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Politics



The FBI waded into the **American** presidential election by rebooting its investigation into Hillary Clinton's use of a private e-mail server while secretary of state, four months after exonerating her. The bureau's director, James Comey, faced fierce criticism for being vague about the new probe. The news was the latest "October surprise" to shake up a race between Mrs Clinton and Donald Trump that has tightened in its final days.

Two **police officers** were shot dead while sitting in their cars in Des Moines, Iowa. Local authorities later arrested a 46-year-old man suspected of carrying out the "ambush-style" attacks.

America's longest sporting drought ended when the Chicago Cubs won the World Series. They defeated the Cleveland Indians 8-7 in Game Seven of the Major League Baseball finals, after enduring more than a century without winning a trophy.

Venezuela's leftist government and the opposition began talks mediated by the Vatican. Tensions between the two sides increased after the government blocked a referendum to recall the president, Nicolás Maduro. The negotiations will cover restoring the rule of law, the schedule for elections, human rights and the economic crisis.

Police in **El Salvador** arrested a former president, Elías Antonio Saca, on suspicion of money laundering and embezzlement. Mr Saca governed from

2004 until 2009 as a member of the conservative ARENA party. During his tenure officials put nearly \$250m of public money into private accounts, prosecutors say.

Marcelo Crivella, a Pentecostal bishop, was elected mayor of Rio de Janeiro, **Brazil's** second-most-populous city. He has promised to continue providing public financing for the city's gay-pride parade and samba schools.

Trouble brewing

China's legislature, the National People's Congress (NPC), was reportedly preparing to intervene in a row in **Hong Kong** over whether two legislators who support greater autonomy for the territory should be allowed to take up their posts. The politicians used derogatory language about China when they were sworn in. A court in Hong Kong began hearing a case filed by the local government apparently aimed at blocking them, but the NPC wants to move faster.

A gas explosion at a privately owned **coal mine** in the southwestern region of Chongqing killed 33 workers who were trapped underground. Two miners survived the blast.

China allowed **Philippine** vessels to fish near Scarborough Shoal, a disputed tidal atoll. China's navy had been chasing them away, but seems to have halted after overtures from the Philippines' new president, Rodrigo Duterte.



Prosecutors detained Choi Soon-sil, a **South Korean** woman accused of exploiting her friendship with the president, Park Guen-hye, to raise

money for foundations she controlled and to meddle in government affairs. Ms Park appointed a new prime minister, reshuffled her cabinet and dismissed ten close aides in response to the scandal.

Thai authorities announced that Crown Prince Maha Vajiralongkorn will assume the throne on December 1st, after the death of his father, King Bhumibol, in October. The prince had initially demurred out of respect for the late king.

Seize and desist

Iraqi troops moved into an outlying district of **Mosul**, which Islamic State has held since 2014. But the battle for the city has been running for two weeks, and progress is slow.



Michel Aoun, a Maronite Christian and former warlord, became president of **Lebanon**, ending an impasse that lasted two-and-a-half years.

Syrian rebels launched an offensive to try to break the siege of Aleppo. But an escalation of the bombing there is expected within days as a Russian aircraft-carrier nears the eastern Mediterranean.

South African prosecutors withdrew flimsy charges of fraud that had been brought against the finance minister, Pravin Gordhan. The politically motivated charges were part of a struggle between Mr Gordhan and the president, Jacob Zuma. Separately, an report called for a judicial inquiry into corruption involving Mr Zuma.

Egypt said it will float its pound. The central bank announced a series of reforms designed to help secure a

\$12bn bail-out from the IMF. The currency had been trading well below the official rate on the black market.

The United Nations sacked the Kenyan head of a peacekeeping force in **South Sudan** after finding it had failed to respond to an attack on civilians by South Sudanese forces. Kenya, in turn, said it would withdraw its troops from the force.

The genuine article

The **British** High Court ruled that the government does not have the right to invoke Article 50, the legal mechanism for triggering Brexit, without the approval of Parliament. The pound rose following the news. The verdict is a setback for Theresa May's government, which said it would appeal.

Geert Wilders, leader of the Party for Freedom, a populist **Dutch** group which has been leading in the polls, failed to turn up for the first day of his trial for hate speech. Instead Mr Wilders took to Twitter to espouse more of the anti-Muslim views that had landed him in trouble.

Germany's EU commissioner, Günther Oettinger, apologised after an video showed him mocking Chinese people and decrying gay marriage. Germany's Social Democrats criticised him, but Chancellor Angela Merkel, the leader of Mr Oettinger's Christian Democrat party, stayed mum.

Politicians in **Ukraine** backtracked on a pay rise that would have doubled their earnings, following public outrage after details of their property holdings were published. Some 50,000 officials had been required to declare their assets, which include vintage wine, luxury watches, flashy cars and a church.

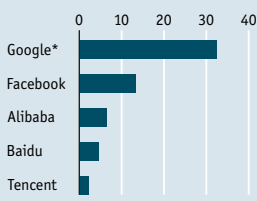
Iceland's centre-right Independence Party came first in the country's general election and was asked to form a coalition. The result was disappointing for the Pirate Party, which won just 14.5% of the vote despite polling at 40% earlier this year. ►►

Business

Mark Carney, said he would continue as the governor of the **Bank of England** until 2019, a year beyond the end of his five-year term. Speculation had mounted that he would quit the role early. Mr Carney has come under pressure from some pro-Brexit MPs, who say that he crossed the bounds of political neutrality before the referendum by warning of the economic repercussions of leaving the European Union. Mr Carney's announcement was welcomed by Theresa May, the prime minister, who said it would bring much-needed stability.

Digital advertising revenues

2016 forecast, % of worldwide total



Facebook announced that its quarterly revenue had increased by 56% compared with the year before. The social-media giant now controls more than 13% of the worldwide digital-ad business, second only to Google. But it has recently been dogged by a succession of controversies, including overstating how much time people spend watching videos on the site, censoring a famous photograph of a naked young napalm victim from the Vietnam war, and revelations that advertisers can choose to exclude certain racial groups from targeted messages.

Three **Japanese shipping firms** are to merge their container divisions. Nippon Yusen, Mitsui O.S.K. Lines and Kawasaki Kisen Kaisha will control around 7% of the world shipping market if the deal goes ahead.

Google must respond next week to antitrust allegations levelled by the European

Commission. The commission has brought three charges: that the technology giant has abused the dominance of its Android operating system; that it has been blocking rivals in online-search advertising; and that it favoured its own shopping-comparison services over competitors'. Google, which could face hefty fines, seems unwilling to settle the case.

Definitely maybe

Japan's central bank pushed back the date it expects to meet its inflation target once again. It said it now expects inflation to hit 2% by March 2019, a year later than it had hoped. A bold monetary-easing policy, introduced in 2013, has proved only a limited success. The Bank of Japan insists it can ease further if necessary.

There were contrasting results for two oil majors. **Royal Dutch Shell** said underlying profits had risen by 18% to \$2.79bn in the third quarter, compared with the same period last year, well ahead of market expectations. **BP**, however, revealed its profits had fallen almost by half to \$933m over the same period. Many energy firms' results have been affected by lacklustre oil prices, which averaged \$47 a barrel during the third quarter.

General Electric is to merge its oil-and-gas business with **Baker Hughes**, a Texas-based firm. The deal could be worth \$30bn if it goes through. A proposed merger of Baker Hughes with Halliburton, its main rival in oilfield services, was thwarted by regulators in May.

Separations

Three senior executives at **Tata Group** resigned, deepening the turmoil at India's largest conglomerate. The departures follow the sacking of the group's chairman, Cyrus Mistry, who was fiercely critical of the decision by Ratan Tata to remove him.

Canada and the European Union finally signed the **Comprehensive Economic and Trade Agreement**, which removes almost all tariffs on trade between the pair. The deal had been vetoed by the Belgian region of Wallonia. It dropped its opposition after being given assurances on labour and environmental standards.

America's central bank kept short-term interest rates unchanged, but implied that a rise in December is now likely. The Fed is keen to tighten policy rather than risk over-

shooting its 2% inflation target. The announcement followed news that America's economy grew strongly in the third quarter: GDP increased by 2.9% compared with a year earlier.

Standard Chartered and **UBS** revealed that they are being investigated by regulators in Hong Kong. Reports suggest that there are concerns about their role in the 2009 flotation of China Forestry Holdings, which was co-sponsored by the banks.

Pills 'n' thrills and bellyaches

Reports suggested that **Valeant**, a Canadian drugs firm, was close to selling its **Salix** division to **Takeda**, a Japanese rival. Salix specialises in gastro-intestinal drugs. It is thought that any deal might be worth around \$10bn. Valeant could use the money: it has debts of some \$30bn.

Gannett, publisher of *USA Today*, abandoned its pursuit of **Tronc**, owner of the *Los Angeles Times* and the *Chicago Tribune*. The two firms had agreed on a purchase price, but the deal fell apart after Gannett's uninspiring quarterly earnings last week.

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





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America's best hope

Why we would cast our hypothetical vote for Hillary Clinton



A QUARTER of Americans born since 1980 believe that democracy is a bad form of government, many more than did so 20 years ago. If the two main parties had set about designing a contest to feed the doubts of young voters, they could not have done better than this year's presidential campaign. The vote, on November 8th, is now in sight, yet many Americans would willingly undergo the exercise all over again—with two new candidates. Of course that is not on offer: the next president will be either Donald Trump or Hillary Clinton.

X marks the spot

The choice is not hard. The campaign has provided daily evidence that Mr Trump would be a terrible president. He has exploited America's simmering racial tensions (see page 32). His experience, temperament and character make him horribly unsuited to being the head of state of the nation that the rest of the democratic world looks to for leadership, the commander-in-chief of the world's most powerful armed forces and the person who controls America's nuclear deterrent.

That alone would stop us from casting a vote, if we had one, for Mr Trump. As it happens, he has a set of policies to go with his personality. A Trump government would cut taxes for the richest while imposing trade protection that would raise prices for the poorest. We disagree with him on the environment, immigration, America's role in the world and other things besides. His ideas on revenue and spending are an affront to statisticians. We would sooner have endorsed Richard Nixon—even had we known how he would later come to grief.

Our vote, then, goes to Hillary Clinton. Those who reject her simply because she is a Clinton, and because they detest the Clinton machine, are not paying attention to the turpitude of the alternative. Although, by itself, that is not much of an endorsement, we go further. Mrs Clinton is a better candidate than she seems and better suited to cope with the awful, broken state of Washington politics than her critics will admit. She also deserves to prevail on her own merits.

Like Mr Trump, Mrs Clinton has ideas we disagree with. Her tax plan is fiddly. Her opposition to the trade deal with Asia that she once championed is disheartening. The scale of these defects, though, is measured in tiny increments compared with what Mr Trump proposes. On plenty of other questions her policies are those of the pragmatic centre of the Democratic Party. She wants to lock up fewer non-violent offenders, expand the provision of early education and introduce paid parental leave. She wants to continue Barack Obama's efforts to slow global warming. In Britain her ideological home would be the mainstream of the Conservative Party; in Germany she would be a Christian Democrat.

In one sense Mrs Clinton is revolutionary. She would be America's first female president in the 240 years since independence. This is not a clinching reason to vote for her. But it would be a genuine achievement. In every other sense, how-

ever, Mrs Clinton is a self-confessed incrementalist. She believes in the power of small changes compounded over time to bring about larger ones. An inability to sound as if she is offering an overnight transformation is one of the things that makes her a bad campaigner. Presidential nominees are now expected to inspire. Mrs Clinton would have been better-suited to the first half-century of presidential campaigns, when the candidates did not even give public speeches.

