments, lowering bond prices. Mr Ruíz wondered whether the government had tipped insiders off that it would actually cough up the final \$1.2bn, as a last stop on the Venezuelan-debt gravy train before payments ceased.

Besides exploiting contractual grace periods, Venezuela has yet to miss a payment. And its bonds still mostly trade at 20-30 cents on the dollar—a big discount, but far above the single-digit prices to which defaulted debt often sinks. In part, those prices reflect Venezuela's long-run fundamentals. It has the world's largest proven oil reserves. A government that pursued sensible economic policies could probably service the debts within a few years.

But the relatively high prices may also suggest that some investors think Mr Maduro is bluffing. Venezuela's biggest payments of 2017 are now behind it, and the oil price has recently risen. Moreover, Vladimir Putin, Russia's president, appears to be sticking by his Venezuelan friends. Russian-controlled entities have already provided the country with at least \$17bn of financing. And Russian officials recently agreed to restructure a \$3bn loan. If Mr Putin sees a commercial advantage to Russia in propping up his oil-rich anti-American ally at a cost of a few billion dollars, picking up Venezuelan debt on the cheap may yet turn out to be a bargain. ■



Maduro has a cunning plan. Maybe

The Paradise Papers

Sun-kissed stories

A new leak ratchets up scrutiny of offshore financial centres

THIS week was uncomfortable for a host of well-heeled figures. In the frame were U2's Bono, America's commerce secretary, Wilbur Ross, and Britain's Queen Elizabeth, as well as some of the world's most valuable companies, including Apple and Nike. All these, and many more, feature in the "Paradise Papers", a trove of more than 13m documents, many of them stolen from Appleby, a leading offshore law firm. The International Consortium of Investigative Journalists (ICIJ) and its 95 press partners, including the BBC and the *New York Times*, began publishing stories based on the papers on November 5th. Dozens appeared this week, with more to follow after *The Economist* went to press.

The ICIJ's last big splash, the Panama Papers in April 2016, shed light on some of the darkest corners of offshore finance. In contrast, many of the activities highlighted by this leak are legal. But they would be widely seen as flouting the spirit of national tax laws by exploiting the gaps that open up between them when finance straddles borders. Among the most enlightening documents are those concerning the tax gymnastics employed by Apple and Nike to shift profits to havens. For Nike, moving the rights to its "swoosh" design and other trademarks to Bermuda helped cut its worldwide tax rate to between 10% and 20%, down from over 30% ten years ago.

By contrast, an investment in a Cayman-registered fund by the queen's private estate—made much of by the BBC—appears to have carried no tax advantages. If investing through offshore funds is, in itself, wrong, then millions of Britons are guilty, too. Thousands of private-equity and hedge funds are registered in tax havens. This is often to avoid an extra layer of taxation in the fund's country of domicile, not to dodge tax owed in the investor's home country. Most if not all large pension schemes—the BBC's included—invest some of their money in such offshore vehicles.

The global impact of the Paradise Papers is unlikely to be as spectacular as that of their Panamanian predecessor. That felled the leaders of Pakistan and Iceland, and sparked many criminal investigations into tax evasion and money-laundering, including 66 in Britain alone. But already there have been calls for official inquiries and investigations, including into the business links of Mr Ross, who was revealed to have had an indirect relationship with Russian figures with Kremlin ties, through an

The Federal Reserve Bank of New York

The exit Bill

NEW YORK

An impending retirement raises questions about the institution's role

APPLICATIONS sought for leading Wall Street post. Duties: important role in setting interest rates (some vaguely defined other responsibilities). Perks: lovely office in Italianate palace; large staff. Requirements: eligibility for highest-level security clearance; tacit support in Washington, DC. Desirable but optional: broad knowledge of banking.

This week the New York Federal Reserve Bank announced that its president, Bill Dudley, will retire next year. He will leave a mixed legacy. He is thought to have given important help to Janet Yellen, the outgoing chair of the Federal Reserve. But he also presided over a steep decline in his institution's influence over the banks that used to revere and fear it.

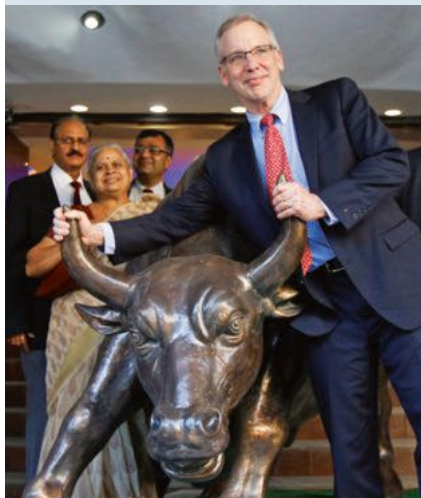
Located in America's financial centre, the New York Fed has powers not vested in the country's 11 other reserve banks. Its president has a permanent seat on the Fed committee that sets interest rates. Its trading desk puts board policies into effect. And it is the local regulator of

many of the world's largest banks.

Historically, the president's power has been magnified by a strong personality. The death of the first, Benjamin Strong, in 1928, is often cited as contributing to the financial mismanagement that led to the Depression. When Jimmy Carter's presidency was threatened by rampant inflation, he turned for expertise to the New York Fed's implacable president, Paul Volcker, making him Fed chairman. One of Mr Volcker's successors in New York, Gerald Corrigan, was faced with the collapse of Drexel Burnham Lambert, a big investment bank, and demands to rescue it. He let it fail lest fecklessness seem to bring inadequate retribution.

That Darwinian era ended with the financial crisis. It exposed supervisory shortcomings and a lost appetite for allowing failures. The bank's president at the time, Timothy Geithner, was elevated to treasury secretary, to be replaced by Mr Dudley, a Goldman Sachs economist who had joined the New York Fed in 2007 to run its trading desk. Crisis-induced legislation shifted much supervisory authority from New York to Washington, so some diminution in the president's role was inevitable. But either because Mr Dudley felt it prudent to keep his distance from banks, or because his areas of competence and interest lay in the markets and not in the institutions, his voice lost its salience.

The committee charged with finding a new president has until the middle of next year to find a suitable successor. To avoid conflicts of interest, the committee excludes bankers, eliminating one source of expertise. Any successor may struggle to reverse the trend of the New York Fed's declining influence. The challenge for the search committee may be not just to find a capable leader, but to work out a new role for the institution itself.



He never really took the bull by the horns

oil-transport firm. (He says he was unaware of these.) Several national tax agencies, including India's and Spain's, have launched probes. European Union finance ministers called this week for a blacklist of tax havens to be drawn up by next month.

The revelations about multinationals' creative tax-planning will add to pressure to fix the patchwork of rules and treaties governing cross-border business taxation. The OECD, a think-tank, has led attempts to close the loopholes, which it estimates cost up to \$240bn a year in lost tax revenue. But getting lots of countries to agree on a fix

is like herding cats—especially when America and the EU are at odds over American tech giants' tax arrangements.

More broadly, the leak will fuel a debate raging since the global financial crisis, over the pros and cons of offshore finance for the world economy. Detractors—among them Angus Deaton, a Nobel prize-winning economist—say tax havens serve no useful purpose, merely allowing a financial elite to dodge regulations and financial obligations that apply to everyone else. Defenders say they oil cross-border investment by, for instance, offering individuals ▶▶

▶ from different countries “tax-neutral” venues in which to make pooled investments; and offer a legitimate financial refuge for citizens of countries in turmoil.

This defence elicits little public sympathy. But it is true that small offshore centres have got little credit for clean-ups over the past decade. On some measures of tax and corporate transparency and combating money-laundering, Jersey, the Cayman Islands and some other havens score better than many rich countries. Plenty of dubious or downright nefarious things happen offshore. But it would be a pity if the Paradise Papers were to reinforce the cliché that the culprits are palm-fringed islands, when it is the much larger, onshore financial centres, such as London, New York and Miami, that offer the most attractive combination of respectability and secrecy—making them magnets of unparalleled power for the world’s tainted money. ■

Global housing

Subsidence

NEW YORK

America’s Republicans are taking aim at mortgage subsidies. About time too

IN THE 1980s Margaret Thatcher and Ronald Reagan were both proud of their efforts to expand home ownership. In Britain, Thatcher presided over a fire sale of state-owned homes to tenants. In America, Reagan deregulated financial markets and expanded mortgage lending. At the time both countries provided generous mortgage-related tax breaks, making it easier to flog homes to the masses.

Britain’s 1980s housing boom turned to bust; the mortgage subsidies that helped to fuel it were abolished. America still subsidises mortgages to the tune of \$64bn a year, by allowing homeowners to deduct interest costs from their tax liabilities. But a tax plan unveiled by Republicans on November 2nd proposes to limit the subsidy.

Twelve European Union countries also include some form of mortgage-interest deduction (MID) in their tax code. The average European subsidy, however, is around a tenth of America’s—about 0.05% of GDP. The Netherlands is much the most generous, at 2% of GDP.

Evidence that MID schemes boost home ownership is scant. Recent research covering rich countries suggests it has no effect. Moreover, subsidising mortgages might actually hurt economies by helping inflate housing bubbles. The European Commission blames Sweden’s generous MID scheme for encouraging a household-debt binge and inflating house prices.

All but three EU countries have either

reformed or repealed their MID schemes since the 2007-08 financial crisis. Ireland, Spain and Greece, for example, withdrew subsidies after suffering property busts. But withdrawing MID cannot on its own prevent property-market bubbles. According to *The Economist’s* round-up of global house prices, Australia, New Zealand and Canada all have overvalued housing markets despite the absence of mortgage subsidies (see table).

Interest deductibility might be more defensible if its benefits were more evenly spread. In the Netherlands and elsewhere in Europe, the biggest benefits accrue to the richest householders, although many European countries tend to combine MID schemes with other generous housing welfare. In America 70% of the subsidy is claimed by the top 20% of earners. The country spends more on housing subsidies for 7m households earning over \$200,000 a year than it does on the 55m making less than \$50,000.

Regardless of its redistributive effects, America’s MID is a blunt tool, notes Edward Glaeser, an economist at Harvard. The Republican plan hopes to save the Treasury \$100bn over ten years by limiting the subsidy to the first \$500,000 of any outstanding mortgage and to first homes. Yet the change would affect just 3% of outstanding mortgages, according to CoreLogic, a data firm. Changes to how ordinary people file tax returns may reduce the number who claim MID and further focus its benefits on top-rate taxpayers.

With interest rates near historic lows, this might seem an opportune time to end MID altogether. If that were to happen, some estimates suggest house prices might fall by 10-15%. But they would stabilise as

the pace of house-building slowed. When the Netherlands adjusted its mortgage subsidy in 2012, house prices fell by 10%, but they are now climbing again at a decent clip. Prices in Britain are partly buoyed by the private rented sector where landlords have been able to deduct interest expenses from their rental income. The government began phasing out that deduction in April. That will have a big effect on the market.

Reagan reckoned that home ownership brought “stability and rootedness”. That may be so, but it also brings rigid labour markets. Yet few politicians are willing to praise the merits of renting. Thatcher’s and Reagan’s housing reforms were thought to be driven by a fear of a slow creep of socialism. They would look enviously at Russia today. Home ownership rates in Britain and America have fallen in recent years; Russia’s has increased by 30 percentage points in two decades. ■

ING

Dutch, digital and doing nicely

AMSTERDAM

A digital strategy that came unstuck in the crisis is the foundation of success

GERMANY’S third-biggest retail bank has no branches. It is also Dutch. And it is highly profitable. ING-DiBa, an online bank owned by ING, the Netherlands’ biggest lender, looks after €133bn (\$154bn) of deposits for over 8m customers. In a fragmented market—most Germans entrust their savings to small, local banks—that means a share of around 6%. ING-DiBa’s lack of branches keeps costs down, allowing it to resist charging for current accounts and offer savers a tad more than rivals, despite a recent cut; and it has won a name for good service in a country not renowned for it. While other banks struggle after years of ultra-low interest rates, ING-DiBa thrives. Its return on equity exceeds 20%.

ING as a whole is in fair shape, too. On November 2nd it reported net third-quarter earnings of €1.4bn, slightly more than a year earlier. The group’s return on equity was a healthy 11%, nearly two percentage points up. Since 2014 the number of “primary” customers (with an active current account and another product) has climbed by 25%, to 10.5m. By 2020 ING aims to have 14m. They are especially valuable because they want further services and because frequent transactions yield reams of data.

Banks prattle a lot about digital strategy. At ING, the talk is far more convincing than in most. Last year Ralph Hamers, the chief executive, unveiled a plan costing €800m to bring the whole bank onto one digital platform and to save €900m a year by ▶▶

The Economist house-price indicators

September 2017 or latest available

Countries with mortgage-interest tax deduction

	Real % change on		Under (-)/over	
	a year	ten years	valued, %	Home-ownership rate, %
	earlier	earlier	against rent*	
Canada	11.7	52	127	67
Australia	8.6	41	82	66
Ireland	8.6	-29	38	70
New Zealand	6.9	35	112	65
Sweden	6.5	54	82	65
Netherlands	5.8	-13	11	69
Denmark	4.8	-11	32	62
Japan	4.0	8	-18	60
United States	3.6	-9	12	64
Spain	3.5	-35	30	78
France	2.5	-5	30	65
Germany	2.1	19	-10	52
Switzerland	2.0	36	6	43
Britain	1.8	-6	47	63
Italy	-1.3	-27	-7	73
Greece	-2.2	-45	-15	74

Sources: National statistical offices; *The Economist*

*Relative to long-run average

The London Stock Exchange

Back on with his head!

An activist fund campaigns to keep the chief executive

ACTIVIST hedge funds like Elliott Management, Cevian Capital or The Children's Investment Fund (TCI) are famed for pushing for change at the companies they buy into. A favoured tactic is to install a new chief executive at a floundering firm. So it is odd to find a fund lobbying for an existing boss to stay on, as TCI has done in a spat with the London Stock Exchange (LSE).

In over eight years at the LSE, Xavier Rolet has transformed it from a share-trading venue to a clearing and data-services powerhouse, through acquisitions such as Russell, an index-maker, and a majority stake in LCH, a clearing-house. His hope of merging with the LSE's big German rival, Deutsche Börse, fell through, largely because of Britain's vote to leave the EU. But Mr Rolet remains widely respected. So eyebrows were raised when the LSE's announcement on October 19th that Mr Rolet would leave in 2018 gave no reason.

In a fiery letter penned on November 3rd, TCI's founder, Sir Chris Hohn, said it was "clear to [TCI]" that Mr Rolet had been "forced... to leave against his wishes". Sir Chris called not only for Mr Rolet to stay but for the LSE's chairman, Donald Brydon, to go, having given "no satisfactory answer" about Mr Rolet's departure. In a second letter on November 7th, Sir Chris called for the waiving of a "confidentiality agreement" that he says the LSE signed with Mr Rolet, preventing him from speaking out.

The LSE has largely kept mum, merely "noting" the receipt of the first letter and insisting it had followed a "proper" process to lay the ground for an "orderly succession". It had no comment on the



Rolet: who knows?

second letter. At least one other big shareholder, Egerton Capital, a London-based fund, agrees with TCI's position. Jeff Blumberg, the chief executive, says it is "mystified" by Mr Rolet's departure and would vote for his reappointment. TCI thinks most shareholders want to keep Mr Rolet, and has threatened to call an extraordinary general meeting to depose Mr Brydon.

Whether or not the meeting occurs, Sir Chris has already exposed an internal struggle at one of Britain's most esteemed financial institutions. And placing the status quo at the heart of an activist campaign may not be as strange as it seems. TCI contends the issue is at heart one of poor corporate governance—precisely the target activists usually aim at. Lobbying for stability at a successful firm is consistent with demanding change at an unsuccessful one.

One fruit will be Model Bank, the standardisation of processes in European online banks (except in Germany), based on those already followed in Spain and Portugal. A 180-strong team in Madrid is developing Model Bank, which ING will deploy next year in the Czech Republic before moving on to Austria, France and Italy.

It helps that ING has for years been on the digital trail abroad: it bought 49% of DiBa in 1998 and has owned all of it since 2003. Yet the early start was almost ING's undoing. Before the financial crisis, says Koos Timmermans, the chief financial officer, it managed the balance-sheets as well as the operations of the foreign online banks and the conventional business separately. The online banks attracted plenty of

deposits but lacked assets; they bought lots of bonds, many backed by American mortgages. The domestic bank had ample loans but relied on wholesale funding.

When the crisis struck, this dual exposure to capital markets proved calamitous. The Dutch government bailed ING out to the tune of €10bn in 2008 and later took over the American mortgage securities (on which it eventually made a profit). As a condition of state aid, the European Commission obliged ING to sell its insurance arm and its online bank in America. Other businesses, including online banks in Britain and Canada, were also offloaded. ING finished repaying the aid in 2014. Dividends restarted the next year.

Dutch treat

Nevertheless, says Mr Timmermans, branchless banking was "a smash hit". ING has learnt its lesson, he adds. Now the balance-sheets "are more in sync". At the foreign online banks, savings still outstrip loans (mostly mortgages). Trying to lend more where people are more inclined to save may not pay. But today's ING is wary of bonds. "Never, ever, will we collect savings and invest in the bond market," Mr Timmermans says, except for liquidity needs. Instead, ING smooths imbalances internally—for example, by putting \$5bn of loan assets generated in America onto its German balance-sheet.

There are gaps. ING hopes to lift the share of revenues from fees and commissions from 15% to 20% in the next four years, reducing its dependence on interest income. Stefan Nedialkov of Citigroup notes that European banks averaged a 24% share last year—but also that ING is picking up the pace. In the first nine months of 2017 fees rose by 12% year on year.

The online banks are pushing into more sophisticated products than current and savings accounts and mortgages. ING is happy to find allies. In September it formed a partnership in Germany with Scalable Capital, a robo-adviser. Last year, with Kabbage, an American financial-technology company in which it has a stake, it started offering online loans, available within minutes, to small and medium enterprises (SMEs) in Spain. It has recently started doing the same in France and Italy. In October the bank launched a €300m fund to invest in fintechs.

This shift is a test for branchless banking. "The jury is still out on whether we will accomplish the same on the SME side" as in basic retail banking, says Mr Timmermans, though he believes young entrepreneurs will be keen. ING has not yet "cracked the nut" of avoiding bad credits. But, he adds, it makes no sense to open branches just for SMEs. With ever fewer people visiting banks, the online model must move on. How far and how fast? ING will be among the first to find out. ■

▶ 2021. It is closing 600 Belgian branches; 7,000 jobs will go.

Roel Louwhoff, who is overseeing the digital transformation, explains that ING aims to build "components"—processes and products—that can be used across the group, so that costs can be saved and customers better served. Examples include the way new customers are taken on, and security procedures. The bank has borrowed from other industries, for instance by studying how carmakers use common parts in several models. In ING's honeycomb of a headquarters in Amsterdam is an "Obeya" room (Japanese for "big room": Toyota was a pioneer of the idea) in which plans are co-ordinated and updated. (It is closed to visiting journalists.)

Free Exchange | The big squeeze

One hundred years after the Russian revolution, what remains of its economic ideas?

IN 1955 Jawaharlal Nehru, the prime minister of India, embarked on a 16-day tour of the Soviet Union. He was like a “kid in a candy store”, according to one editor of his letters. Besides the Bolshoi ballet and the embalmed corpse of Stalin, he visited a Stalin-grad tractor works, a machinery-maker in Yekaterinburg and an iron-and-steel plant in Magnitogorsk. In a letter, he wondered if the Soviet Union’s economic approach, “shorn of violence and coercion”, could help the world achieve peace and prosperity.

The answer, of course, was “no”. But Nehru concluded otherwise, incorporating Soviet ideas into India’s five-year plans and welcoming Soviet aid, equipment and expertise. In the year of his visit, the Russians set up a steel factory in what is now the Indian state of Chhattisgarh. It became India’s main supplier of rails.

Nehru was not alone. The Soviet model impressed many leaders in the poorer parts of the world. Even today, according to Charles Robertson of Renaissance Capital, an investment bank, “more than a few suggest that a Stalin might be needed to kick-start industrialisation” in poor countries. The Soviet approach rested on a variety of arguments, notes Robert Allen of Oxford University, such as the need for a big push in industry, the abundance of rural labour and the superiority of collective farming.

The Soviets believed that industrialisation would succeed *en masse* or not at all. Those steel plants, tractor factories and machinery-makers needed to operate on a big enough scale to justify the heavy upfront cost of building them. And the success of any one industrial venture depended on complementary investments in others. Upstream suppliers need downstream buyers and vice versa. Yevgeni Preobrazhensky, a Bolshevik economist, argued that a broad advance was needed across the whole industrial front, not an “unco-ordinated advance by the method of capitalist guerrilla warfare”.

The workers for this industrial advance could be found in abundance on the farms, the Soviets believed. Agriculture was so overmanned it could lose millions of field-hands without much damage to the harvest. That was just as well, because the remaining peasantry would have to feed the factory workers as well as themselves. One way or another, resources would have to be transferred from the countryside to the cities. By organising the peasantry into collective farms, the Soviets hoped to make them more productive—and easier to “tax”. A collective farm was, they believed, easier to collect from.

The Soviet approach succeeded in industrialising the econ-

omy. Between 1928 and 1940 its manufacturing output grew by over 170% (see left-hand chart), even as the rest of the world walled in the Depression. By the second world war, it was well on its way to becoming the industrial candy-store so admired by Nehru. This brute industrial expansion did not, however, validate the theories underlying the Soviet approach. To increase manufacturing output by 170%, the Bolsheviks had to increase inputs by even greater percentages: the non-agricultural workforce had to grow by almost 190% and the amount of capital in that sector by a phenomenal 336%, according to figures reported by Anton Cheremukhin of the Federal Reserve Bank of Dallas and co-authors. The Soviets, in other words, could move resources into the factories, but they could not maintain the efficiency with which they were used.

More importantly, the peasantry did not surrender “surplus” workers and grain without immense economic damage, bitter resistance and widespread suffering. Stalin expropriated, expelled or exterminated many of the most prosperous and sophisticated farmers (the “kulaks”), requisitioned grain at low prices and tried to nationalise draught-animals. In response, aggrieved farmers simply slaughtered their horses and oxen or stopped feeding them. These efforts to extract resources from agriculture by force were a disastrous blunder as well as a crime. At its worst, agricultural output declined by over a quarter compared with 1928, leaving the planners with less to redistribute to the urban workforce.