However, a prosaic style combined with gradualism and hard work could make for a more successful presidency than her critics allow. In foreign policy, where the president's power is greatest, Mrs Clinton would look out from the *Resolute* desk at a world that has inherited some of the risks of the cold war but not its stability. China's rise and Russia's decline call for both flexibility and toughness. International institutions, such as the UN, are weak; terrorism is transnational.

So judgment and experience are essential and, despite Republican attempts to tarnish her over an attack in Benghazi in 2012, Mrs Clinton possesses both. As a senator she did solid work on the armed-services committee; as secretary of state she pursued the president's policies abroad ably. Her view of America has much in common with Mr Obama's. She rightly argued for involvement early on in Syria. She has a more straightforward view of America's capacity to do good; her former boss is more alert to the dangers of good intentions. The difference is of degree, though. Mrs Clinton helped lay the foundations for ending the embargo on Cuba, striking a nuclear deal with Iran and reaching agreement with China on global warming. A Clinton presidency would build on this.

Keep America great

The harder question is how Mrs Clinton would govern at home. It is surely no coincidence that voters whose political consciousness dawned in the years between the attempted impeachment of Bill Clinton and the tawdriness of Mr Trump have such a low opinion of their political system. Over the past two decades political deadlock and mud-slinging have become normalised. Recent sessions of Congress have shut the government down, flirted with a sovereign default and enacted little substantive legislation. Even those conservatives inclined to mistake inaction for limited government are fed up.

The best that can be said of Mr Trump is that his candidacy is a symptom of the popular desire for a political revival. Every outrage and every broken taboo is taken as evidence that he would break the system in order that, overseen by a properly conservative Supreme Court, those who come after him might put something better in its place.

This presidential election matters more than most because of the sheer recklessness of that scheme. It draws upon the belief that the complexity of Washington is smoke and mirrors designed to bamboozle the ordinary citizen; and that the more you know, the less you can be trusted. To hope that any good can come from Mr Trump's wrecking job reflects a narcissistic belief that compromise in politics is a dirty word and a foolhardy confidence that, after a spell of chaos and demolition, you can magically unite the nation and fix what is wrong. ►►

▶ If she wins, Mrs Clinton will take on the burden of refuting the would-be wreckers. In one way she is the wrong candidate for the job. The wife of a former president, who first moved into the White House almost 24 years ago, is an unlikely herald for renewal. In her long career she has at times occupied a no-man's-land between worthy and unworthy, legal and illegal. That is why stories about the Clinton Foundation and her e-mails, which the FBI is looking at again, have been so damaging. They may barely register on the Trump-o-Meter of indiscretions but, in office, Mrs Clinton's reputation for rule-breaking could destroy her.

In another way, she is well-suited to the task. Herding bills through Congress to the point of signing requires a tolerance for patient negotiating and a command of sleep-inducing detail. Though it has been hard to hear above the demand to "lock her up", Mrs Clinton has campaigned for an open, optimistic country. She can take heart from the fact that, outside

Washington, there is more bipartisanship and problem-solving than most Americans realise, and from the fact that popular pessimism has far overshoot reality. Around 80% of Trump supporters say that, for people like them, America is worse than it was 50 years ago. That is false: half a century ago 6m households lacked a flushing lavatory. It is also a most un-American way to see the world. The time is ripe for a rebound.

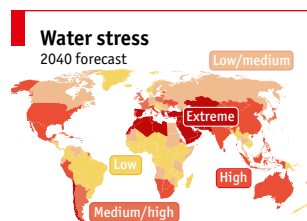
In elections we have sometimes hoped for Congress and the presidency to be controlled by different parties. Some who cannot bring themselves to vote for Mr Trump but do not care for Mrs Clinton either will opt for that choice. Yet the loss of Congress would increase the chances of a Republican Party reform-orientation that both the party and the United States need.

Hence our vote goes to both Mrs Clinton and her party. Partly because she is not Mr Trump, but also in the hope she can show that ordinary politics works for ordinary people—the sort of renewal that American democracy requires. ■

Water

The dry facts

Water is scarce because it is badly managed



“THOUSANDS have lived without love; not one without water,” observed W.H. Auden. He omitted to add that, as with love, many people have a strong moral aversion to paying for the life-sustaining liquid. Some feel that water is a right,

and should therefore be free. Others lobby governments to subsidise its distribution to favoured groups. All this results in vast and preventable waste.

Water covers two-thirds of the Earth's surface. It is not used up when consumed: it just keeps circulating. So why do researchers from MIT predict that by the middle of the century, more than half of humanity will live in water-stressed areas, where people are extracting unsustainable amounts from available freshwater sources?

One reason is that as the world's population grows larger and richer, it uses more water. Another is climate change, which accelerates hydrologic cycles, making wet places wetter and dry places drier. The World Resources Institute, a think-tank, ranked 167 countries, and found that 33 face extremely high water stress by 2040 (see map). But a lot of the problem stems from lousy water management, and that is something the officials who meet in dusty Marrakesh this week for the next round of annual UN climate talks should ponder. A crucial part of adapting to a warmer world is to work out how to allocate water more efficiently (see page 19).

Each person needs to drink only a few litres a day, but it takes hundreds of litres to grow food—and thousands to put a joint of beef or pork on the table. Farming accounts for 70% of water withdrawals and industry accounts for most of the rest. Because farmers and factory bosses are politically powerful, they typically pay far too little for their water. Some pay for the operational costs of supplying it, but not the infrastructure that enabled it to flow from the tap. Many pay nothing to raid underground aquifers—India pumps two-thirds of its irrigation-

water this way. When something is too cheap, people squander it. Chinese industry uses ten times more water per unit of production than the average in rich countries, for example. Farmers in parched places like California grow thirsty cash crops such as avocados, which could easily be imported from somewhere wetter.

The key to managing water better is to price it properly, giving consumers a reason not to waste it and investors an incentive to build infrastructure to supply it. Vast sums are needed: over \$26trn between 2010 and 2030, by one estimate. Before water can be properly priced, however, it needs to be clear who owns it (or, more precisely, who has the right to extract how much from rivers, aquifers and so on). Australia has led the way in creating such a system of tradable water rights.

Current accounts

The aim is to ensure that water winds its way to those who can make the best use of it. Calculating how much is being used, and how much actually ought to be used, is essential. In Australia old rights (typically belonging to landowners) were replaced with shares in perpetuity that grant holders a proportion of any annual allocations. This means that the only way one person can have more of the liquid is if another person has less. Two markets have emerged: one in which seasonal allocations of available water can be traded, and another in which shares themselves can be.

For the system to work, extra care should be taken to ensure that tradable water rights are allocated in a fair and open way. The “blockchain”, a cryptographic technology that allows strangers to make fiddle-proof records of who owns what, could help.

Getting water policy right will not only encourage everyday conservation; it will also stimulate the development of technologies such as artificial meat (which uses far less water than the real stuff) and cheaper desalination. The alternative is to prove Mark Twain right when he said: “Whiskey is for drinking; water is for fighting over.” ■

Lebanon

Time to talk Taif

Lebanon's political system is creaking, and needs reform



GOOD news is in short supply in the war-torn, economically stagnant Arab world. So even small doses of it are worth celebrating. This week Lebanon at last got a new president, after two-and-a-half years when the job was vacant. He is, admittedly, 81 years old and a former Christian general-cum-warlord, but Michel Aoun (pictured) has made himself acceptable to the country's three main groups: Christians, Shias and Sunnis. No other candidate managed that.

The average Lebanese citizen may not notice much difference, though. Rubbish is likely to remain uncollected, and the electricity supply sporadic. For one thing, the president is not responsible for day-to-day administration. More important, the ridiculously long time it took to find a president is a symptom of a systemic flaw in Lebanese politics. The Taif agreement, struck in 1989 to end 15 years of civil war, has ossified a constitutional settlement that is manifestly unfair to Lebanon's Muslims.

Taif was based on the fiction that Christians, once a majority, still made up half the population of Lebanon. Accordingly, it reserved half the seats in parliament for them. (An agreement in 1943 had reserved the post of president for a Maronite Catholic as well, with the job of prime minister going to a Sunni and the post of parliamentary Speaker to a Shia.) There were two reasons. First, since its creation in the 1920s Lebanon had been intended as a haven for Christians in a predominantly Muslim region. Second, over-representation was the price of peace, to buy Christians' acceptance of their defeat in war.

Although the demographic numbers were deliberately left vague (there has been no census since 1932), all knew the parliamentary allocation was unfair. *The Economist* has now been

able to analyse voter-registration lists—briefly posted online earlier this year and then taken down again—to show conclusively that this is the case (see page 41). Only 37% of Lebanese voters are Christian today, because of emigration and lower birth rates (and they are probably an even smaller share of the total population). Shias are 29%; Sunnis, 28%. Yet the Christians get 64 of parliament's 128 seats, whereas the Sunnis and Shias get only 27 each, with the remainder going to the Druze and Alawites. And this takes no account of the other glaring flaw: almost half a million Palestinians, most of them Sunnis, who have arrived in Lebanon since 1948 cannot vote at all. (Never mind the million or so mostly Sunni refugees from Syria.)

Think again

Ought these data to prompt a rethinking of the Taif agreement? It was never meant to be permanent: the stated aim was for non-sectarian elections to take place in the future. The time has never seemed right; it is tempting to say that now is not right either, given the chaos in the region. For all that it is dysfunctional, Lebanon has limped along thanks to the pragmatism of its sects. The impasse over the presidency was ended by a deal between Hezbollah (the main Shia party), Saad Hariri (a Sunni politician expected to become prime minister) and Mr Aoun's Christian faction. The share-out may suggest the Shias are hard done by; in fact, Hezbollah remains the country's strongest political and military force, backed by Syria and Iran.

Lebanon needs a more normal sort of politics. That requires a more normal sort of state: not just one with a fairer parliamentary balance, but also one based less on the sharing of spoils by sects, and one that has a monopoly of force. Will Hezbollah give up its guns? That will depend on how it fares in the war in Syria. For the moment, Lebanon has shown that sectarian wars can end, and that power can be shared, somehow. That is a precious lesson for the Arab world. ■

Taxation in India

Take it easy

India risks squandering the benefits of a ground-breaking economic reform



NOTHING in India is ever simple. It is too vast, too diverse, too argumentative and too democratic for any of its problems to lend themselves to easy answers. So an idea as revolutionary in its simplicity as a single, nationwide goods-and-services tax (GST) was never likely to go smoothly. Even so, it is disappointing that negotiations under way this week seem likely to result in a tax so complicated and multi-tiered that many of the benefits it offers will be bickered away before it is launched (page 64). One of its architects has lamented that, on

present plans, it will reap only one-quarter of the extra economic growth that it could have stimulated.

Introducing a nationwide tax to subsume India's bewildering profusion of central, state and lower-level indirect taxes has been a decades-long effort. Passage of the legislation in August was seen as a triumph for Narendra Modi, the prime minister, and the biggest proof of his reformist credentials. The tax's precise mechanics are being determined by a new body, the GST Council, combining the federal government and representatives of India's 29 states. The hope is to reach agreement in time for the beginning of the next fiscal year in April 2017.

Advocates see three great benefits from the tax: the creation of a single market, greater efficiency and a shift of activity into ►

▶ the formal economy. India has been engaged in a long, slow transformation from a federation of states with their own tax systems and border controls into a single national market. This year a government study found that the average Indian lorry spends 16% of its time waiting at checkpoints. The GST should remove one of the biggest causes of delay—the levying of local sales taxes. It will also do away with the distortions caused by the same products being taxed at different rates in different states.