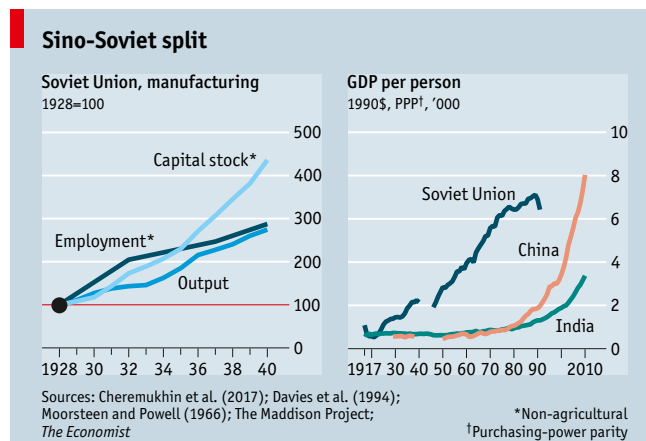
Growth without grotesquery

Could this violence and coercion be shorn from the Soviet approach as Nehru hoped? Mr Allen believes so: “The collectivisation of agriculture was not necessary for rapid growth,” he argues. Even Stalin eventually had to relent, requisitioning less grain, legalising private agricultural markets and permitting individual ownership of small plots of land.

Indeed, some economists believe that the broad outlines of the Soviet approach, minus the atrocities and the autarky, bear some resemblance to East Asia’s economic model. Paul Krugman, an American economist, made that comparison in 1994, arguing that the growth of the Asian tigers resulted from rapid accumulation of various kinds of capital, and not from the more efficient use of these resources. More recently, he has also argued that China’s high investment can be sustained only by the flow of surplus workers from overmanned farms. Now that China is “running out of peasants”, he warns, investment may collapse.

Mr Cheremukhin and his co-authors are more optimistic. Examining both China and the Soviet Union within the same analytical framework, they find notable differences. Most of China’s growth from 1978 to 2012 was because of increases in non-agricultural productivity, they find. And the migration of labour from field to factory was less important than the migration of resources from state-owned enterprises to private firms.

China may have exhausted its surplus peasantry, but the scope for reforming and retrenching its state-owned enterprises remains vast. The same is true of India. The Chhattisgarh steel plant set up with Russian help in 1955 is, for example, still going—part of India’s giant, publicly owned Steel Authority of India. But it is not a great advertisement for the Soviet approach. It has failed to meet Indian Railways’ requirement for new track. And its parent has lost money for nine quarters in a row. ■





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Health care

No guts, no glory

Enhanced understanding of the human microbiome is opening up new possibilities for medicine

WHEN, at the turn of the century, the first human genomes were sequenced, many biologists felt they had delivered into their hands the keys to unlocking numerous puzzles about disease. Since then there has indeed been a fruitful effort to understand how the thousands of human genes which control hormones, enzymes and other molecules of the body serve to regulate health. But, in an unexpected turn of events, it is also now apparent that the human genome is not the only one to which attention should be paid. Human guts contain microbes, lots of them. Added together, the genes in these bugs' genomes amount to perhaps 150 times the number in the human genome alone. If the bacteria in question were doing little more than swimming around digesting lettuce, this would be of small consequence. But they are doing much more than that.

The members of the microbiome, as this community is known, are, to a surprising extent, partners of humanity. And when that partnership goes wrong, the results can be dreadful. Inflammatory bowel disease, autism, multiple sclerosis, obesity, diabetes and chronic-fatigue syndrome all seem to have links with dysbiosis, as an imbalance in the microbiome is known. Only this month, there was news that human gut microbes influence the way patients respond to a popular new type of cancer treatment called immunotherapy. Certain sorts of bacteria are abundant in

patients who respond well. Antibiotics that kill these bacteria render immunotherapy less effective.

That finding illustrates an important idea. In effect, the antibiotics are editing the collective bacterial genome by removing from it genes that somehow assist immunotherapy. Much effort is now going into developing ways of editing the human genome, in order to improve human health. This is hard to do. But editing the microbial genome, by adding or subtracting particular species—and thus the genes they carry—is in principle far easier. That, too, could lead to improvements in human health. And many hopeful firms are now pursuing this idea.

Gut instincts

Much of the recent interest in microbiome medicine can be traced to a growing awareness of the usefulness of transplanting faeces, with their natural cargo of bacteria, from healthy people into sick ones. It is an idea that goes back at least 1,700 years, which was when Chinese doctors began to use what was euphemistically called “yellow soup” to treat patients with severe diarrhoea. In a similar vein, warm camel dung has been employed in some parts of the world to treat dysentery.

These days, such faecal microbial transplants (FMTs) are used mainly to deal with the rampant multiplication of a diarrhoea-causing bug called *Clostridium difficile* in

patients who have been heavily treated with antibiotics. The transplant alters the composition of the recipient's microbiome in ways that make it hostile to *C. difficile*. A great deal of work has been directed to refining FMTs, both for use in *C. difficile* infections and, potentially, for treating other diseases tied to dysbiosis. New, encapsulated versions of FMTs are known colloquially as “crapsules”.

Transplanting whole microbiomes in this way is, though, a bit crude. Rebiotix, a firm based in Roseville, Minnesota, is developing a more refined approach: a standardised liquid suspension of healthy gut bacteria. Its most clinically advanced treatment is, as might be expected, for the prevention of recurring infections of *C. difficile*. But the firm is also searching for therapies for paediatric ulcerative colitis (a form of inflammatory bowel disease), multi-drug-resistant urinary tract infections, infections of vancomycin-resistant *Enterococci*, and hepatic encephalopathy. This last illness is one of the most common complications of end-stage liver cirrhosis. Data suggest that part of its cause is ammonia generated by gut bacteria.

Other firms are focusing their efforts even more precisely, by selecting and delivering only the microbes they believe are beneficial. This is an approach sometimes known as “bugs as drugs”. Researchers at Seres Therapeutics, in Cambridge, Massachusetts, for example, think that suitable combinations of particular microbes can catalyse shifts in entire bacterial ecosystems—specifically, from ones that support disease to ones that support health. To this end, the firm is creating proprietary mixtures with particular purposes. One of its clinical trials, for the treatment of recurrent *C. difficile* infection, failed and is being re-run with an altered design. A second is for ulcerative colitis. A third is intended for ►►

▶ first-time infections of *C. difficile*.

The opposite approach to adding such “good” bacteria (and thus their genes) to the mix is to subtract the bad ones. That is the strategy employed by C3J Therapeutics, in Marina del Rey, near Los Angeles. This firm is developing an antimicrobial peptide (a small protein molecule) aimed specifically at *Streptococcus mutans*, a bug that lives in the mouth and which is widely believed to be the microbe mainly responsible for dental caries. C3J’s drug, currently being tested for efficacy, is a non-specific antimicrobial peptide that has been joined with another peptide which binds only to *S. mutans*. Removing *S. mutans* leaves a vacant niche in the mouth. Although this is quickly filled by other species of *Streptococcus*, they are associated with a lack of cavities.

Another way to subtract components of the microbiome is to use viruses, known as bacteriophages, that attack particular bacterial species. EpiBiome, in San Francisco, and Eligo Biosciences, in Paris, are both hoping to deploy phages selectively against specific bacteria—something that would create an extremely refined form of antibiotic. EpiBiome is trying to isolate the phages which are most effective in killing harmful bacteria. Eligo is attempting to fit phages out with a form of gene-editing technology that will cut up a bacterium’s DNA, thus killing the organism.

Editing bacterial genomes is also on the agenda of Blue Turtle Bio, in San Francisco, and Synlogic, in Cambridge, Massachusetts. Both companies want to engineer gut bacteria to deliver a constant supply of such things as the enzymes missing in genetic diseases like phenylketonuria (in which the absent enzyme means a chemical called phenylalanine can build up to toxic levels).

Only connect

One last microbiome-related approach to medicine is to try to identify exactly which microbe-produced substances are affecting human health, whether for good or ill. This is of particular interest to established pharmaceutical firms. They hope such knowledge might lead to the sorts of products they are adept at making. A year ago, for example, Bristol-Myers Squibb, a leading immunotherapy firm, announced a tie-up with Enterome, a Parisian company. Their joint intention is to develop drugs and diagnostic techniques based on the gut microbiome. Meanwhile, Second Genome, in San Francisco, has started to investigate the apparent connection between dysbiosis and autism, with the hope that some sort of pharmaceutical intervention may be possible.

Isabelle de Cremoux, the boss of Seventure, a French venture-capital firm that has many microbiome-based investments, observes that the first bets in this area were

generally connected with gastroenterology, because that is pertinent to the part of the body where the bugs actually live. But, she says, scientific publications about dysbiosis have turned increasingly to cancer. She expects biotech firms to follow. Indeed, two of those she has invested in, Enterome, and also Vedanta Biosciences, in Cambridge, Massachusetts, have started to focus on oncology.

The idea that the gut’s microbial passengers can influence the progression of cancers sounds, on first hearing it, an extraordinary one. But the multiplicity of microbial genes is such that some are almost bound to have side-effects of this sort. It is certainly a long way from yellow soup to immunotherapy. The journey, though, looks as if it will be a rewarding one. ■

Neuroscience

Probing for answers

A new nerve-cell monitor will help those studying brains

SCIENCE is a mixture of the intellectual and the practical. And the practical requires tools. Until the invention of the telescope, astronomy had been stuck in a rut for millennia. Until the invention of the microscope, microbiology did not exist.

Neuroscience, too, has advanced recently on the back of some powerful tools, particularly techniques for scanning whole brains. But the devices that look at the nitty-gritty of how nerve cells themselves work are still Heath-Robinson affairs. These are the electrodes that record the impulses of individual cells, ideally simultaneously with lots of others, in order to try to work out how networks of cells process information.

That may change with a device described this week in *Nature*. The business end of Neuropixels, as the new tool is known, is a probe made in the way that computer chips are made, by photolithography. This probe (see picture) is 1cm long and 70 microns across—about the width of a human hair. It is capable of recording signals from 384 nerve cells at the same time. These signals are gathered individually by electrodes 12 microns across that cover the probe’s surface. The elec-

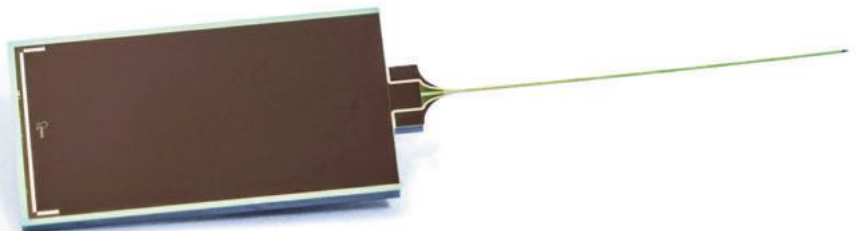
trodes are made from titanium nitride, a material chosen because it is both amenable to photolithography and can survive for at least six months inside a brain.

Each electrode records voltage changes in the nerve cell nearest to it and transmits those changes to the top of the probe through a conductive channel (one per electrode) that acts like a wire. There, the signals are picked up and deciphered by a chip that converts the analogue electrical impulses from each of the 384 channels into digital bits, and then pushes those bits out to a computer for analysis through just four wires. The whole set-up weighs a mere 250mg. That means it can be carried around without too much trouble by an experimental animal, such as a rat, while it is making recordings of what is going on inside the animal’s brain. Moreover, in a small brain like a rat’s, a 1cm probe can traverse several brain areas. It can therefore record interactions between those areas, and thus start to get a grip on how the brain works as a whole.

Devices that record the simultaneous doings of hundreds of nerve cells do already exist, but they are complicated and temperamental. They come with a crown of hundreds of fine, fiddly wires that stick out of the skull and have to be manipulated individually. Neuropixels, by contrast, can just be plugged into the brain being studied. It is this ease of use that is expected to give it its edge.