This significant economic boost is not yet in danger. But current plans forgo the second benefit, the tax's efficiency-enhancing potential, by having a complex set of rates for different goods—perhaps seven or more, ranging from 4% to 26%. This will distort the economy by nudging producers towards goods subject to the lowest tax rates.

Many countries, including rich ones, charge different levels of sales tax on different products. Those such as India, with many poor people, are right to exclude food and basic consumer goods from the tax regime altogether (about half the basket of goods covered by the consumer-price index will be GST-exempt). Punitive “sin” taxes on, say, tobacco also have a place. But administering complexity of the level that India is contem-

plating will be a nightmare—and expensive, too. Because the rates will probably be set high, the tax will also foster evasion. That will threaten the GST's third big advantage, of bringing business into the formal economy. And the high differentials will spawn “classification” disputes, like the one that reached the Supreme Court in 2006 on whether a hair-oil should be exempt from sales tax because, as coconut-oil, it was edible.

Aiming too high

The complexity stems from the fear that the shift from the present labyrinthine system would cost too much in lost tax revenue. The central government has promised to reimburse the states for the revenue lost from local sales taxes. The direct-tax base is narrow: of India's 1.3bn people, only some 4% pay direct taxes. So the central government's bias is to set indirect-tax rates high lest it miss its fiscal targets, and this urge is leading to the possible miasma. Better to introduce the GST in a less compromised form, even if that means a temporary widening of the budget deficit. And better to fix the deficit through the higher sales-tax receipts that enhanced growth would bring—and through finding ways of making more well-off Indians pay their dues. ■

Britain's House of Lords

Time to ennoble Nigel

The UK Independence Party should not be barred from the upper house of Parliament



SPORTING Union Jack socks and Spitfire cufflinks, Nigel Farage was the unofficial standard-bearer of the campaign for Britain to leave the European Union. With the referendum won, he announced that he would step down as head of the scrappy UK Independence Party, which he has led on and off for ten years. The main candidates to succeed him later this month agree on one thing: for his role in liberating Britain from Europe, Mr Farage should be elevated to the House of Lords.

The thought of the arch Brexit rabble-rouser donning an ermine robe has invited horror and ridicule. UKIP, which David Cameron branded a bunch of “fruitcakes, loonies and closet racists”, has never been allowed to nominate a peer to the upper house of Parliament (though it has three ex-Tory defectors there). It is far more reactionary than any other party represented in the Lords. Mr Farage is a cheerleader for Donald Trump; the front-runner to succeed him as party leader wants referendums on the death penalty and abortion.

Good Lord

Too bad. This newspaper is no fan of UKIP, but nor can it abide the antidemocratic stitch-up by which lords are currently appointed. Even before its regrettable triumph in the Brexit referendum, UKIP was the third-biggest party in Britain by general-election vote share. That it must still beg to nominate a single member of the bloated, 812-member upper house is a scandal. Mr Farage should be ennobled at once, along with a few of his colleagues, peerless fools though they may be.

Aside from 26 bishops of the Church of England, who get an

automatic place, Lords are appointed at the discretion of the prime minister. Prime ministers normally claim to make their appointments reflect either the popular vote or the make-up of the elected House of Commons, both of which tend to let them nominate more from their own side. Yet neither approach justifies overlooking UKIP. By vote-share, UKIP has for more than a decade trumped various smaller parties that are represented in the Lords; last year it eclipsed even the Liberal Democrats, who have 104 peers. Governments sometimes argued that UKIP could be ignored because of its failure to win any seats in the Commons, something those smaller parties had all managed. (This argument also justified not giving peerages to the far-right British National Party.) But in 2014 UKIP won its first Commons seats. The injustice now is glaring.

Brexit makes it more so. Without the rise of UKIP Mr Cameron would probably never have called his panicky referendum, let alone lost it. Mr Farage is thus an accidental colossus of British politics, a far more significant figure than most recent nominees to the Lords. And although his blokeish persona masks nasty views—see, for instance, his warnings about HIV-positive immigrants—he is not morally unfit to join a body whose current membership includes several convicted criminals. (Any concerns can always be passed to the Lords' ethics committee, whose chairman last year stepped down after being filmed snorting white powder from the breasts of prostitutes.)

Liberals who despair at the thought of Mr Farage enjoying a second act in public life may yet find that he makes a better peer than they expect. He has spent 17 years as an MEP highlighting the absurdities of undemocratic governmental bodies in Brussels, to the point where the public decided they had had enough of them. Were he elevated to the upper house, Lord Farage would not be short of new, better targets. ■

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Jordan's election

I found some of the erroneous representation of the facts supporting your article on Jordan to be worrying ("The uneasy crown", October 22nd). Your claim that voter turnout in the 2016 election "slumped to a dismal 37%" from 56% at the election in 2013 is misleading. In 2013, the election law stipulated that voters had to pre-register to vote. Official figures correctly reported voter turnout at 56% of registered voters. At the time, you wrote that "Some pollsters argue that, out of an adult population of 3.7m, only 35% voted, once soldiers, expatriates and those who refused to register are excluded, not the 56% the government claimed" ("Calm down", February 23rd 2013). The government never took issue with the 35% figure as a percentage of eligible voters. Both figures are correct depending on which baseline you use.

In order to encourage participation, the 2016 election law eliminated the registration requirement so that any eligible voter could cast a vote, even at the last minute. Using your own figures, voter participation in 2016 was 37% of eligible voters, up from 35% in 2013. This contradicts your assertion that massive voter apathy resulted in a "dismal" drop in turnout. Moreover, a large percentage of Jordanians live abroad and the country has an overwhelmingly young population, both factors which typically have a dampening effect on voter participation.

You also claim that "crime is climbing" in Jordan. Government statistics say otherwise; that the crime rate has declined by more than 16% over the past two years. Not that crime, serious as it is, was ever a major challenge in Jordan compared with many countries. Surely *The Economist* should not support such absolutist claims by pointing to individual crime cases, however horrendous they may be.

My country has weathered the international financial crisis, the spillover effects of the Arab spring and the ongoing

crises in the region. Jordan hosts the largest number of registered refugees in the world (per head) and not just from Syria. Given the turmoil in the region, it should come as no surprise to anyone that all Jordanians are feeling "uneasy", the crown included. With our limited resources and challenged economy, we are dealing with the humanitarian spillover of these crises on behalf of the international community as part of our shared global responsibility, while also being proactive in trying to resolve the region's many conflicts.

Our elections were conducted smoothly, professionally (as reported by international observers), were transparent and represent a triumph of progress over regression and a triumph for Jordan. Are we a mature democracy? We are not there yet, but determined to get there, and we will.

NASSER JUDEH
Deputy prime minister
Minister of Foreign Affairs & Expatriates
Amman, Jordan

The royal prerogative

"Parliament rules, not OK?" (October 15th) missed the point about democracy and parliamentary sovereignty. Parliament has not been ignored over Brexit. It was consulted about leaving the European Union before the referendum when MPs voted unanimously for the 2015 Referendum Act, which handed the democratic mandate to the people to vote yes or no.

Whether or not the government uses the royal prerogative to trigger Article 50 to start negotiations to leave the EU, it is simply carrying out the will of Parliament and of the people. Unfortunately, the use of the royal prerogative muddies the democratic waters. Usually it can be used to carry out certain acts (for example, withdrawing from treaties) without consulting Parliament or the people. Unusually in this case, the government wants to use it having consulted Parliament and the people.

If we want to abolish or

reform the royal prerogative we need to change our constitution. This is a separate matter and it should be done by democratic means, that is, another referendum or act of Parliament. And not, as is currently happening, reform by judicial review.

TESSA MAYES
Documentary film director
London

Asterix would Leave

"Asterix in Belgium" bemoaned the ability of the parliament in Wallonia to block a free-trade deal between the European Union and Canada (October 22nd). The wonder is that with situations such as this, those who voted to remain in the EU in Britain's referendum still cannot fathom why those who voted Leave did so in order to unshackle themselves from the EU corpse.

ROGER LEWIS
Toronto

Talking about the British government's strategy to exit the EU, Luxembourg's prime minister recently observed that: "Before they were in, they wanted many opt-outs. Now they want to be out, with many opt-ins." The British Election Study found many Leave votes were registering a protest vote ("After Brexit, Bregret", October 15th).

Many now believe free movement of people may be a price worth paying for staying in. With regards to U-turns, Theresa May should ignore Margaret Thatcher and recall John Maynard Keynes: "When somebody persuades me I am wrong, I change my mind."

REV JOHN CAMERON
St Andrews, Fife

Taking Spain into NATO

You claimed that "if any political party can claim to have invented modern Spain, it is the Socialists" ("The battle for a party's soul", October 8th). The problem is that you wrongly credited the Socialists for doing something that other people did. It was not the Socialist Felipe González who took Spain into NATO in 1982. It was my father, Leopoldo Calvo-Sotelo, who was Spain's prime minister at the time and a member of the centrist UCD.

The UCD party was also responsible for managing Spain's transition to democracy. In fact, the Socialists voted against joining NATO in 1982, only to change their mind four years later, in what became one of Mr González's most notable about-turns.

JOSÉ MARÍA CALVO-SOTELO
London

Funding infrastructure

"In the past, federal funds have flowed easily to boondoggles because politics...has directed the flow of money" ("A view from the bridge", October 22nd). How true. The prime exhibit is New Orleans. In October 2001, *Scientific American* published a long report on what was likely to happen if a hurricane struck America's Gulf coast. The response was almost immediate; some \$20 billion of federal funding came flowing from Washington. But between DC and New Orleans, the stream was diverted into housing schemes and unnecessary roadworks. In 2005, Hurricane Katrina arrived, and every one of *Scientific American's* predictions came true. The resulting damage is estimated at between \$96bn and \$125bn.

PROFESSOR PHILIP LLOYD
Cape Peninsula University of Technology
Bellville, South Africa

Dealing with depression

The new discoveries for treating depression are fascinating ("Sniffing at a new solution", October 15th). The World Health Organisation considers ►►

► depression to be the leading cause of disability worldwide. It is surprising that intravenous ketamine infusions are still not formally recommended by psychiatric associations, despite 14 years of research that repeatedly demonstrate their effectiveness in treating resistant depression.

As you say, off-label use is common in medical practice. Ketamine has a long safety record in anaesthesiology and emergency care. Abuse is unlikely with supervised intravenous application. It also remains unclear why psychoactive effects of the drug are considered a drawback rather than a possible part of the mechanism of action.

Patent protection has long expired, making ketamine unattractive for drug firms, but it is a rare opportunity for health-care providers and public-health systems to offer a new treatment at reasonable costs and with huge potential benefits.

NIELS MADERLECHNER
Anaesthesiologist
Berlin

Valuing private equity

Too often your briefing on private equity reduced the industry's strategies to financial engineering ("The barbarian establishment", October 22nd). The value that private-equity firms brings to their investments extends far beyond the addition of debt. Moreover, leveraged buy-outs, or LBOs, have steadily decreased as a share of private-equity deals over the past decade. Even among LBOs, debt levels have lessened significantly since the days of the RJR Nabisco deal in the 1980s, which featured prominently in your piece. The industry has shifted to growth strategies, with a particular focus on the middle market.

The article also claimed that private equity benefits from the "perverse aspects" of the capital-gains treatment of carried interest and interest deductibility. These have been part of our tax code for decades, well before they became political sound bites.

They exist because they properly incentivise entrepreneurial risk and help to drive improvements in companies across all industries. Removing them would undoubtedly curtail investments and hurt employment as well.