Neuropixels is the brainchild of a collaboration between several medical-research foundations. The project was led by Tim Harris of the Howard Hughes Medical Institute’s Janelia Research Campus, in Virginia. He and his colleagues worked with teams from the Allen Institute for Brain Science, in Seattle, and the Gatsby Charitable Foundation and the Wellcome Trust, both in London. The device itself was made by imec, a boutique, not-for-profit microelectronics shop in Belgium.

It all sounds very charitable—and it is. The goal of the project was always, according to Dr Harris, to design a robust, commercial device, rather than an academic laboratory widget, but the intention is to advance the field as a whole rather than to garner profit for a particular organisation (imec will continue to manufacture Neuropixels, but will sell it at cost, rather than marking the price up). Dr Harris says the first production model is likely to sell for around €1,400 (\$1,600) and will be available towards the end of next year. ■



Evolutionary biology

Sounds like trouble

A bird's alarm calls do not always come out of its beak

CHARLES DARWIN was fascinated by bird communication. In “The Descent of Man and Selection in Relation to Sex” he devoted equal space to both the sorts of sounds that emerge from birds’ beaks and the more percussive noises that they make with other parts of their bodies, such as their feet and feathers. He speculated that both types of sounds were important for sending signals to others, but was unsure if this was true. In the years that have passed since his death, ornithologists have proved time and again that birds’ songs, squawks and shrieks are used for sending signals to their kin, their rivals and sometimes even their predators. In contrast, their more percussive sounds have received almost no attention at all. A study published in *Current Biology* by Trevor Murray at the Australian National University, in Canberra, however, suggests that is a mistake. At least one bird creates a specific, audible warning with the flapping of its wings.

The species in question is the crested pigeon. Although these birds do not produce a vocal alarm call, their wings are known to emit a whistle as they flap. Research published in 2009 showed that crested pigeons fleeing danger flap their wings faster, thus generating a different whistle from that of birds taking off in a more casual manner. It also showed that this distinctive sound induces pigeons which hear it to flee as well. But that result, though interesting, leaves unclear whether the whistle made when fleeing is merely a side-effect of rapid departure, and thus a cue to others that something bad may be happening, or is a signal that has evolved specifically to convey information about danger.

A reason to believe evolution is involved is that one of the primary feathers of the wings of crested pigeons is an unusual shape. The eighth primary (of ten, counting from the back to the front of the wing) is noticeably narrower than its neighbours. It is also narrower than the eighth primaries of all species closely related to the crested pigeon. Dr Murray and his associates theorised that if this odd-shaped primary is responsible for the take-off whistle, then that would be strong evidence that the whistle is an evolved alarm signal, and not an accidental cue.

To test this idea, they collected 68 crested pigeons. From some, they removed the oddly shaped eighth primaries. From others, they took the ninth primaries. And from others still they took the sevenths.



Nice primaries, dahling

The remainder, which acted as controls, had no feathers removed. Each bird was then released and the sound of its departure recorded. Unsurprisingly, most of the liberated birds left in a hurry, whistling as they went.

Analysis of the whistles suggested two feathers were involved. The eighth contributed a high-pitched note and the ninth a low-pitched one. When the recordings of the departing birds were played to others, though, those within earshot fled only if the recorded bird still possessed its eighth primaries. In other words, it is the part of the whistle produced by this odd-shaped feather which is the flight signal—and, given the feather’s oddness, that sound really is the equivalent of an evolved alarm call. Darwin, himself a noted pigeon fancier, would surely have been delighted. ■

The fourth estate

Hold the front page!

A randomised trial shows that the power of the press is real

MALCOLM X, an American political activist, described the media as the most powerful entity on Earth, “because they control the minds of the masses”. Some journalists may find this proposition flattering, but though those who study such things agree newspapers exert some influence over their readers, the effect has proved devilishly difficult to quantify. Now, Gary King of Harvard University and his colleagues have measured the impact of stories from almost three dozen different news sources on the American public, as judged by the content of posts on Twitter, a microblogging service. Their study,

published this week in *Science*, found that even stories from the news sites that formed part of the study, which were small compared with, say, the *New York Times* or the *Washington Post*, increased Twitter discussion of the issues in those stories by about 60%. They also shifted the nature of the views expressed in those tweets towards those of the published pieces.

Many researchers have looked in the past at the question of media influence. They have done so by, for example, comparing places that had a radio signal with those that did not. These studies, however, ran into a common problem, namely distinguishing (often small) effects that arise because of exposure to the media from those that stem from innate differences between the two groups being studied. In medical research, the tool for overcoming such problems is the randomised controlled trial. This is a type of experiment used to assess the efficacy of medical interventions by assigning patients to one of two groups at random, and giving members of one the drug or treatment in question, while those in the other group, acting as a control, receive a placebo with no known therapeutic effects. Dr King applied this approach to try to determine the effects of reading the news.

He and his colleagues had first to persuade the press to take part—a process that meant co-ordinating the dates on which particular stories got published. After three years of cajoling, 33 outlets ranging from long-established publications like the *Nation*, via upstarts such as the *Huffington Post*, to those intended for particular audiences, like *News Taco*, agreed to participate. Then, on 35 occasions between October 2014 and March 2016, between two and five of these outlets, in different combinations each time, volunteered to write simultaneous stories on one of 11 broad subjects, such as race, immigration or jobs (ie, no breaking news). Each set of stories ran at the start of one of two consecutive weeks, determined by the toss of a coin. The week of publication served as the “treatment” week in Dr King’s study. The other week was the control.

Each time they carried out this procedure the researchers analysed the two weeks’ Twitter chatter with the help of Crimson Hexagon, a company based in Boston, co-founded by Dr King, which uses machine-learning techniques to classify the subjects and sentiments of tweets. By agreement with the participating publications, the team have not revealed which stories were part of their study. They do, however, report that in the six days following each bout of publication there were about 13,000 more posts on the broad subject than the experimental story was about than there had been during the control week. That represents a 10% increase on the typical weekly volume of posts for sub- ▶▶

jects of this sort.

This is, admittedly, small compared with the Twitter frenzy caused by popular television programmes or glitzy events. Episodes of “The Walking Dead” typically prompt more than 500,000 tweets each. The Oscars can generate more than 10m. Nonetheless, the effects were consistent—and the buzz produced by stories from larger news organisations is likely to be several times higher.

More intriguing than the mere increase in volume of tweets, though, was a rise, by about two percentage points, in the proportion of tweets expressing opinions leaning in the same ideological direction as the stories. (In each individual experiment the outlets involved were chosen, in

part, because they had similar ideological positions—but overall the 35 experiments ranged across the spectrum.) That is quite a big shift. Presidential debates, for example, rarely move the needle by as much as that.

A weakness of the study is that Twitter’s customers are not representative of the general public. Three-quarters of Americans do not use the firm’s services. The researchers, however, found similar effects for users of different sexes, political views and states of residence, and also for more and less influential users (measured by, for example, how often a user is retweeted). This suggests that their results are robust in the face of diversity. For journalists, then, this is some good news. The power of the press appears to be real. ■

Manure management

An ill wind

Smelly farms may succumb to subtle science

FARMYARDS smell. There is no getting away from that. They smell because of the excrement produced by the animals which live there. And however carefully this excrement is dealt with—whether by modern versions of the time-honoured process of muck-spreading that inject it below the surface of the fields it is fertilising; or by anaerobic digestion, in which it is used to make methane that can, in turn, be employed to generate electricity—it is still the case that the buildings housing the animals themselves stink.

Besides being unhealthy for farmworkers (not to mention the neighbours, if the farmyard is near a village), such smells are bad for business. Research has found that improving the air quality of the places where pigs and other livestock are housed makes for healthier and more productive animals. The question is, how to do that cheaply? Jacek Koziel of Iowa State University reckons he has the answer: titanium dioxide and disco lights.

In the late 1960s researchers at the University of Tokyo discovered that, when given a helping hand by ultraviolet light, titanium dioxide encourages the breakdown of all sorts of organic compounds. It does so by causing oxygen and water vapour in contact with its surface to react and form molecules called free radicals. These substances oxidise and destroy organic compounds, turning them into small mole-

cules such as carbon dioxide and water. Since the odour of excrement is composed largely of organic compounds, and titanium dioxide is cheap, Dr Koziel wondered whether it might be employed to de-pong byres, sties, stables, sheds and other animal dwelling places.

In their initial experiments, he and his team created a standardised manure-like stench from a mixture of dimethyl disulphide, dimethyl trisulphide, diethyl disulphide, butyric acid, para-cresol and guaiacol. This is a combination that is not for the faint of nose. They then coated the inte-

rior surface of a glass container with a commercial preparation of titanium dioxide, known as PURETI Clean, which contains zillions of tiny crystals of the chemical. These greatly increase the surface area of titanium dioxide available for reactions to occur on. That done, the researchers pumped their smelly gas into the container and activated the coating using a “black light”—a low-powered source of ultraviolet similar to that employed in dance clubs to encourage customers’ clothes to fluoresce.

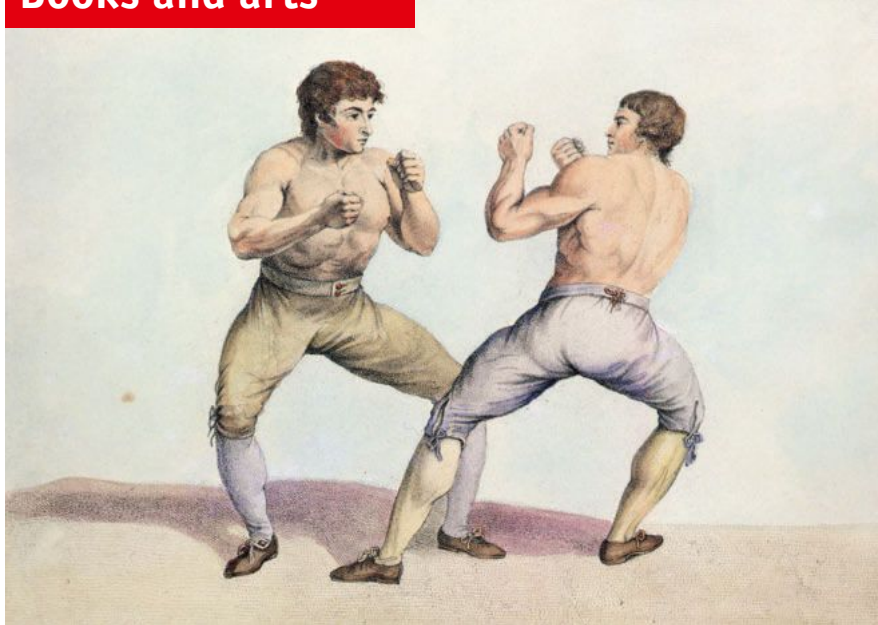
Dr Koziel varied temperature, humidity and ventilation levels in the container to mimic conditions in both summer and winter. In summer-like simulations the drop in odorant level was 27-62%. In winter conditions it was up to 100%. Tests during actual summer, on a pig farm in Iowa, in which Dr Koziel and his colleagues drew real farm air through a black-lit, titanium-oxide-coated tunnel, cut overall levels of noxious chemicals by 16% and reduced one of the worst-smelling constituents of pig pong, para-cresol, by 22%. That may not sound huge, but the difference was detectable by human noses. Moreover, the apparatus the team used for this trial was only 2½ metres long and 30cm in diameter. Scale things up to create a bigger surface area and better conversion rates might reasonably be expected.

Painting a large area, such as the interior of a barn, with titanium dioxide would cost about the same, around \$3 a square metre, as a conventional paint job. Black lighting is inexpensive, too. Conventional fluorescent black lights cost about \$20. Ultraviolet light-emitting diodes, a recent innovation, are cheaper still. And, if mounted on portable fittings, they might even form an extra source of revenue for an enterprising farmer as the lighting set for barn dances. ■



I love the smell of para-cresol in the morning

Correction: In “Atten-shun!”, published on October 7th, we described Ariel University as being in Israel. It is not. It is in an Israeli settlement on the West Bank, part of the Palestinian territories. Sorry



Jewish history

The portrait gallery

Simon Schama tells the stories of some of history's great Jewish characters

“SOMETIME, somewhere, between Africa and Hindustan, lay a river so Jewish it observed the Sabbath.” “Belonging”, the second volume of Simon Schama’s story of the Jews, begins with this pious waterway, and continues with a cast of characters so extraordinary that some seem hardly more believable than the Sabbath-keeping Sambatyon river.

David Ha-Reuveni came to Venice in 1523 claiming to be the brother of a king who ruled beyond the Sambatyon over some of Israel’s lost tribes. He fired up Jews and gentiles with a plan to unite Christendom and the tribes to free the holy land from the Ottoman Turks. The unlikely emissary won an audience with a sceptical pope, who palmed him off on the king of Portugal, who nearly gave him eight warships and 4,000 guns before abruptly changing his mind. The king accused David of conspiring with Marranos (Jews who had formally converted to Christianity) to Judaise Portugal. The story moves on to Regensburg and a session with the Holy Roman Emperor, whom David may have tried to convert to Judaism. The documentary trail then stops; the impostor may have been burned at the stake.

“Belonging” is less a history than a portrait gallery. Mr Schama, who teaches art history as well as history, often prefers interesting Jews to the most famous ones. The Rothschilds get less ink than the house of Mendes, a rich family of secret Jews who

Belonging: The Story of the Jews, 1492-1900. By Simon Schama. *Ecco*; 800 pages; \$39.99. *Bodley Head*; £25

fled Portugal. Among them was Beatriz de Luna, who starting in around 1540 helped other crypto-Jews escape from inquisitorial Spain and Portugal. She progressed grandly through Europe, squabbling with her sister Brianda (who has her own remarkable story). From Constantinople Beatriz organised a boycott of the papal port of Ancona to punish the pope for persecuting Jews who had returned to their faith. Her campaign emptied it of its ships for two years before the port finally failed.

Dan Mendoza (pictured), born in 1764, was seen as “a dirty little Jewish tough from Mile End”. He used his fists to teach Georgian England respect for his people. His rivalry with Richard Humphreys, the “gentleman boxer”, transfixed the country. Styling himself a “professor of pugilism” he “played the press like a fortepiano”, and was the first sportsman to publish his memoirs. Another battler against bigotry was Uriah Levy, an American navy officer, who bought and restored Thomas Jefferson’s home of Monticello, and devised alternatives to flogging sailors (suspending them from the mizzenmast, for example). Anti-Semites rewarded his patriotism by trying to block his promotion up the ranks.

Some of the figures before which Mr

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Schama pauses are themselves works of art, such as the circling hares that appear on tombstones in Satanow, now in Ukraine. Unlike lions and doves they are not a Jewish motif. This suggests to Mr Schama that they came to Satanow from far afield, implying that such settlements were more cosmopolitan than the “one-cow mudhole” shtetls of popular lore.

“Belonging” is also an allegory of the present. The modernising forces that freed Jews from old impediments also provoked unease and anger. The railways, which Jewish bankers helped build, “rode over ancient, noble boundaries of language, territory and nation”. The grand piano played to larger audiences than could earlier instruments. Such spectacles debased music with Jewish commercialism, or so thought Richard Wagner. The hounding of Alfred Dreyfus, a French army captain falsely convicted of being a German spy, sundered France over a basic question of national identity: would modern states “be grounded in ethics or ethnicity”? The unhinged hatred directed at Dreyfus “ruptured the fragile membrane of civility, and began to foul the body politic of the modern age.”

Mr Schama’s story ends with Theodor Herzl’s response to that hatred, a plan to move Europe’s Jews beyond its reach, to Palestine. His detailed blueprint, “Der Judenstaat” (1896), considered every factor except how the Arabs already living there might react. From the beginning Herzl’s secular vision faced a challenge from the spiritual Zionism of Ahad Ha’am, who thought that the Jewish religion needed to be at the centre of any Palestinian project.

Secular Tel Aviv still struggles with spiritual Jerusalem. Arabs and Jews are unreconciled. Mr Schama, as both a historian and a Jew, closes his wonderful book the only way he could: with love shot through with melancholy and foreboding. ■

Jewish humour

Laughing in the dark

Jewish Comedy: A Serious History. By Jeremy Dauber. *W.W. Norton & Company*; 364 pages; \$28.95

The Jewish Joke. By Devorah Baum. *Profile Books*; 184 pages; £9.99. *To be published in America by Pegasus in May*

Feeling Jewish. By Devorah Baum. *Yale University Press*; 296 pages; \$26 and £18.99

IS JEWISH humour a laughing matter? Perhaps not. Students of Jewish jokes have certainly revealed dark sides to Mr and Mrs Goldberg, their long-suffering rabbi and the implausibly articulate beggar at their door. Freud, for instance, found that the humour of the Jews was especially self-denigrating. His analysis was unscientific—the data set was nothing more than his own favourite jokes—but his conclusion rings at least true-ish. Ruth Wisse, a Harvard professor of Yiddish, suggested in 2013 that too much joking may in fact be bad for the Jews. And, of course, plenty of Jewish humour has been about unfunny topics such as pogroms and the Holocaust.

The first chapter of a new study by Jeremy Dauber, a professor at Columbia University, looks at Jewish comedy as a response to anti-Semitism and persecution. This chapter is replete with tragedy and suffering, but Mr Dauber recognises the multiplicity of Jewish humour and wisely resists any single characterisation of it. Instead, he organises his book around seven themes, of which the other six are satire aimed at Jewish norms; bookish and allusive wordplay; vulgarity and the body; mordant metaphysical irony; the folksy quotidian Jew; and the ambiguous nature of Jewishness.

The first laugh in Judaism, he argues, came in the Book of Genesis, when the aged Sarah ridiculed a prophecy that she would bear a son to the even more ancient Abraham, and the joke turned out to be on her. Mr Dauber deftly surveys the whole recorded history of Jewish humour, but his focus—and evidently his passion—is the American light-entertainment industry in the 20th century and today, of which he gives an exhaustive and sometimes exhausting account. Henry Ford's anti-Semitic newspaper, the *Dearborn Independent*, warned in 1921 that America had "a movie problem" because of Jewish "control" of the film business. To films must now be added radio, television, theatre, live entertainment and the internet, though this is

because audiences today clearly regard Jewish comedians as more of a delight than a problem.

It sometimes disconcerts gentiles that Jews so enjoy making fun of themselves. The stock characters in jokes about Jews, such as Jewish mothers—of whom it takes none to change a light bulb, since she would rather sit in the dark—are as much a source of pleasure within Jewish homes as they are a source of amusement or ridicule outside them. Even financial prowess and a devotion to dealmaking, which have a dark history in the stereotyping of Jews, are highly acceptable topics, if done right. A mathematics teacher draws figures on the blackboard and turns to ask the class: "What's 2%?" A little Jewish boy shrugs, opens his palms and concedes: "You're right!"

The example is from "The Jewish Joke", a new collection, with commentary, by Devorah Baum, a lecturer in English literature and critical theory at Southampton University in Britain. Even the most avid collectors of Jewish jokes are likely to find fresh material in it. In another recent book, Ms Baum discusses guilt, paranoia, resentment, anxiety and other feelings generally associated (as she puts it) with Jews, and argues that they are increasingly common among non-Jews. She makes the suggestion that this is partly because of globalisation, which leaves many people uprooted and marginalised. In other words, we are all Jews now, more or less.



You don't have to be Jewish

Korean fiction

Mourning colour

The White Book. By Han Kang. Translated by Deborah Smith. *Portobello Books*; 128 pages; £10. *To be published in America by Hogarth in 2019*

A WOMAN wanders through the snow-bound streets of a European city that, in the second world war, suffered such wholesale obliteration that "the white glow of stone ruins" stretched "as far as the eye could see". During this spell of exile, she recalls the sibling she never met: her mother's first child, who died "less than two hours into life". The baby girl had "a face as white as a crescent-moon rice cake".

From these dual dimensions of grief and memory, one personal and one historical, Han Kang, a South Korean writer, has fashioned a winter book made up of beautiful, tantalising fragments. Its snow-crystals of prose settle into an eerily moving sequence of meditations on destruction, bereavement and rebirth. Amid images of ice and ashes, rice and salt, cloud and moon, the "white things" that signify mourning in Korean and other Asian traditions, the woman learns how "to light a candle for all the deaths and spirits she can remember—including her own."

Readers of Ms Han's novels "Human Acts" and "The Vegetarian" (the second of which won the Man Booker International Prize) will know that each of her books creates a unique frame for its theme. With its brief, lyrical sections, its scatter of enigmatic photographs, "The White Book" feels less like a novel than a manual of wisdom, even of prayer. It seeks to fix memories that, like the recollection of "a dish of wrapped sugar cubes", will "remain inviolate to the ravages of time".

The woman not only journeys "further into my own interior". She observes the unnamed city—perhaps Warsaw—that has risen from annihilation while always honouring its dead. Candles and flowers memorialise the fallen. In contrast, her own country is haunted by its "insufficiently mourned" dead. Obliquely, Ms Han alludes to the 1980 Gwangju massacre of protesters in South Korea—the setting of "Human Acts". In the mind, as in the nation, every lost one demands to be remembered, even though "Nothing is eternal." For a community as for a person, "learning to love life again" takes time. Grieving rituals help. Translated, like Ms Han's previous books, by Deborah Smith with exquisite craft and tact, this luminous album of snow, ash and bone shares the salutary quality of coarse salt-crystals: "the power to preserve...and to heal." ■

Middle age

Out of the wood

Midlife: A Philosophical Guide. By Kieran Setiya. Princeton University Press; 200 pages; \$22.95 and £18.95

JOHN STUART MILL had his midlife crisis at 20. Hothoused by his father and preternaturally accomplished, he saw that even if all his “objects in life were realised”, still he would not be content—and had a nervous breakdown. As Kieran Setiya explains in “Midlife”, two insights spurred his recovery. One was that happiness was to be found beyond himself: “Aiming thus at something else,” Mill saw, people “find happiness by the way.” The other was that life should involve more than the amelioration of suffering, noble as that goal was.

For Mr Setiya, a philosopher at the Massachusetts Institute of Technology, Mill exemplifies a syndrome that is less an age-specific ailment than a human predicament. At 41, the author is himself afflicted by “a disconcerting mixture of nostalgia, regret, claustrophobia, emptiness and fear”, beneath which lie “questions of loss and regret, success and failure...mortality and finitude”. The bedrock problem is “the irreversibility of time”. As Mr Setiya says, “fast cars and wild affairs” cannot salve that, but his book—a delightful amalgam of self-help and intellectual inquiry—aims to show that philosophy can.

Psychoanalysts, sociologists and economists diagnosed the midlife crisis from the 1960s onwards, but it stretches back through Dante’s wood to antiquity. Its lineaments are consistent and painfully familiar. “I look back with envy at my younger self,” Mr Setiya writes. “He could be anything. But I am condemned: course set, path fixed, doors closed.” As well as experiencing grief for “the things you could have done but never did and never will”, midlife means living with irreparable mistakes and the bathos of achievement. In one of many striking phrases, he reflects that “the future is a tunnel of glass”—a tunnel with only one terminus.