Even taking fees into account, private equity's long-term investment strategies routinely beat market returns, including the S&P 500. In fact, it is the top-performing asset class for American public-pension funds, beating stocks, bonds and other investments over the long term.

MIKE SOMMERS
President
American Investment Council
Washington, DC

You underplayed private-equity's *raison d'être* as an active owner, which is in stark contrast to taking passive shareholdings in companies. You argued that public markets are inclusive and deep. But they do disregard the large swathes of small- and medium-sized companies in need of equity investments to whom public markets are off-limits. Private equity has been at the vanguard of a movement towards increasingly varied and efficient capital allocation, which now includes direct investments from institutional investors, co-investments and search funds.

JOACHIM SATCHWELL
Copenhagen

Private-equity funds were once more accurately called leveraged buy-out funds, or sometimes management buy-out funds. At some stage in the 1990s, the more genteel term "private equity" was hijacked, leaving minority investing in growing companies to some tongue-twister such as "later-stage venture capital". But now we read that "venture-capital companies ... are effectively just private equity for fledglings". Truly, ambition scorns the steps by which he did ascend.

Interestingly, some practices of private equity, especially the use of a target company's assets as security for an acquisition, were until quite recently

unlawful in several countries, including Britain and Canada. They were once considered to be exploitative and destabilising, but an earlier deregulation did away with the restrictions.

RICHARD RUTHERFORD
Former chief investment officer
at the International Finance
Corporation
Washington, DC

Venture capital and private equity are fundamentally different beasts. Private-equity managers take boring, cash-generating businesses, load them up with debt (hence gaining the risk-profile they are seeking, and thus the potential returns) and use that funding to expand the businesses until they are ready to exit.

Venture capital's risk/return profile derives from the inherently risky nature of the businesses themselves, usually because of their early stage. More King Arthur than Genghis Khan?

SIMON GOLDMAN
Investment manager
Albion Ventures
London

Tchaikovsky was gay, too

As you say in your review of a book on Van Cliburn, an American pianist, the award of the first prize of the International Tchaikovsky Competition to an American back in 1958 was probably a conscious decision by the Soviet leader, Nikita Khrushchev, to thaw the cold-war ice cap of those days ("Piano man", October 15th). But, the important point is not whether Cliburn deserved the prize. According to all indications, he was definitely the best among the competitors, even if the jury had to seek the approval of Khrushchev before announcing its decision.

The great irony is that while Cliburn, a gay man, went on to become a close friend of Russia in the following five decades, his runner-up, Naum Shtarkman, spent eight years in Soviet jails for being a homosexual. The contrast could not have been more compelling.

THANOS CATSAMBAS
Potomac, Maryland

The public purse

The Economist's study of Elon Musk's finances was good, but omitted a key element of his success: government subsidies ("Countdown", October 22nd). Mr Musk may be a clever entrepreneur and shrewd financier, but he is also a crony capitalist. Tesla's electric cars are wonderful machines, but the buyer of each one gets a \$7,500 tax credit, a gift from all other taxpayers. Tesla's new megafactory for batteries has received subsidies from the government of Nevada, where the factory is based.

SolarCity, another enterprise of Mr Musk's, reaps tax credits at the federal and state level. SolarCity is generally paid at retail rates for the power it generates, rather than wholesale (the cost of generation), meaning that it receives a subsidy from all other power-company customers.

SpaceX, his third company, does big business with the federal government, including more than \$5bn in air force and NASA contracts.

The Economist is a champion of free-market capitalism. Elon Musk is not one of its practitioners.

ROBERT ARIAS
Crownsville, Maryland

Mr Musk may have inspired the portrayal of Tony Stark in the film version of "Iron Man", but he is a poor shadow of that character ("Float like a butterfly", October 22nd). Tony Stark is a fictional engineering genius who has innovated computer programming (Jarvis), mechanical engineering (Iron Man), as well as energy production (the fusion reactor that he exploded in the first "Iron Man" film).

Mr Musk probably couldn't change a flat tyre on one of his Tesla vehicles.

W.J. TATE IV
Ewing, New Jersey

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The creation of the Office for Students (OfS) through the Higher Education and Research Bill represents one of the most significant reforms to the regulation and oversight of higher education in England. The OfS will have responsibility for operating a new regulatory framework that puts the interests of students at the heart of the system, with a strong focus on promoting choice and competition in the provision of higher education. The role of the OfS is set out in more detail in the Government's White Paper, 'Success as a Knowledge Economy'.

The Secretary of State is seeking to appoint a Chair who can provide strong leadership and insight to the OfS. Working with the Board and Ministers, the Chair will provide strategic direction, support and challenge to the CEO and the executive team.

This pivotal role as the first Chair of the OfS offers the opportunity to make a real and tangible contribution to the Government's wider commitment to raising standards in education and improving social mobility. Candidates will have held senior public or private sector positions and possibly some non-executive roles. Educational and/or regulatory experience is desirable.

For further details and to apply, please visit the Centre for Public Appointments website via <https://publicappointments.cabinetoffice.gov.uk>.

Closing date is 11:59pm Thursday 24 November 2016.



UNESCO-IHE Institute for Water Education

UNESCO-IHE Institute for Water Education offers graduate education in Delft, The Netherlands, and carries out research and capacity development projects all over the world. To strengthen the global role of the Institute, UNESCO-IHE is looking for a:

RECTOR (m/f) – 1.0 FTE

The Rector upholds and strengthens the global role of the Institute by providing vision and leadership in anticipating and responding to global developments, changing societal demands and new technological and political opportunities. For a full overview of the role and responsibilities please refer to our website:

www.unesco-ihe.org/working-unesco-ihe.

United Nations Development Programme Country Office for Afghanistan

Local Governance (LoGo) – Chief Technical Advisor

Type of contract: Fixed Term- International – Level A4

Duration of Contract: One Year (renewable)

Positions: One

Closing date: 18th November 2016



Local Governance Project-Afghanistan (LoGo) is a new project that builds upon the lessons from UNDP's support to local governance in Afghanistan over the last several years. Working through the Independent Directorate of Local Governance (IDLG) at central level and in a selected number of provinces and municipalities, UNDP with this project aims at improving service delivery by enhancing the accountability and transparency of the local governments to the women and men of Afghanistan. It will build the capacity of local governments to plan, budget and monitor service delivery effectively with the aim of reducing poverty, stimulating economic growth and increasing the legitimacy of the government and the trust between the state and society. The project will work with Provincial Governments and Assemblies, municipal authorities, and civil society at local level, as well as the central IDLG.

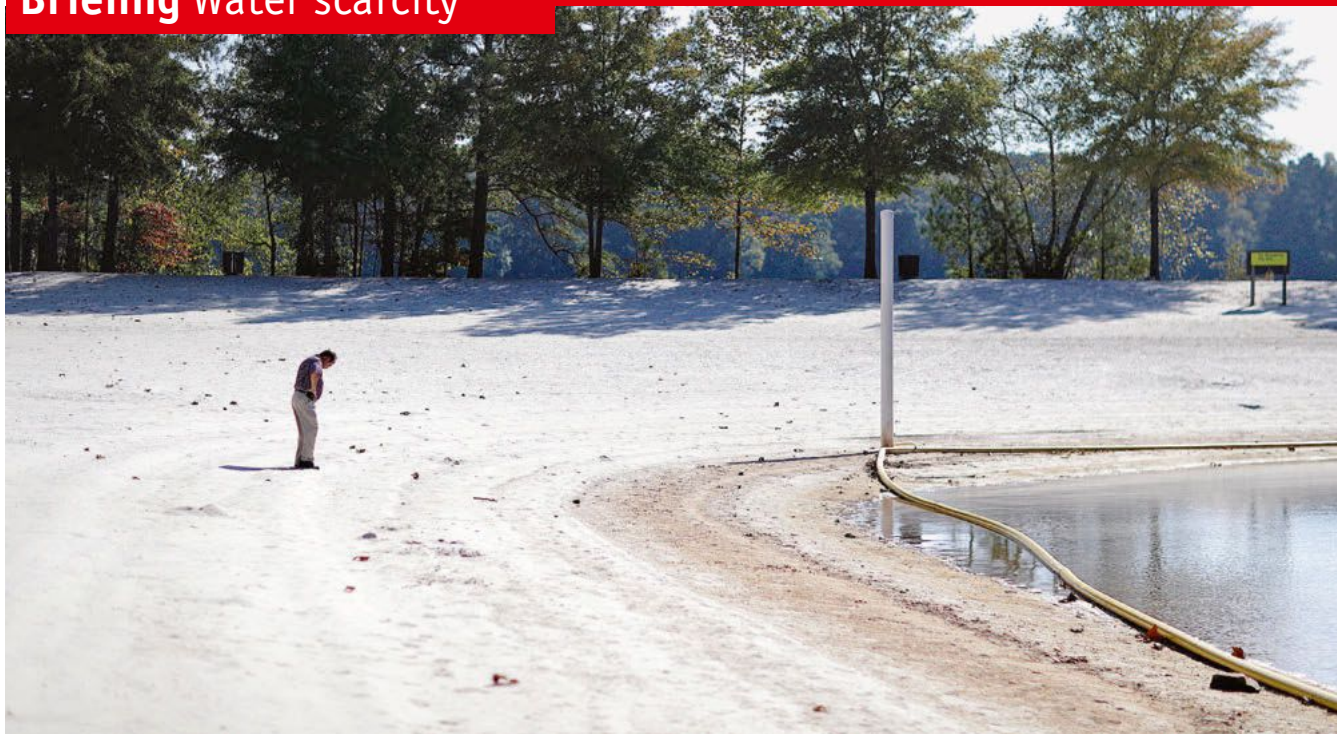
The duties of the Chief Technical Advisor (CTA) will be to:

- Provide policy support and policy advisory services
- Provide guidance to the Project, project partners and UNDP
- Provide technical advice for project quality management
- Facilitate building and management of knowledge in Project's area of work

Education: Master's in Project's area of work (Public policy and administration, local governance, Development Studies, or other relevant discipline)

Experience: Minimum of 10 years of progressive experience in the project's area of work (local governance, public policy development) of which 5 years of successful experience as advisor providing advice senior levels in Governments or international organizations in the field of Project; Experience in advisory provision in post-conflict environments; Demonstrated experience in capacity building and implementation of reforms and organizational change; Strong political acumen and good verbal and written communication skills; Demonstrated experience in working in multi-cultural teams; Good computer skills - MS office applications

Application: The Vacancy closes on 18th November 2016. Further information and detailed terms of reference can be found at: https://jobs.undp.org/cj_view_jobs.cfm



Liquidity crisis

TEL AVIV

As water becomes ever more scant the world needs to conserve it, use it more efficiently and establish clear rights over who owns the stuff

“**N**OTHING is more useful than water,” observed Adam Smith, but “scarcely anything can be had in exchange for it.” The father of free-market economics noted this paradox in 18th-century Scotland, as rain-sodden and damp then as it is today. Where water is in ample supply his words still hold true. But around the world billions of people already struggle during dry seasons. Drought and deluge are a costly threat in many countries. If water is not managed better, today’s crisis will become a catastrophe. By the middle of the century more than half of the planet will live in areas of “water stress”, where supplies cannot sustainably meet demand. Lush pastures will turn to barren desert and millions will be forced to flee in search of fresh water.

Where water is available, when and in what condition matters hugely. About 97% of the water on earth is salty; the rest is replenished through seasonal rainfall or is stored in underground wells known as aquifers. Humans, who once settled where water was plentiful, are now inclined to shift around to places that are less well endowed, pulled by other economic forces.

Climate change is making some parts of the planet much drier and others far wetter. As people get richer, they use more water. They also “consume” more of it, which

means using it in such a way that it is not quickly returned to the source from which it was extracted. (For example, if it is lost through evaporation or turned into a tomato.) The big drivers of this are the world’s increased desire for grain, meat, manufactured goods and electricity. Crops, cows, power stations and factories all need lots of water.

To make matters worse, few places price water properly. Usually, it is artificially cheap, because politicians are scared to charge much for something essential that falls from the sky. This means that consumers have little incentive to conserve it and investors have little incentive to build pipes and other infrastructure to bring it to where it is needed most. In South Africa, for example, households get some water free. In Sri Lanka they pay initially a nominal 4 cents for a cubic metre. By contrast, in Adelaide in Australia, which takes water conservation seriously, an initial batch costs \$1.75 per cubic metre. Globally, spending on water infrastructure faces a huge funding shortfall. A hole of \$26trn will open up between 2010 and 2030, estimates the World Economic Forum, a think-tank.

In many countries people can pump as much water as they like from underground aquifers, because rules are either lax or not enforced. Water use by farmers has in-

creased sharply in recent decades (see chart on next page). This has allowed farmers to grow huge amounts of food in places that would otherwise be too dry to support much farming. But it is unsustainable: around a fifth of the world’s aquifers are over-exploited. This jeopardises future use by causing contamination. It also damages the layers of sand and clay that make up aquifers, thereby reducing their capacity to be replenished.

People do not drink much water—only a few litres a day. But putting food on their tables requires floods of the stuff. Growing 1kg of wheat takes 1,250 litres of water; fattening a cow to produce the same weight of beef involves 12 times more. Overall, agriculture accounts for more than 70% of global freshwater withdrawals.

And as the global population rises from 7.4bn to close to 10bn by the middle of the century, it is estimated that agricultural production will have to rise by 60% to fill the world’s bellies. This will put water supplies under huge strain.

Food for thought

Extravagance must be tamed. Farmers produce far more food than finds its way into stomachs. Some estimates suggest that as much as a third of all food never actually makes it to a plate, wasting as much water as flows down Russia’s Volga river in a year. Richer households are responsible for throwing out the largest share of unwanted victuals. Poorer ones may never even see the produce that rots on slow, bumpy journeys to market.

Water is vital not only for food and domestic well-being. It is “fundamental to economic growth”, points out Usha Rao-▶

► Monari, head of Global Water Development Partners, an investment outfit backed by Blackstone, a private-equity giant. Scarcity stalls industrial development by squeezing energy supplies. Electricity generation depends upon plentiful quantities; nuclear power requires water both for cooling turbines and the reactor core itself, for example. Coal-fired plants cannot function without it.

Power generation is a thirsty business. Overall about 41% of America's withdrawals go towards cooling power stations. In countries such as Brazil, where hydroelectric power provides more than two-thirds of the country's needs, scarcity is also a worry, particularly when dam designs rely on rivers fed by rainfall (see page 38). Spikes in energy prices often follow dry periods. Zambia endured sporadic blackouts that began a year ago and lasted until April, when drought crippled power generation from the Kariba dam.

As poor countries develop, global demand for electricity from industry is expected to increase by 400% over the first half of the 21st century. The majority of water-intensive industries, such as coal mining, textiles and chemicals, are found in countries that are particularly prone to water shortages: China, Australia, America and India. Industry can increase strains on supplies too, by polluting water, making it unfit for human use. Over a third of China's waterways have been spoiled by industrial effluent and other nasties.

Climate change will only make the situation more fraught. Hydrologists expect that a warming climate will see the cycle of evaporation, condensation and precipitation speed up. Wet regions will grow wetter and dry ones drier as rainfall patterns change and the rate increases at which soil and some plants lose moisture.

Deluges and droughts will intensify, adding to the pressure on water resources. Late or light rainy seasons will alter the speed at which reservoirs and aquifers refill. A warmer atmosphere holds more

moisture (the water content of air rises by about 7% for every 1°C of warming) increasing the likelihood of sudden heavy downpours that can cause flash flooding across parched ground. This will also add to sediment in rivers and reservoirs, affecting storage capacity and water quality.

Less snow in a warmer world creates another problem. Places such as California depend upon mountain meltwater flowing down in time for summer. Climate change will make the availability of water more variable in Southern Africa, the Middle East and America. The World Resources Institute, a think-tank, ranked 167 countries, and found that 33 face extremely high water stress by 2040 (see map).

Uncertainty surrounds what this will mean for crop yields but a study by academics at Columbia University is not encouraging. Higher concentrations of carbon dioxide in the atmosphere may make plants use water more efficiently in some parts of the world (they will lose less moisture during photosynthesis). Average yields of wheat-growing areas fed by rainfall—mostly located in North America and Europe—might rise almost 10% by 2080 and water consumption decline by the same proportion. But average yields of irrigated wheat—common in countries such as China and India—could drop by 4% and maize harvests would fall everywhere.

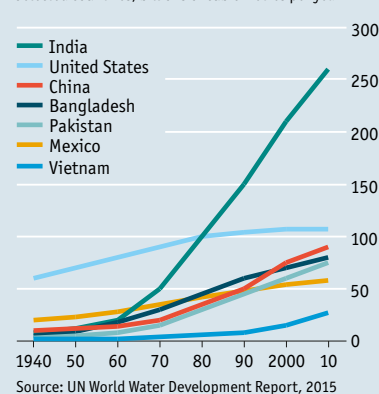
High and dry

Altered weather patterns will mean that crops may wither where they once thrived. By 2050, even if temperature increases can be limited to 2°C, crop yields could slump by a fifth in Africa. Altered rainfall patterns could make conditions too dry and hot to grow beans in Uganda and Tanzania, for example, according to a study published this year in *Nature Climate Change*. But forecasting precisely how regions will fare from deluges or drying is difficult as past weather records are a less useful guide as the climate changes.

There is no single solution for the

Pump it up

Agricultural groundwater usage
Selected countries, billions of cubic metres per year



world's water crisis. But cutting back on use, improving the efficiency of that use and sharing out water more effectively would all help. There are many schemes around the world to meet each objective but so far these tend to be implemented piecemeal rather than in a co-ordinated effort to preserve the world's supplies.

Farming, because it uses water so heavily, is an important target. Changing agricultural practices is vital and farmers, at least in the rich world, are becoming more shrewd in their use of water. Precision planting, hybrid seeds that require less watering and other technologies are all helping to conserve precious supplies. Drip irrigation, which targets water directly to the roots of plants rather than spreading it indiscriminately, can cut use by 30-70%.

Water for farming can be gathered through means other than raiding aquifers. Schemes for harvesting rainwater, by collecting it in tanks rather than letting it run away, are commonplace. Recycling wastewater has huge potential. Fruit trees in Israel are showered with it. Overall the country recycles 86% of its sewage, a vastly higher share than any other; Spain is next at just 20%. Israel does not think it can rely on its neighbours to supply it with water. Singapore, reluctant to depend on Malaysia, recycles sewage into drinking water. But politicians elsewhere are too squeamish to let people drink recycled waste.

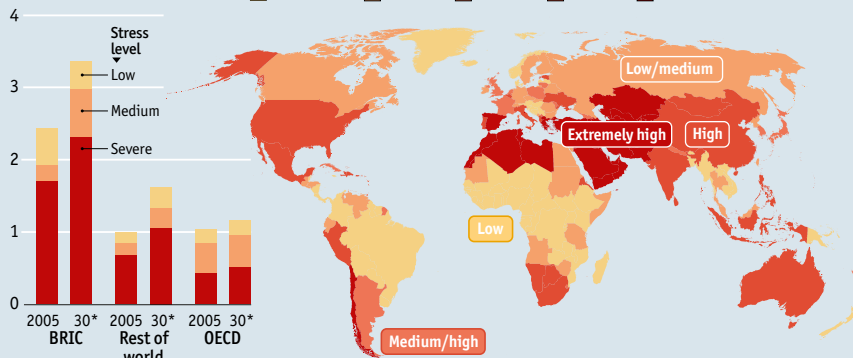
Water stress afflicts one in four cities worldwide. Policymakers could do a lot of basic things better to cope with it. Plugging leaky pipes would be a start: they cause some big cities in the Middle East and Asia lose up to 60% of their water. Rich cities still have a long way to go too: London wastes 30% of its water through leaks, equivalent to a bathful a day for every household, by one estimate. In Chicago wooden pipes still carry water. Fixing pipes could soon become easier and cheaper. Robotic systems are being tested which can detect and repair leaks by sensing pressure changes around them and ►►

Water pressure

People living in areas of water stress, bn

Water stress, ratio of withdrawals to supply, 2040*, %

Below 10 10-20 20-40 40-80 Over 80



▶ plugging holes while pipes are still in use.

Poor countries, where millions live in slums without proper sanitation, need more pipes in the first place, not to mention reservoirs and purification works. Where new infrastructure is required, better methods of modelling scarcity could help. They would let new installations be sited where they will guarantee supplies, even if climate change has an effect on patterns of rainfall. Space Time Analytics, a Brazilian company, is working on a global water-risk management system that will have the ability to predict likely shortages with much more precision.

To understand why water supplies become insecure, you first need to know two things that affect the volume of water stored in lakes and reservoirs, says Juan Carlos Castilla-Rubio, the firm's boss. The first is the changes in the volume stored over the years. The second is the variability during any given year. This is because, in many places, water storage represents the buffer between triumph and disaster during unexpected dry spells. And knowing how it may be likely to vary in the face of climate change could justify appropriate infrastructure investment ahead of time.

Go with the flow

Better modelling tools may also convince governments everywhere of the urgency of dealing with water scarcity. There is plenty of capital available for water infrastructure, reckons Ian Simm of Impax Asset Management, an investment firm. The problem lies in securing consistent political support for it, especially at the local level. Hard-nosed private investors have turned away from water, reluctant to risk vast sums for uncertain returns stretched across future decades. "If I build a billion-dollar desalination plant, will I get paid? That is the sector's biggest issue," explains Ms Rao-Monari.

Desperately dry countries have shown that impressive infrastructure can be built with money and consistent political support. Desalination plants convert seawater to drinking water, but at a cost that can induce tears. Unsurprisingly, most of the biggest are in the Middle East. The Sorek plant in Israel, the country's largest, supplies more than 1.5m people—equivalent to about 20% of municipal demand. But the process is still more expensive than almost all other ways of supplying fresh water because of the enormous quantities of electricity required.

Desalinated water is far too expensive for irrigation, points out Mike Young, a water-policy expert at the University of Adelaide. Better for countries to eke out the little they have more efficiently, he argues. Existing management systems often hinder such sharing. In poor countries they are often rudimentary. In rich countries entitlement and allocation schemes largely

came into being during times of abundance. They are often slow, bureaucratic and far too scattered. America, for example, has more than 50,000 water utilities. Everywhere, water is devilishly difficult to manage. As it flows, it is used and reused, making it hard to track and measure.

Rights regimes that are well designed and implemented are among the most effective tools for distributing water fairly and sustainably. Under one such system, Australian states began reforming water management in 1994. Few others have followed, though attempts at reform in Chile and Yemen have met with varying degrees of success.

An "unbundled" system, in which component parts are managed separately, could replace irrigation systems where those who arrived first enjoy more senior rights. In California this has created a division between those who came to the state before and after 1914, for example. And as any water saved by irrigators passes down to more junior rights holders, there is little incentive there to adopt technologies which boost water efficiency.