For each neurosis, Mr Setiya reasons out a therapy. Fear of having missed out is, in effect, a wish for “a profound impoverishment in the world”, or, as Plato put it, for “the life of a mollusc”. “Embrace your losses,” he recommends, “as fair payment for the surplus of being alive.” Lamenting missteps is natural, but remember “everything in your subsequent life that flowed from them,” such as (if you have them) your children. A different life might have turned out worse; in any case, no hypothetical alternative can outdo the one you have, with all its nuances and richness,

“like the fastidious excess of a peasant scene by Bruegel!”.

Mr Setiya anticipates the charge that these are high-class problems. They arise, he insists, from the basic realities of life, such as death—which, philosophically speaking, “turns out to be a killer”. He considers Epicurus’s consolation (it is irrational to worry about death while you are alive, and after you die, you won’t be able to) and Lucretius’s (death is no scarier than the time before your birth). He is unpersuaded, but takes some heart from the thought that craving immortality is like wanting to be Superman, “a magical quality whose absence it is perverse to mourn”.

If all this sounds gloomy, it isn’t. “Midlife” combines acuity, frankness and drollery in a style that melds Aristotle with Kurt Vonnegut. Mr Setiya enlists not only philosophers but poets and novelists, such as Philip Larkin, Virginia Woolf and Richard Ford. He celebrates Reggie Perrin, protagonist of an eccentric British sitcom, who fakes his own death, then reconstitutes his old life under a new name: exercising free will while acknowledging his blessings, he becomes “an existential hero”. There are entertaining pen-portraits of thinkers such as Schopenhauer and Montaigne.

Mr Setiya’s ultimate prescriptions echo those of Mill: “find meaning in the process,” whether of work or hobbies; learn to live “in the halo of the present”. Even if it does not cure every midlife crisis, his book may change preconceptions about the dryness of philosophy. It will make readers think and smile, which is not a bad therapy in itself. ■

Defending economics

The shield, not the sword

Economics for the Common Good. By Jean Tirole. Translated by Steven Rendall. Princeton University Press; 576 pages; \$29.95 and £24.95

“WINNING a Nobel prize changes your life,” said Jean Tirole, a French economist, from experience. When his work on competition policy and how to adapt regulation for specific industries earned him the gong in 2014, he could have succumbed to “Nobel prize syndrome”, the tendency to opine on all economic matters regardless of expertise. His book “Economics for the Common Good”, published in 2016 and just released in English, attempts something much bolder. He tries to rescue economists’ reputation.

His profession has been attacked for failing to predict the financial crisis, for pushing competition and markets above



all else and for ignoring questions of morality. One academic economist will befuddle you with two contradictory opinions, while another will attack you with impenetrable algebra. No wonder technocrats are losing out to populists.

Some of this criticism is warranted, Mr Tirole accepts. Leading economists prefer to create knowledge rather than disseminate it, and they communicate with each other in a language that can be hard to understand. Although mathematical models add clarity and rigour (and Mr Tirole is a heavy user in his own research), they can constrain which questions are asked, and be mistaken as the goal of research rather than the means.

In some cases, though, critics of economists ask too much of them. Although economists did underestimate the importance of financial regulation in the run-up to the crisis, and oversold the benefits of whizzy new instruments, blaming them for failing to spot something that even financial supervisors had only partial knowledge of seems unfair. Crises often come when an unforeseen but otherwise survivable investor panic becomes self-fulfilling. Knowing when the world will flit between states is impossible.

Mr Tirole spends much of his book reminding readers of what economics is for. It is supposed to serve society, and to offer rigour where gut instincts go wrong. Debates on whether to weaken protection for permanent employees, for example, pit managers against workers who want security. The economist is there to point out the victim hidden by this dichotomy: the person who has no job, or only a short-term contract, because companies are afraid to hire hard-to-fire staff on full contracts.

Economics is perfectly capable of incorporating questions of morality, says Mr Tirole. It simply imposes structure on debate where otherwise indignation would rule. It might make sense to ban some markets, like dwarf-tossing, he says: its existence di- ►►

minishes the dignity of an entire group. But a market in organs or blood, for example, should not be rejected on the basis of instinctive moral repugnance alone. Policymakers should consider whether payment would raise the supply of donated blood or kidneys, improving or even saving lives. (It might not, if the motivation of money makes generous people afraid of looking greedy.) Whatever the answer, policymakers should make decisions from “behind the veil of ignorance”: without knowing whether any one person, including the policymakers themselves, would be a winner or loser from a particular policy, which society would they choose?

Mr Tirole applies this type of reasoning to topics ranging from carbon taxes to industrial policy, from competition to the digital economy. He presents economists as detectives, sniffing out abuse of market power and identifying trade-offs where populists make empty promises. His anal-

ysis is laden with French examples of ill-advised attempts to defy the constraints that those in his discipline delight in pointing out. When in 1996 the French government blocked new large stores in an effort to restrain the power of supermarket chains, share prices of existing ones rose. The new laws inadvertently worsened the problem by restricting competition.

He also depicts economists as ill-equipped to deal with the dirty reality of politics. To those who might be catapulted into sudden stardom as he was, he warns that academic economists will be quickly put into political pigeonholes, and their arguments celebrated or dismissed according to whether the recipient favours that pigeonhole. Though populists revel in simplicity, his aim is to make economics context-specific and point out its complexities. This is his strength, but his discipline's limitation. He is economists' defender, but not their saviour. ■

Elderfield. Although the formal, commissioned portrait reflecting social status was no longer in vogue, the idea that a portrait should reflect a psychological likeness remained current. Cézanne, with his bold, flat use of colour reminiscent of Edouard Manet and Gustave Courbet, called even this into question.

After these “Defiant Beginnings”, as the exhibition terms them, Cézanne spent time with the Impressionists, lending his next portraits a looser approach, flecked with light. A painting from 1877 of Hortense Fichtel, his lover and the mother of their son, wearing a striped skirt, stands out for its dappled beauty and formal balance; her face is composed of blocks of colour. “There is nothing quite like this in the previous history of portraiture,” Mr Elderfield says. Cézanne continues innovating with self-portraits using impressionistic strokes and dabs. But he is increasingly absorbed by the sculptural qualities of the human figure, more interested in the volumes of the face than its expression. By the mid-1880s, any idea that a portrait should reflect the mood or personality of the sitter is decidedly dashed.

Among the show's most powerful and unsettling portraits are those of Hortense, who became his wife, and whom he painted repeatedly over the subsequent years. The works shock with their absence of emotion. Cézanne depicts his wife in a red dress as if she is no more nor less than a bowl of fruit: distant, geometric, rigid. This is precisely the point. Cézanne's goal was to paint “the objective presence of someone—the vivid, raw permanent presence of the thing seen”, Mr Elderfield has said. For a decade the artist had been painting fruit and landscapes of similar heft. In these portraits he liberates the figure from the dictate of resemblance—either physical or psychological—and steps decisively into the modern.

The two final sections of the exhibition offer a joyous explosion of what most viewers will recognise as Cézanne's mature style—from his famous bathers to the views of L'Estaque and Mont Sainte-Victoire. In his last decade he painted peasants near his home in southern France, along with chosen friends, using patches of shimmering colour like prisms to create a sense of depth and volume. Aspects of this softer touch and melding of figure and landscape appear in peasant models for his “Card Players”, for example. Delicate rainbows are clearest in the faces of two of his most contemplative portraits, those of Vollard and of the “Woman with a Cafetière”. The extraordinary final portraits of his gardener, Vallier, in both dark interior and blazing sunlight, confirm Cézanne's ultimate achievement. In this new art of portraiture, there is indeed emotion—arising not from the subject's face but from the painter's brush. ■

Cézanne's portraiture

The emotional brush

A master of landscape and still life is revealed in his portraits

LATE in life, Paul Cézanne told his art dealer Ambroise Vollard that “the culmination of all art is the human face.” It's a peculiar assertion, coming from the master of landscape and still-life, whom Matisse and Picasso revered as “the father of us all”. But Cézanne also painted scores of portraits over a 50-year career, and they tell a surprising story. As an unprecedented new exhibition persuasively argues, it is through this lesser-known aspect of his work that the master of Aix-en-Provence found his artistic voice.

“Cézanne's Portraits” is the first exhibition in more than a century to bring his major portraits under one roof. Conceived by curators in three countries, it was a hit at the Musée d'Orsay in Paris and opened in late October at London's National Portrait Gallery. It will travel to the National Gallery in Washington, DC next March. Not since Vollard showed 24 Cézanne portraits in 1910 have art-lovers been able to see so many of these paintings side by side. What they reveal is Cézanne's continuous experimentation, and even a reinvention of the very genre of the portrait. Taken together, these paintings of others constitute a portrait of the man himself, and his evolution as an artist.

Cézanne was immediately interested in the human figure when he started painting in the 1860s. The earliest portraits in the show are of family members and of him-

self. Yet quickly his paintings began to betray as much interest in materials and form as in the depiction of a particular person. A series of thick, heavily modelled heads of his Uncle Dominique set the tone: the viewer watches the painter at work, attempting variation upon variation. These energetic works, plastered with a palette knife, are viscous and fleshy, marking a first step away from the traditional idea of portraiture, says the show's lead curator, John