To create tradable water rights, Australia first drew up a baseline for water use, taking into consideration past commercial, social and environmental needs. Next, old water rights were replaced with shares that granted holders (usually landowners) a proportion of any annual allocations. Clever formulae take account of the seniority of pre-existing rights. Different classes of shares determine who gets what and when to balance the competing claims of upstream farmers and downstream urbanites. After that a regulatory board makes sure that all users get as much as they are entitled to.

Allocations made to shareholders are tradable, but those receiving them can also store them for the future. This prevents any

sudden wasting of water at the end of each year and encourages thrift during a drought. Issuing shares in perpetuity ensures that a holder can have more water only if someone else is prepared to have less. A centralised register holds everything together. Two markets for trading have been created: one in which shares are exchanged, and another for allocations of water in a given year. The idea is not a new one. In places such as Oman, *afaj* systems involve villages trading in shares and in minutes of water flow.

Pooling resources

Such regime change originally met strong resistance from farmers and other big users in Australia. But trading allocations reaped enormous rewards for shareholders. During the first decade of reform the annual internal rate of return from owning a water right was over 15%; those who held water shares saw the value of their rights double every five or so years. But following this example elsewhere will be tough. Even rich countries will struggle to unbundle rights that have accumulated over decades.

Reforming water management is urgent nonetheless. More than two centuries ago Adam Smith was only moderately gloomy about the precious liquid. Filmmakers today take a more dystopian view. In the latest "Mad Max" film, for example, armed gangs race around desert landscapes, fighting and dying for water. Such scenarios are still fiction, fortunately. But the prospect of water wars is far from fanciful. Some think that global drying is one of the causes of bloodshed in such places as Somalia, Sudan and Syria.

With clever pricing, clearer ownership and a bit of co-operation, water scarcity can be alleviated. If humanity fails to act, it will get just deserts. ■



A drop worth fighting over?

EDUSPEC: Bridging The STEM Skills Gap



The STEM subjects: science, technology, engineering and maths are the driving forces behind the most promising and lucrative sectors of the future. At the same time, knowhow in providing innovative education technology programs is more important than ever to put STEM into practice.

To date, technology is playing a vital role in reshaping the scope of teaching methods. Therefore, private education service providers are increasingly supporting the growth of the entire teaching system.

This is the role being played by Eduspec Holdings, a company that is at the forefront in providing integrated education services involving innovation and education technology for schools since 1984. Hence, the company is recognized of being the No.1 K12 (Kindergarten to 12th Grade) IT Education provider in Asia.

"Eduspec promotes educational activities, research and development of new innovative educational products throughout the Asia Pacific region for private and public schools, making

it one of the leaders in delivering education technology in Asia," explains E H Lim, CEO of Eduspec Holdings.

Eduspec has developed the trust and confidence across borders, providing custom made solutions that can complement the market with a full range of products and services such as, STEM and robotic programs, IT learning labs, language labs, school management systems, school library systems, e-learning and learning management systems. These services prove that Eduspec is not merely a service provider in the market offering individual products, but more of an institution that takes into account the whole ecosystem.

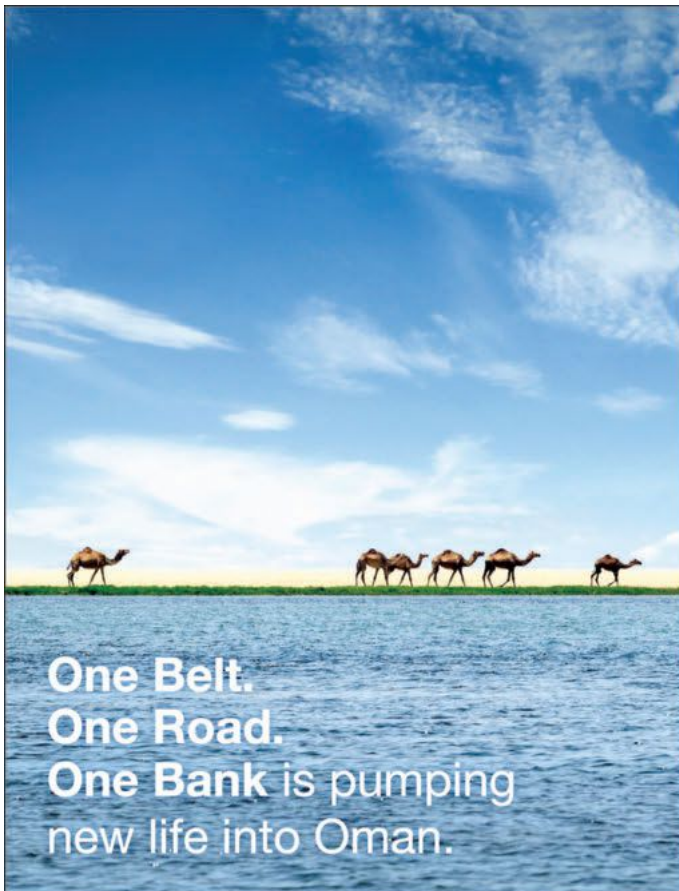
Aside from Malaysia, Eduspec already has a presence in Indonesia, Vietnam, Thailand, The Philippines and Singapore. Furthermore, China, Hong Kong, Taiwan, South Korea and India, which are expected to be huge growth

markets, are as well on the radar.

"Our strategy is to keep moving forward and capitalize on bridging the gap between education and technology while at the same time bridging the gap between the haves and the have-nots in accessing quality education that involves the knowledge technologies. Our vision is to provide the skills needed by young people to qualify for jobs in the emerging industries and bringing value to the society," explains Mr Lim, concluding: "We are proud to be part of the evolution that the ASEAN region is experiencing and we are looking for more strategic partnerships to enhance education standards in the region."



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South Korean politics

No confidantes

An influence-peddling scandal threatens to hobble the president

“ARE we living in the Republic of Choi?” asks the *Korea Times*, a local newspaper. It is the question that has consumed South Korea for the past fortnight, and filled columns of conjecture. Park Geun-hye, the conservative president, has admitted that she turned to an old friend, Choi Soon-sil, for advice on matters of state, even though she had no official position in government. But press reports and opposition politicians suggest that Ms Choi’s influence went much further: that she was in effect a puppeteer controlling Ms Park’s administration, deciding everything from cabinet appointments to policy on North Korea and, prosecutors claim, using her clout to obtain money and favours.

In an effort to contain the explosion of popular anger at the revelations, Ms Park has in the past week fired ten of her aides, including her chief of staff; reshuffled the cabinet; and appointed a new prime minister, Kim Byong-joon. Mr Kim was an aide to Roh Moo-hyun, a liberal former president, and so is notionally a political opponent of Ms Park. His appointment is therefore supposed to be an overture to the opposition. On November 3rd Mr Kim said he would “use 100%” of his rights as prime minister, suggesting a more expansive role for a position that is mostly ceremonial—though whether the National Assembly will approve his appointment is unsure. Cho Kuk of Seoul National University says the president, whose party recently lost its

parliamentary majority but who has 15 months of her single five-year term left, is not just a lame duck, but a “dead duck”.

Ms Park had apologised publicly after JTBC, a local cable-television network, said last month that it had found edited presidential speeches and cabinet-meeting briefs on a discarded computer used by Ms Choi. The president said that she had consulted her friend with good intentions, and that Ms Choi had in the past helped her “through a difficult time”.

Ode to Choi

Her relationship with the Choi family is no secret, though its details are fuzzy and the subject of popular lore. Soon after the president’s mother was assassinated in 1974, with a bullet that was meant for her father (then-president Park Chung-hee), Ms Park was befriended by Ms Choi’s father, Choi Tae-min. He is the founder of a cult called the Church of Eternal Life, and claimed that he could contact her dead mother. Ms Park spoke at one of his services in 1975. In a diplomatic cable from 2007 released by WikiLeaks, a whistle-blowing website, the American embassy in Seoul reported rumours that the late Choi had had “complete control” over Ms Park’s “body and soul during her formative years and that his children accumulated enormous wealth as a result”.

Now Ms Choi is accused of using her presidential connections to convince some

of South Korea’s biggest firms to funnel 80bn won (\$70m) into two cultural foundations she controlled, K-Sports and Mir, for her personal benefit. She returned to South Korea from Germany on October 30th to face questioning by prosecutors, who have requested a warrant for her arrest on charges of fraud and abuse of power. Ahn Chong-bum, one of the fired presidential aides, is also being interrogated on suspicion of pressing the conglomerates (some of which are being questioned). Ms Choi said she had “committed a crime” that she “deserved to die for”, but has denied allegations of corruption and influence-peddling. Claims of wrongdoing have now spread from her daughter, Chung Yoo-ra (who is thought to have received favours at a prestigious university thanks to her family’s connections) to her sister and niece.

Thousands have protested in Seoul, calling for Ms Park to resign. This week’s sacking and reshuffle struck many as a diversion (many of those fired are not suspected of misconduct). Her approval ratings have sunk to single digits. This week Park Won-soon, the liberal mayor of Seoul and a possible presidential candidate (no relation to Ms Park), urged her to resign. Choo Mi-ae, leader of the main opposition party, Minju, lambasted Ms Park’s rule as “frightening theocratic politics”.

Even some in Ms Park’s own party are deserting her: over 20 Saenuri MPs have formed a coalition to press for its leaders to resign. Victor Cha of the Centre for Strategic and International Studies, a think-tank, says she may well serve out her last year “without a party to support her”. Some think factions keen to distance themselves from her may be behind the allegations that have swirled in the conservative press, previously a staunch defender of Ms Park.

But Ms Park’s opponents will hesitate to ►►

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26 Tamil Nadu’s incestuous politics

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Australia and asylum-seekers

Bashing the boat people

SYDNEY

The government searches for ways to treat refugees even more harshly

IT HAS become something of a parlour game among Australian politicians. Ever since 2001, when John Howard, the prime minister of the day, turned away a trawler that had rescued 433 refugees from the sinking boat smuggling them to Australia, successive governments have competed to come up with ever harsher measures to deter asylum-seekers.

They have been detained, children and the elderly included, in remote desert camps. They have been locked up for years on the Pacific islands of Manus (part of Papua New Guinea) and Nauru while their claims of asylum are processed. One government declared that the Australian islands closest to Indonesia, and hence easiest for refugees to reach, would no longer be considered Australian for the purposes of claiming asylum; a subsequent one went further and declared that all of Australia would no longer be considered Australian for the purposes of claiming asylum. Since December 2013 the navy has simply turned or towed boats of refugees entering Australian waters back out to sea.

Now Malcolm Turnbull's conservative government has found a way to tighten the screws yet further. Australia had already said that it would not allow anyone arriving by boat without a visa to settle in the country. Instead, such people have been packed off to Manus or Nauru to have their asylum claims reviewed. Australia is trying to find third countries to accept those deemed genuine refugees.

But what if some of those refugees end up somewhere more welcoming (New Zealand has offered to admit some of them), obtain a passport and then come to Australia on a holiday or a business trip? Mr Turnbull finds the idea so harrowing that his government is introducing legislation to prevent it. The bill would ban all adults whose claims have been processed in Manus and Nauru from ever setting foot in Australia. The ban will be retroactive, applying to any-

one processed after the government first declared that no one arriving by boat could settle in Australia.

The boats have slowed to a trickle: 29 have been intercepted since December 2013, whereas 300 arrived in the 12 months before. But Mr Turnbull says the new rule is needed to "send the strongest possible signal to the people-smugglers". Refugee advocates, human-rights groups and political opponents suspect a baser motive. Mr Turnbull is grappling with poor approval ratings, mutinous right-wingers in his government and One Nation, a resurgent anti-immigrant party.

At least 1,500 people will be affected by the government's posturing. One is Nayser Ahmed, a member of Myanmar's persecuted Rohingya minority. He was separated from his wife and two children while travelling across Indonesia. His family arrived before the cut-off in 2013; he came just after. They are now living in Sydney; he has been on Manus for three years, hoping, says his lawyer, that Australia will relent. "Now he's facing the prospect that he might not ever see his kids again."



A fair dinkum Aussie welcome

► push too hard for her removal; if Ms Park were to step down (a first for a democratically elected president), a vote for her successor would be held within 60 days—and neither Minju nor Ms Park's Saenuri party have strong contenders lined up. MPs are likely also to resist calls for her impeachment: when the constitutional court dismissed the only previous case, made against Roh in 2004 for minor election-law violations, voters punished the MPs who

had supported it in legislative elections.

Most of South Korea's presidents have ended their terms weighed down by corruption scandals and rock-bottom approval ratings. Yet Mr Cho says that, if the charges are true, this is different in nature from previous cases: the governing system this time "proved to be useless". The biggest daily, *Chosun Ilbo*, said this week that the political imbroglio was "a tragedy" for Ms Park—but "a bigger tragedy for Korea". ■

Sex education in Japan

Tiptoeing around

TOKYO

Better to learn about sex in school than from pornographic comics

FIVE 17-year-old students take turns to give a three-minute presentation at Koishikawa high school in Tokyo. The first speaks about government services for pregnant women; next come the risks of childbearing for women older than 35, then the history of contraception, the morning-after pill and infertility. The teacher gives a brief outline of abortion law in Japan before turning to sexually transmitted diseases (STDs), and the 45-minute sex-education lesson is over.

Japan has a complex relationship with the birds and the bees. Sex is everywhere, in gleefully commercialised form, from explicit *manga* comics to love hotels where rooms are rented by the hour. Some of these businesses involve young people: "JK" services, for example, involve men paying schoolgirls to lie next to them or go for a walk. Yet in many respects Japan is very conservative: sex remains a subject that parents and teachers are embarrassed to discuss. When they do, it is usually in the context of having a family.

That makes good sex education all the more important, but critics say schools teach too little, too late. Government guidelines, almost unchanged since the 1990s, only outline a minimum content that schools must impart, during time set aside for health and sports. A survey conducted in 2008 found that on average students only received around three hours of sex education a year. This is "totally inadequate", says Mieko Tashiro of Saitama University. Teaching methods are old-fashioned, too. Koishikawa prides itself on interactive methods such as the presentations. But even these lessons are still mainly an outline of facts—how many weeks abortion is available for, the cost of IVF—rather than an open discussion.

Nanako Oba was so disillusioned with what her five children learned at school that she set up a company to teach sex education and train others to do so. She thinks schools should try not just to explain the mechanics of sex, but also to help young people cope with the emotional upheaval of puberty. She also advocates much more explicit and practical instruction, such as demonstrating how to use a condom and bringing babies into schools.

Such ideas are controversial. As recently as 2002 the government urged teachers of pupils below the age of 16 to explain contraception without mentioning sex. When in 2003 a teacher used dolls to explain re- ►

▶ production to his students, who had mental disabilities, Tokyo's education board disciplined him for "extreme" teaching. To this day many teachers avoid using words like "penis" or "vagina". New government guidance due to be issued next year is likely to make it compulsory for schools to talk to pupils about different sexual orientations, says Ryoichi Mori of the ministry of education. Perhaps aware of the inhibitions of their staff, 40 schools have already asked Ms Oba to teach the subject.

In fact, data from the Japanese Family Planning Association suggest that public attitudes are becoming less permissive, not more. In 2014 the proportion of people who thought that everyone 15 or older should know how to use a condom had dropped, to just over half. Meanwhile, over 90% thought children should learn about the ethics and morals of sex, up from three-quarters in previous years.

There is even controversy about the purpose of sex education. Mr Mori says that hitherto the main goal has been to pre-

vent STDs, but that Japan's shrinking population has started a debate about whether the aim should be, in part, to encourage childbearing. A couple of years ago, when the government began handing out a leaflet about the optimal age for a woman to become pregnant, there was a huge backlash.

Japan's teenagers appear to be less promiscuous than their peers in the rich world. A study in 2013 by Sagami, a Japanese condom company, found that on average men and women in their 20s had lost their virginity at 19 (the age of consent is 13). STD rates are low. So is the teenage birth rate: just four teenage girls in every 1,000 give birth each year, according to the World Bank. That is higher than in South Korea (two), but far lower than in Britain (15) or America (24). However, abortions—which are relatively common in Japan—may be masking the scale of the problem, says Ms Oba. Some 80% of teenage pregnancies end in abortion in Japan, compared with 46% in America. ■

can troops operate out of five Philippine military bases. He called for a military response from America were China to begin building on the shoal—as it has on several other disputed reefs and islets in the South China Sea.

In June, however, Rodrigo Duterte replaced Mr Aquino as president, and changed course abruptly. He has announced an end to joint Philippine-American military exercises and threatened to abrogate the EDCA. To drive this shift home, on a state visit to China two weeks ago, he announced his "separation" from America, and told his hosts: "I have realigned myself in your ideological flow...I will be dependent on you for all time."

Following this display of fealty, China promised billions of dollars in loans and investment, and ended its blockade of Scarborough. The message for the other South-East Asian nations with competing claims in the South China Sea could not be clearer: accept China's sovereignty and riches will follow. Najib Razak, Malaysia's embattled prime minister, turned up in Beijing this week cap in hand.

Not only has Mr Duterte completely undermined America's efforts to preserve a united front by other littoral states against China's territorial ambitions in the South China Sea, he has also saved Xi Jinping, China's leader, from a dilemma. After the adverse ruling from the tribunal, hardliners in China, especially in the military, were urging Mr Xi to hit back by, for example, building an air strip on Scarborough Shoal. Others argued that his tough line was already too risky, so he should adopt a more emollient approach. Thanks to Mr Duterte, China has got most of what it wanted—most notably, bilateral talks, which it has long asked for but the Philippines had rejected—without lifting a finger.

Nonetheless, China should be wary of interpreting Mr Duterte's enthusiasm for Chinese investment as acquiescence. A justice on the Philippine supreme court has warned Mr Duterte that ceding the shoal would be unconstitutional, and thus an impeachable offence. Among Filipinos, America remains broadly popular, and China broadly loathed. And while Mr Duterte is telling the Chinese leadership what they want to hear, he has said seemingly contradictory things in Japan and Vietnam, both of which also have maritime disputes with China.

In Vietnam Mr Duterte stressed the need for maritime "freedom of navigation and overflight [and] unimpeded commerce...particularly in the South China Sea". A joint statement in Japan emphasised respect for the UN treaty on which the tribunal's ruling on Scarborough Shoal was based. China, for its part, may also be double-dealing: it seems to be letting Filipinos fish around the atoll, but not inside the huge lagoon it forms, as they used to. ■



The South China Sea

Duterte waters

BEIJING AND SINGAPORE

Filipino fishermen return to waters disputed with China

LIKE the dog that didn't bark in the night, Chinese coastguard vessels around one tidal atoll in the South China Sea have recently distinguished themselves through inaction. For the past four years—ever since Philippine naval inspectors tried to arrest some Chinese fishermen for illegally harvesting endangered species—Chinese ships have blocked Filipino fishermen from plying their trade near Scarborough Shoal. This week, however, Philippine television has shown fishermen returning

from the shoal grinning, their boats full.

After China began its blockade, the president of the day, Benigno Aquino, filed a complaint against it at an international tribunal in The Hague, which ruled in the Philippines' favour earlier this year. The shoal, after all, is only some 220km from the Philippine mainland, within its exclusive economic zone, but almost 900km from China. Mr Aquino also signed an Enhanced Defence Co-operation Agreement (EDCA) with America, which lets Ameri-

Politics in Tamil Nadu

Suspended animation

CHENNAI

A South Indian state awaits news of its ailing leader

FOR 40 days and counting, the 78m citizens of Tamil Nadu have neither seen nor heard their chief minister, Jayaram Jayalalithaa. In her absence admirers have organised marches and mass prayers, pleading to higher powers for her speedy recovery from an undisclosed illness. Last week a different Tamil lady in her 60s was killed when a procession in Ms Jayalalithaa's honour turned into a stampede.

The epicentre for the well-wishers' demonstrations is the Apollo hospital in the state capital of Chennai, formerly known as Madras. Ms Jayalalithaa has been there since September 22nd, her condition a closely guarded secret. Phalanxes of police stop and search everyone entering the building, including ambulances. Clusters of anxious citizens, many of them party workers, sit on the street outside, taking turns singing hymns, laying offerings of fruits and flowers, chatting and sometimes weeping openly. Men from her party, the All-India Anna Dravida Munnetra Kazhagam (AIADMK), wear white shirts with a filmy pocket sewn over the heart. Tucked in each, a photograph of the chief minister smiles through the fabric. The men express faith that "Amma" or "Mother", as many Tamils call her, will be all right.

In the first weeks of her seclusion the only official reports on her condition were vague and implausible. The local press took to scrutinising comings and goings from the Apollo with the intensity of cold-war Kremlinologists. Every outlet held a 24-hour stakeout; the *Hindu* newspaper created a special inset titled "Apollo Diary". The arrival of a British doctor, a specialist in treating sepsis, was noted with great interest. On October 21st the hospital produced a clearer statement about her condition: Ms Jayalalithaa was "interacting and progressing gradually". The unsatisfied media have to tread carefully, however. Eight people have been arrested for joking or spreading rumours about the chief minister's health on social media.

There are few democracies in which elected officials are accorded such deference. Across from the headquarters of the state government, on the seafront in downtown Chennai, a series of vaulting arches, imposing obelisks and gilt statues memorialise two of the chief ministers who preceded Ms Jayalalithaa: Annadurai, for whom the AIADMK is named, and M.G. Ramachandran or "MGR", the screen idol who founded the party in his honour. Ms

Jayalalithaa was an actress in the Tamil cinema too, and MGR's mistress (his wife also served briefly as chief minister). A conspicuous space next to the two monuments stands ready to welcome a third.

But there is another potential claimant, Ms Jayalalithaa's arch-rival, M. Karunanidhi. He has been chief minister for five spells starting in 1969 and is supremo of the DMK party, which Annadurai founded and from which MGR split to found the AIADMK. Mr Karunanidhi was originally a screenwriter, and wrote songs and scripts for MGR and Ms Jayalalithaa before they all fell out. He is 92 and uses a wheelchair.

Dravid and Goliath

The parties share origins in the Dravidian movement, an assertion of the rights and dignity of South Indians, and particularly Tamils, against the primacy of North India and the Hindi language. They believe that invasive northerners long ago installed themselves as Brahmins in the South at the expense of other castes, in whose favour they have tended to govern. They are generally friendly to business, their spend-thrift populism aside. Mainly they compete to offer voters ever more lavish handouts. In 2006 the DMK triumphed in state elections after it offered voters free televisions; it subsequently handed out some 13m of them. At the next election, the AIADMK matched its pledge of free blenders and fans, and romped home. Perhaps unsurprisingly, Tamil Nadu's state debt

ballooned by 92% between 2010 and 2015.

Yet as vapid, incestuous and irresponsible as state politics sounds, Tamil Nadu has prospered under the pair's rule. From 2004 to 2015, its economy grew at an average rate of over 12% a year. Average annual income, at \$2,431 per person, is now 50% higher than the national figure.

That is not just luck. For one thing, much of the lavish spending gets to the right people, helping to stimulate growth, points out A.R. Venkatachalapathy, a historian of the Dravidian movement. Free meals at schools and subsidised ones at "Amma"-branded canteens, where a good meal costs 5 rupees (\$0.08), have ended severe malnutrition in the state, for instance.