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Economic data

% change on year ago

	Gross domestic product			Industrial production	Consumer prices		Unemployment rate, %	Current-account balance		Budget balance % of GDP	Interest rates, %	Currency units, per \$	
	latest	qtr* 2017 [†]	2017 [†]		latest	latest		2017 [†]	latest 12 months, \$bn			% of GDP 2017 [†]	% of GDP 2017 [†]
United States	+2.3 Q3	+3.0	+2.2	+1.6 Sep	+2.2 Sep	+2.0	4.1 Oct	-460.9 Q2	-2.5	-3.5	2.31	-	-
China	+6.8 Q3	+7.0	+6.8	+6.6 Sep	+1.9 Oct	+1.6	4.0 Q3 [§]	+118.2 Q3	+1.4	-4.3	3.96 ^{§§}	6.63	6.78
Japan	+1.4 Q2	+2.5	+1.5	+2.5 Sep	+0.7 Sep	+0.5	2.8 Sep	+194.4 Sep	+3.6	-4.5	0.03	114	105
Britain	+1.5 Q3	+1.6	+1.5	+1.6 Aug	+3.0 Sep	+2.7	4.3 Jul ^{††}	-128.9 Q2	-3.8	-3.3	1.30	0.77	0.81
Canada	+3.7 Q2	+4.5	+2.9	+5.6 Aug	+1.6 Sep	+1.6	6.3 Oct	-45.0 Q2	-2.9	-1.7	1.92	1.28	1.33
Euro area	+2.5 Q3	+2.4	+2.2	+3.8 Aug	+1.4 Oct	+1.5	8.9 Sep	+376.4 Aug	+3.1	-1.3	0.34	0.86	0.91
Austria	+2.6 Q2	+0.4	+2.5	+4.0 Aug	+2.4 Sep	+2.0	5.6 Sep	+6.1 Q2	+2.2	-1.0	0.51	0.86	0.91
Belgium	+1.7 Q3	+1.2	+1.7	+5.0 Aug	+2.0 Oct	+2.2	7.1 Sep	-5.3 Jun	-0.4	-2.0	0.59	0.86	0.91
France	+2.2 Q3	+1.9	+1.7	+1.1 Aug	+1.1 Oct	+1.1	9.7 Sep	-26.0 Sep	-1.2	-2.9	0.69	0.86	0.91
Germany	+2.1 Q2	+2.5	+2.2	+3.5 Sep	+1.6 Oct	+1.7	3.6 Sep [†]	+274.6 Aug	+7.1	+0.7	0.34	0.86	0.91
Greece	+0.7 Q2	+2.2	+1.0	+5.7 Aug	+1.0 Sep	+1.2	21.0 Jul	-1.3 Aug	-1.3	-1.4	5.08	0.86	0.91
Italy	+1.5 Q2	+1.4	+1.5	+5.7 Aug	+1.0 Oct	+1.3	11.1 Sep	+51.2 Aug	+2.3	-2.3	1.74	0.86	0.91
Netherlands	+3.3 Q2	+6.3	+2.9	+3.9 Aug	+1.3 Oct	+1.3	5.7 Sep	+76.0 Q2	+9.6	+0.6	0.44	0.86	0.91
Spain	+3.1 Q3	+3.2	+3.1	+0.3 Sep	+1.5 Oct	+2.0	16.7 Sep	+23.1 Aug	+1.3	-3.3	1.41	0.86	0.91
Czech Republic	+3.4 Q2	+10.3	+4.5	+4.4 Sep	+2.7 Sep	+2.4	2.7 Sep [†]	-1.7 Q2	+0.9	-0.1	1.59	22.1	24.5
Denmark	+1.9 Q2	+2.8	+2.4	+1.2 Sep	+1.6 Sep	+1.2	4.4 Sep	+25.8 Aug	+8.1	-0.6	0.42	6.41	6.74
Norway	+0.2 Q2	+4.7	+1.8	+10.5 Sep	+1.6 Sep	+2.0	4.1 Aug ^{††}	+16.6 Q2	+5.4	+4.2	1.59	8.18	8.22
Poland	+4.6 Q2	+4.5	+4.3	+4.3 Sep	+2.1 Oct	+1.9	6.8 Sep [§]	-1.3 Aug	-0.4	-2.0	3.40	3.65	3.92
Russia	+2.5 Q2	na	+1.8	+0.8 Sep	+2.7 Oct	+3.9	5.0 Sep [§]	+36.9 Q3	+2.4	-2.1	8.13	59.1	63.8
Sweden	+3.0 Q2	+5.2	+3.1	+4.5 Sep	+2.1 Sep	+1.8	6.2 Sep [§]	+22.5 Q2	+4.6	+0.9	0.78	8.43	9.01
Switzerland	+0.3 Q2	+1.1	+0.8	+2.9 Q2	+0.7 Oct	+0.5	3.1 Sep	+68.9 Q2	+9.9	+0.7	-0.08	1.00	0.97
Turkey	+5.1 Q2	na	+5.0	+13.4 Sep	+11.9 Oct	+10.8	10.7 Jul [§]	-37.0 Aug	-4.7	-2.1	12.33	3.87	3.18
Australia	+1.8 Q2	+3.3	+2.4	+0.8 Q2	+1.8 Q3	+2.0	5.5 Sep	-21.8 Q2	-1.3	-1.7	2.57	1.31	1.30
Hong Kong	+3.8 Q2	+4.1	+3.1	+0.4 Q2	+1.5 Sep	+1.6	3.1 Sep ^{††}	+15.0 Q2	+4.2	+0.9	1.80	7.80	7.75
India	+5.7 Q2	+4.1	+6.6	+4.3 Aug	+3.3 Sep	+3.5	5.0 2015	-29.2 Q2	-1.4	-3.2	6.94	64.6	66.6
Indonesia	+5.1 Q3	na	+5.1	+2.3 Aug	+3.6 Oct	+3.9	5.5 Q3 [§]	-14.2 Q2	-1.6	-2.6	6.66	13,498	13,084
Malaysia	+5.8 Q2	na	+5.5	+6.8 Aug	+4.3 Sep	+3.9	3.4 Aug [§]	+8.1 Q2	+2.7	-3.0	4.01	4.24	4.20
Pakistan	+5.7 2017**	na	+5.7	+8.5 Aug	+3.8 Oct	+3.9	5.9 2015	-14.1 Q3	-4.5	-5.9	8.20 ^{†††}	105	105
Philippines	+6.5 Q2	+7.0	+6.6	+2.7 Aug	+3.5 Oct	+3.2	5.6 Q3 [§]	-0.8 Jun	+0.3	-2.7	5.45	51.2	48.6
Singapore	+4.6 Q3	+6.3	+2.9	+14.6 Sep	+0.4 Sep	+0.6	2.1 Q3	+59.0 Q2	+19.6	-1.0	2.12	1.36	1.39
South Korea	+3.6 Q3	+5.8	+2.9	+8.4 Sep	+1.8 Oct	+2.0	3.4 Sep [§]	+87.3 Sep	+4.3	+0.8	2.54	1,114	1,135
Taiwan	+3.1 Q3	+7.4	+2.2	+5.2 Sep	-0.3 Oct	+0.6	3.7 Sep	+70.7 Q2	+13.2	-0.1	1.01	30.2	31.5
Thailand	+3.7 Q2	+5.4	+3.5	+4.2 Sep	+0.9 Oct	+0.7	1.2 Sep [§]	+46.9 Q3	+11.6	-2.5	2.31	33.1	34.9
Argentina	+2.7 Q2	+2.8	+2.7	-2.5 Oct	+24.2 Sep	+25.1	8.7 Q2 [§]	-19.7 Q2	-3.7	-6.3	6.22	17.6	15.0
Brazil	+0.3 Q2	+1.0	+0.7	+2.5 Sep	+2.5 Sep	+3.4	12.4 Sep [§]	-12.6 Sep	-1.0	-8.0	9.09	3.31	3.19
Chile	+0.9 Q2	+3.0	+1.4	+1.0 Sep	+1.9 Oct	+2.1	6.7 Sep ^{§††}	-5.6 Q2	-1.7	-2.8	4.43	633	649
Colombia	+1.3 Q2	+3.0	+1.7	-3.1 Aug	+4.0 Oct	+4.3	9.2 Sep [§]	-12.4 Q2	-3.8	-3.3	6.73	3,066	2,991
Mexico	+1.6 Q3	-0.8	+2.1	-0.1 Aug	+6.3 Sep	+5.9	3.3 Sep	-17.6 Q2	-1.9	-1.9	7.24	19.2	18.6
Venezuela	-8.8 Q4~	-6.2	-9.3	+0.8 Sep	na	+720	7.3 Apr [§]	-17.8 Q3~	-1.2	-19.5	8.24	10.8	9.99
Egypt	+4.9 Q2	na	+4.1	+23.8 Aug	+31.6 Sep	+26.9	12.0 Q2 [§]	-15.6 Q2	-6.6	-10.8	na	17.6	17.4
Israel	+4.0 Q2	+2.4	+3.4	-0.7 Aug	+0.1 Sep	+0.4	4.1 Sep	+10.7 Q2	+3.5	-1.9	1.67	3.51	3.80
Saudi Arabia	+1.7 2016	na	-0.7	na	-0.1 Sep	-0.3	5.6 2016	+7.6 Q2	+2.5	-7.2	3.68	3.75	3.75
South Africa	+1.1 Q2	+2.5	+1.1	+1.4 Aug	+5.1 Sep	+4.7	27.7 Q3 [§]	-7.9 Q2	-0.5	-3.3	9.27	14.2	13.3

Source: Haver Analytics. *% change on previous quarter, annual rate. [†]The Economist poll or Economist Intelligence Unit estimate/forecast. [§]Not seasonally adjusted. ^{††}New series. ~2014 **Year ending June. ^{†††}Latest 3 months. ^{††††}3-month moving average. ^{§§§}5-year yield. ^{†††††}Dollar-denominated bonds.

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Markets

	Index Nov 8th	% change on		
		one week	Dec 30th 2016	
			in local currency	in \$ terms
United States (DJIA)	23,563.4	+0.5	+19.2	+19.2
China (SSEA)	3,577.0	+0.6	+10.1	+15.6
Japan (Nikkei 225)	22,913.8	+2.2	+19.9	+22.6
Britain (FTSE 100)	7,529.7	+0.6	+5.4	+13.1
Canada (S&P/TSX)	16,105.4	+0.5	+5.3	+9.6
Euro area (FTSE Euro 100)	1,252.2	-1.0	+12.6	+24.0
Euro area (EURO STOXX 50)	3,655.0	-1.1	+11.1	+22.3
Austria (ATX)	3,412.3	+0.2	+30.3	+43.5
Belgium (Bel 20)	4,085.5	-0.8	+13.3	+24.8
France (CAC 40)	5,471.4	-0.8	+12.5	+23.9
Germany (DAX)*	13,382.4	-0.6	+16.6	+28.4
Greece (Athex Comp)	742.0	-3.3	+15.3	+27.0
Italy (FTSE/MIB)	22,831.3	-0.7	+18.7	+30.7
Netherlands (AEX)	554.8	+0.1	+14.8	+26.5
Spain (Madrid SE)	1,034.4	-2.5	+9.6	+20.7
Czech Republic (PX)	1,054.1	-1.3	+14.4	+33.1
Denmark (OMXC20)	938.8	-1.4	+17.6	+29.4
Hungary (BUX)	40,122.1	+1.3	+25.4	+37.2
Norway (OSEAX)	910.1	+1.1	+19.0	+25.6
Poland (WIG)	64,617.7	-0.4	+24.9	+42.9
Russia (RTS, \$ terms)	1,150.4	+2.1	-0.2	-0.2
Sweden (OMXS30)	1,663.0	-0.5	+9.6	+18.5
Switzerland (SMI)	9,265.8	nil	+12.7	+14.4
Turkey (BIST)	111,894.5	-1.0	+43.2	+31.8
Australia (All Ord.)	6,089.1	+1.4	+6.5	+13.0
Hong Kong (Hang Seng)	28,907.6	+1.1	+31.4	+30.6
India (BSE)	33,218.8	-1.1	+24.8	+31.1
Indonesia (JSX)	6,049.4	+0.2	+14.2	+13.3
Malaysia (KLSE)	1,744.2	nil	+6.2	+12.6
Pakistan (KSE)	41,259.2	+2.0	-13.7	-14.5
Singapore (STI)	3,421.3	+0.9	+18.8	+26.1
South Korea (KOSPI)	2,552.4	-0.2	+26.0	+36.5
Taiwan (TWI)	10,819.0	+0.1	+16.9	+24.9
Thailand (SET)	1,714.7	nil	+11.1	+20.1
Argentina (MERV)	28,081.6	+0.4	+66.0	+48.8
Brazil (BVSP)	74,363.1	+0.7	+23.5	+22.9
Chile (IGPA)	27,593.5	-1.6	+33.1	+40.3
Colombia (IGBC)	10,727.1	-0.3	+6.1	+4.8
Mexico (IPC)	48,835.7	+1.0	+7.0	+15.2
Venezuela (IBC)	703.5	+1.1	-97.8	na
Egypt (EGX 30)	14,205.0	-0.5	+15.1	+18.4
Israel (TA-125)	1,298.6	-1.4	+1.7	+11.3
Saudi Arabia (Tadawul)	6,936.5	-0.2	-4.2	-4.1
South Africa (JSE AS)	60,078.0	+0.9	+18.6	+15.2

The Economist poll of forecasters, November averages (previous month's, if changed)

	Real GDP, % change				Consumer prices		Current account	
	Low/high range		average		% change		% of GDP	
	2017	2018	2017	2018	2017	2018	2017	2018
Australia	2.2/2.7	2.1/3.2	2.4	2.8	2.0 (2.1)	2.2 (2.3)	-1.3 (-1.5)	-1.8
Brazil	0.4/1.2	1.5/3.1	0.7	2.3 (2.2)	3.4 (3.5)	3.8 (3.9)	-1.0 (-0.8)	-1.4 (-1.7)
Britain	1.4/1.7	0.7/1.7	1.5	1.3	2.7	2.6	-3.8 (-3.6)	-3.2 (-3.1)
Canada	1.9/3.2	1.9/2.6	2.9 (2.8)	2.2	1.6 (1.7)	1.9	-2.9 (-2.6)	-2.4 (-2.3)
China	6.6/6.8	5.8/6.7	6.8	6.4	1.6 (1.7)	2.2	1.4	1.4
France	1.6/1.8	1.6/2.2	1.7	1.8	1.1	1.2	-1.2 (-1.3)	-1.2 (-1.4)
Germany	2.0/2.3	1.6/2.6	2.2 (2.1)	2.0 (1.9)	1.7	1.5	7.1 (8.0)	7.0 (7.7)
India	6.0/7.1	6.7/8.0	6.6 (6.7)	7.3	3.5	4.6 (4.3)	-1.4	-1.7 (-1.6)
Italy	1.3/1.6	0.9/1.7	1.5 (1.4)	1.3 (1.1)	1.3	1.0 (1.1)	2.3 (2.5)	2.0 (2.1)
Japan	1.2/1.8	0.6/2.1	1.5	1.3 (1.2)	0.5	0.8	3.6	3.6 (3.5)
Russia	1.3/2.5	1.3/3.3	1.8	2.0	3.9 (4.0)	3.8 (4.0)	2.4 (2.5)	2.1 (2.0)
Spain	2.9/3.2	2.3/3.0	3.1	2.7	2.0	1.4 (1.3)	1.3 (1.4)	1.4
United States	2.0/2.4	1.9/3.0	2.2	2.4 (2.3)	2.0	2.0	-2.5	-2.4 (-2.5)
Euro area	1.9/2.3	1.6/2.5	2.2 (2.1)	2.0 (1.9)	1.5	1.3 (1.2)	3.1	3.0 (2.9)

Sources: Bank of America, Barclays, BNP Paribas, Citigroup, Commerzbank, Credit Suisse, Decision Economics, Deutsche Bank, EIU, Goldman Sachs, HSBC Securities, ING, Itaú BBA, JPMorgan, Morgan Stanley, RBS, Royal Bank of Canada, Schroders, Scotiabank, Société Générale, Standard Chartered, UBS. For more countries, go to: Economist.com/markets

Other markets

	Index Nov 8th	% change on		
		one week	Dec 30th 2016	
			in local currency	in \$ terms
United States (S&P 500)	2,594.4	+0.6	+15.9	+15.9
United States (NAScomp)	6,789.1	+1.1	+26.1	+26.1
China (SSEB, \$ terms)	349.9	-0.2	+2.4	+2.4
Japan (Topix)	1,817.6	+1.7	+19.7	+22.4
Europe (FTSEurofirst 300)	1,551.8	-0.5	+8.6	+19.7
World, dev'd (MSCI)	2,050.7	+0.5	+17.1	+17.1
Emerging markets (MSCI)	1,134.7	+0.5	+31.6	+31.6
World, all (MSCI)	500.4	+0.5	+18.6	+18.6
World bonds (Citigroup)	936.9	+0.3	+6.0	+6.0
EMBI+ (JPMorgan)	823.1	-1.8	+6.6	+6.6
Hedge funds (HFRX)	1,268.7 [§]	+0.1	+5.4	+5.4
Volatility, US (VIX)	9.8	+10.2	+14.0 (levels)	
CDSs, Eur (iTRAXX) [†]	51.6	+3.8	-28.5	-21.2
CDSs, N Am (CDX) [†]	55.1	+4.7	-18.8	-18.8
Carbon trading (EU ETS) €	7.7	+0.5	+17.2	+29.0

Sources: IHS Markit; Thomson Reuters. [†]Total return index. [‡]Credit-default-swap spreads, basis points. [§]Nov 7th.

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The Economist commodity-price index

2005=100

			% change on	
	Oct 31st	Nov 7th*	one month	one year
Dollar Index				
All Items	147.6	146.6	+0.1	+4.2
Food	150.2	151.5	+1.1	-4.2
Industrials				
All	144.9	141.6	-1.1	+15.6
Nfa [†]	131.3	132.4	+2.8	+3.3
Metals	150.8	145.5	-2.5	+21.2
Sterling Index				
All items	202.2	203.0	+0.7	-1.6
Euro Index				
All items	157.6	157.5	+2.2	-0.5
Gold				
\$ per oz	1,269.5	1,274.5	-1.4	-0.5
West Texas Intermediate				
\$ per barrel	54.4	57.2	+12.3	+27.2

Sources: Bloomberg; CME Group; Cotlook; Darmann & Curl; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Urner Barry; WSJ. ^{*}Provisional [†]Non-food agriculturals.

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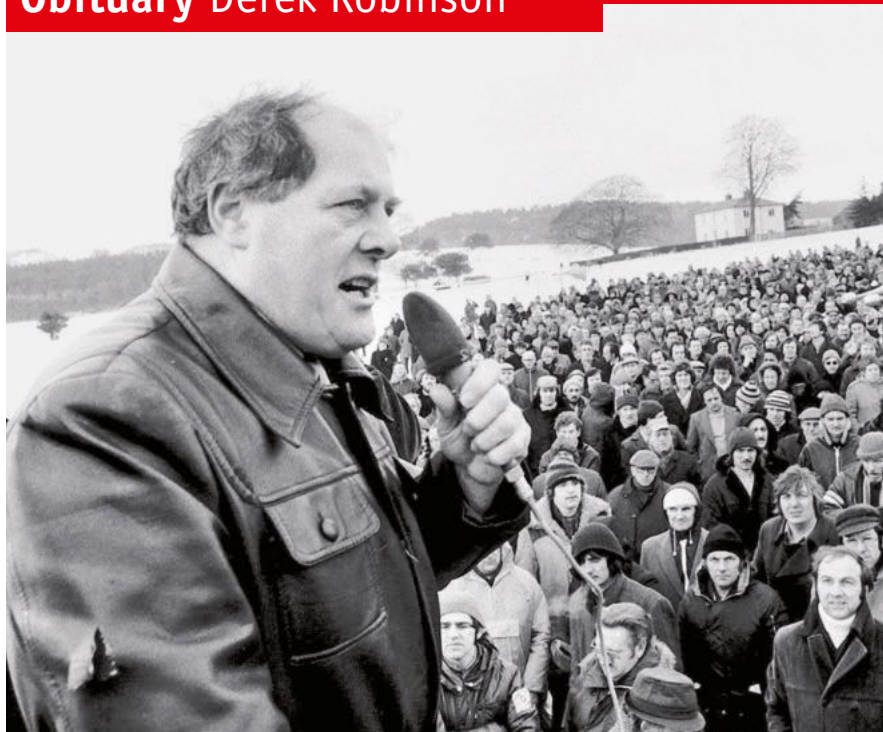


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All out

Derek Robinson, a British trade unionist, died on October 31st, aged 90

BRITAIN's biggest carmaker exemplified the country's misery in the 1970s. British Leyland, state-owned and subsidy-sodden, produced underpowered rust-buckets—when it was working at all. At the heart of the company's misfortunes were the anarchic industrial relations at its biggest plant, Longbridge in Birmingham, stoked by an unofficial union leader who revelled in the nickname “Red Robbo”.

Derek Robinson was indeed as red as red could be, taking a self-study Marxism course as an apprentice toolmaker in his teens, joining the Communist Party in 1951, and standing four times as a parliamentary candidate. After reformers booted him out in 1985 he co-founded a hardline successor party, which still struggles on.

The class-ridden incompetence of British post-war industrial management offered easy pickings for left-wingers. Capitalism looked as inefficient as it was unfair: surely workers knew best who should make what, how and where? Britain's mighty motor industry had an impregnable brand and market share, so the only immediate issue was dividing the spoils.

In that respect, Mr Robinson's fiery socialist rhetoric masked a keen business sense. Workers should sell their labour as profitably as possible, he reckoned: for the best pay, the least effort and with the great-

est security. Success meant hard bargaining à la Trump, ignoring wider considerations and treating all deals as temporary.

The result was chaos: in just two of his years as the grassroots union leader at Longbridge, he was responsible for 523 stoppages. The company was an international joke: “British Lazyland”, the Germans called it, after news emerged of the night shift bringing sleeping-bags to work. The archaic production lines, noisy, dark and dirty, were beset by demarcation disputes. Half a dozen unions zealously guarded their privileges. Woe betide the foreman who got a fitter to change a fuse, or a toolmaker to adjust a nozzle.

The tabloids portrayed him as a wrecked, which he disputed. “We didn't come out on strike just for the sheer fun of it,” he said crossly. Mindless militancy was for Trotskyists, like the ones who reigned at the Cowley plant, near Oxford. While capitalism survived, jobs and wages were the priorities, though he wanted success for the company too. It would be an important political victory on the road to socialism, he argued, to prove that “ordinary working people have got the intelligence and determination to run industry”. After British Leyland's nationalisation in 1975, he briefly backed newfangled worker participation in decision-making: “It would enable us to

look objectively at some of the changes that were required, outside of being in a bargaining position,” he told *Marxism Today*. Workers should control new technology, not vice versa. While decrying his politics, this newspaper praised him as a “responsible co-manager”.

The experiment failed. Union input slowed and blunted hard decisions. Critics said he spent so much time meeting management that he lost touch with his members. Collaboration, he lamented, meant “responsibility without authority”; in future, unions should have an outright veto on management actions. The taxpayer, he argued, would stump up the investment which the capitalists had failed to provide, while import controls kept out pesky foreign competition.

Comrades, come rally

It never happened. Success sowed the seeds of defeat, not revolution. Union militancy turned voters against the Labour government, bringing Margaret Thatcher's Conservatives to power in 1979 on a mandate of curbing strikes and inflation. While Britain dozed and squabbled, foreign competitors had munched market share. The unreliability and obsolescence of British Leyland's vehicles were painfully obvious. A rival even claimed cheekily that its cars were made by “robots not Robbos”.

Mr Robinson's forte was haranguing mass meetings on windswept playing fields, with strike votes taken instantly by an intimidating show of hands. But in 1979 British Leyland's new boss, Michael Edwards, balloted the workers directly (and secretly) on modernisation plans, gaining a seven-to-one majority for drastic job cuts in exchange for investment.

Mr Robinson seethed, but his days were numbered. MI5, Britain's security service, had infiltrated his inner circle, suborning a close associate with fish and chips. Shockingly by today's standards, Mr Edwards was shown its secretly obtained account of a subversive meeting between Communist officials and union activists (though in fact, the D. Robinson attending was Derek's twin brother Dennis, also a Communist). The company demanded that the burly six-footer disown a pamphlet calling for strikes against the modernisation plan. When he refused, it fired him.

Union bosses joyfully sank the issue of his dismissal in a bureaucratic swamp. Humiliatingly, the Longbridge workers—at a mass meeting, no less—refused to strike on his behalf. Freed of its union shackles, the motor industry thrived, though under foreign, mostly Japanese, ownership. Britain now produces excellent cars—and in greater numbers than in Mr Robinson's heyday. Unemployable in industry, he turned to teaching trade-union studies, yearning for the tide to turn once more. ■

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