It also helps that the two parties have run the state since 1967, to the exclusion of national parties. That is important, since their delegations to the national parliament in Delhi are sometimes big enough to hold the balance of power. That makes it hard for national governments to stand up to Tamil Nadu on matters such as the sharing of water between states, and easier for the two to extract goodies of various sorts from the centre.

"Tamil Nadu combines relatively successful economic growth with a positive performance in regard to social development, in a way that is distinctive, if not absolutely unique" among India's big states, argue John Harriss of Simon Fraser University and Andrew Wyatt of the University of Bristol in a forthcoming study. The parties' weakness, however, may be succession. Mr Karunanidhi is banking on his son, who is called Stalin. The AIADMK, according to Mr Venkatachalapathy, is organised around a "queen bee" or "mother termite" principle, and may not be able to function at all without her. Ms Jayalalithaa's deputy conducts every meeting beneath a massive portrait of his boss. He keeps an empty chair for her. Forty days and counting. ■



Flowers for Mother



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Politics in Hong Kong

China's wrath

HONG KONG

China is preparing to stop two politicians who want greater autonomy for Hong Kong from being sworn in as legislators

SO ANGRY were senior members of the Chinese Communist Party about the China-baiting manner in which two legislators in Hong Kong took their oaths of office that “their lungs exploded”. So said a party-controlled newspaper in the territory in an editorial this week warning that the pair, and others like them who call for Hong Kong’s independence, would “pay the price”. Hyperbole is common in the party’s rhetoric, but it is clear that the government in Beijing has lost patience with Hong Kong’s radicals. It appears ready to intervene to prevent the two from taking up their seats. Such a move is likely to fuel resentment in the territory of the party’s political control there.

As *The Economist* went to press, senior members of the National People’s Congress (NPC), China’s parliament, were believed to be meeting in Beijing. They were expected to discuss a response to the oath-taking on October 12th by Sixtus Leung and Yau Wai-ching, both from a party called Youngspiration. Mr Leung and Ms Yau pronounced China in a derogatory way and displayed a banner saying “Hong Kong is not China”. Ms Yau mumbled her words to make them sound like “People’s re-fuck-ing” of China.

To judge from Beijing-controlled newspapers in Hong Kong, the response will be clear: the two will not be given another chance to take their oaths, and will be dis-

barred from the Legislative Council, known as Legco. That would be a relief to some people in the territory. Since the swearing-in, Legco has been paralysed by bickering and brawls among legislators over whether the two should be allowed to swear in again, and whether they should be admitted to the chamber. In the latest such outbreak, on November 2nd, six of Legco’s security guards were taken to hospital after mêlées erupted (Ms Yau, in blue dress, and Mr Leung, rear centre, are pictured during one of them).

Courting trouble

But to many in the territory, intervention by the NPC would be a hugely unwelcome shock. Just as Chinese legislators were beginning their discussions in Beijing, Hong Kong’s High Court was launching proceedings in a case filed by the territory’s government that also aims to block the two from swearing in again. The local government’s legal move had already riled pro-democracy politicians in the territory, who note that legislators are often given another chance to swear in (playing with the wording of oaths on the first attempt is something of a tradition among feistier lawmakers). But the NPC’s effort to pre-empt the court’s decision by issuing a ruling of its own would be widely seen as a blow to Hong Kong’s judicial independence.

Although many had feared the NPC

would eventually step in, few had expected it to show its hand without waiting for the case to make its way to Hong Kong’s Court of Final Appeal. Just this week, Hong Kong’s secretary for justice, Rimsy Yuen Kwok-keung, had implied the case could be handled well enough by Hong Kong’s courts. He said Hong Kong’s judges would deal with it “in a fair, just and professional manner”. However, the chief executive, Leung Chun-ying, said there was a “possibility” that he might ask the NPC for help.

Few dispute that the national legislature has a right to make its own interpretations of the Basic Law, as Hong Kong’s constitution is known. Oath-taking by legislators is an issue covered by that document. But this would be the NPC’s first such pre-emptive move in a case only just getting under way in a Hong Kong court.

That it appears ready to do so is a sign of China’s fear of the rapid emergence of groups like Youngspiration. Their members, often called “localists”, not only represent the party’s political influence in Hong Kong, but also an influx of mainlanders into the territory. Localists won about 20% of the vote in elections to Legco that were held in September, enabling six of them (including the controversial pair) to win seats. It is their first representation in the 70-member body.

By intervening, however, the central government would risk reigniting the passions that flared in 2014 when demonstrators paralysed business districts with sit-ins for several weeks. The “Umbrella Movement”, as it was called, grew out of fears that the Communist Party was trying to cripple Hong Kong’s democracy. The protesters’ failure to win concessions gave birth to the localist cause. A hard line from the NPC on the oath-taking case would give their campaign yet more impetus. ■

Politics

Esprit de core

BEIJING

In their fiddling with an honorific, China's leaders revisit 1989

COMMUNIST leaders relish weird and wonderful titles. Kim Jong Il, the late father of North Korea's current "Great Leader", was, on special occasions, "Dear Leader who is a perfect incarnation of the appearance that a leader should have" (it doesn't sound much better in Korean). China's rulers like a more prosaic, mysterious epithet: *hexin*, meaning "the core". Xi Jinping—China's president, commander-in-chief, Communist Party boss and so forth—is now also officially "the core", having been called that in a report issued by the party's Central Committee after a recent annual meeting.

The term was made up in 1989 by Deng Xiaoping, apparently to give his anointed successor, Jiang Zemin, greater credibility after the bloody suppression of the Tiananmen Square protests. Just as Mao had been the core of the first generation of party leaders and Deng himself of the second, so Mr Jiang was of the third. (Hu Jintao, Mr Xi's predecessor, was supposedly offered the title of fourth-generation core but modestly turned it down.)

Being core confers no extra powers. Mr Xi has little need of those; he is chairman of everything anyway. Status, though, is what really matters in China (Deng ruled the country for a while with no other title than honorary chairman of the China Bridge Association). And Mr Xi seems to be finding that all his formal power does not convey enough. Early this year, in what looked like a testing of the waters, a succession of provincial party leaders kowtowed verbally to Xi-the-core. But the term soon disappeared from public discourse. Its revival makes it look as if Mr Xi has won a struggle to claim it.

That may augur well for him in his forthcoming battles over the appointment of a new generation of lesser officials (the peel?) at a party congress next year. Mr Xi wants to replace some of the 350-odd members of the central committee with his own people, while keeping as many of his allies as he can. In a sign that he might be able to do that, officials have started dismissing as "folklore" an unwritten rule that members of the Politburo have to retire at 68. The rule is commonly known as "seven up, eight down" (*qi shang, ba xia*), meaning 67 is fine, 68 is over the hill. Getting rid of it would seem to open the way to the non-retirement of several of Mr Xi's close allies, notably 68-year-old Wang Qishan, who is in charge of fighting graft. It

might even pave the way for Mr Xi's own refusal to collect his pension when his second (and supposedly final) term as party chief is up in 2022, and he will be 69.

There is another parallel between political language now and in 1989. The recent meeting eschewed the party's usual practice of tying current events to the triumphs of earlier Communist history and instead set the scene by referring mostly to the congress in 2012, when Mr Xi became leader. Another time when the party ignored history in this way was after the Tiananmen killings, when it wanted to draw a veil over what had just occurred and signal a fresh, dictatorial start. Mr Xi seems to be saying, implicitly, that a new era has begun with him, core among equals. ■

Fakes

Seeing red

BEIJING

Chinese women are irate about unsafe sanitary towels

IN RECENT years Chinese consumers have been duped by misbranded, shoddy condoms; tainted alcohol; 40-year-old meat and, in 2008, contaminated baby milk that killed four children and landed 50,000 in hospital. Knock-off brands of sanitary towels are the latest example of China's enduring failure to keep products safe. In late October police arrested two suspects in Nanchang in the southern province of Jiangxi, accusing them of making some 10m pads since 2013 in a dirty workshop and packaging them with popular trademarks. Most were sold at small shops in the countryside.

Almost all women in China within a certain age-range worry about the quality of their pads—even legitimate ones sometimes fail safety tests. Sanitary towels are

must-buy items for many Chinese tourists when they go abroad (along with Japanese toilet seats and designer handbags).

Many netizens have accused the authorities of being patronising and negligent in their handling of the recent scandal. *People's Daily*, the Communist Party's main mouthpiece, ran an online infographic headlined: "Girls, after all these years, are you really using sanitary pads correctly?" With it was an illustration of a stick-thin ballerina, leg held high. Articles elsewhere advised people how to spot fakes by checking for a chemical smell or irregular shape. One netizen complained about a litany of things that Chinese consumers have to watch out for, from cooking-oil scooped from drains and reused by restaurants, to fake medicines dispensed by doctors. "It's so awesome living in China," the blogger wrote.

The scandal may have one positive outcome: bringing a once-taboo subject further into the open. Menstrual blood is often seen as dirty; girls in China receive little education in options for coping. Most women prefer to use pads—tampons are expensive and hard to find in shops (most are imported). Only 2% of Chinese women use them compared with some 70% of Americans, according to a survey in 2015 by Cotton Incorporated, an American trade body. A third of Chinese women have never heard of them.

Widespread misunderstanding about periods was evident when Fu Yuanhui (pictured), a celebrity Olympic swimmer, said she had swum badly at this summer's games in Rio de Janeiro because she had her period. Many Chinese asked how it was even possible to swim at such a time. Chinese women often avoid cold food, cold drinks and physical activity while menstruating. Many praised Ms Fu's use of the word "period" rather than the far more popular euphemism, "My aunt has come." Greater debate now may prompt some to realise they have let menstruation cramp their style for too long. ■



The periodic fable

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Banyan | Sun-worshippers

One hundred and fifty years after his birth, Sun Yat-sen's legacy is still being fought over



FOR decades Taiwan's rulers have paid their respects from afar to Sun Yat-sen, also known as Sun Zhongshan: "father of the nation", founder of the Kuomintang (KMT) or Nationalist Party, and first president of the Republic of China. In a ritual called *yaoji*, they face towards Sun's mausoleum in Nanjing, 800km (500 miles) to the north-west in China, and offer fruit, burn incense and recite prayers.

Now that links across the Taiwan Strait are better, Sun-worshippers may make the pilgrimage in person. On October 31st it was the turn of the KMT's chairwoman, Hung Hsiu-chu. But not only do some Taiwanese adore Sun. Museums in his honour also exist in Hong Kong, Macau, Singapore and Penang. He has a memorial park in Hawaii, where the great republican spent his teenage years, and a plaque in London, where he lived in exile from 1896-97. Most striking of all, he is admired by the Chinese Communists, who "liberated" China in 1949 from KMT rule.

In the Communist telling, Sun is the "forerunner of the democratic revolution". As one visitor to his mausoleum put it this week: just as one sun and one moon hang in the sky, "there is only one father of the country." There may be more Zhongshan Streets in China's cities than Liberation Avenues. To mark this month's anniversary of Sun's birth 150 years ago, the state is minting a set of commemorative coins, including 300m five-yuan (75-cent) pieces that will go into circulation. It is a signal honour for a non-Communist. The party views Sun as a proto-revolutionary.

He makes an unlikely hero. Sun spent much of his life not in the thick of action but abroad. Half-a-dozen revolts that he helped organise against an ossified Qing dynasty were failures. As for the Wuchang uprising of October 1911, the catalyst for the end of three centuries of Manchu domination, he learnt of it from a Denver newspaper. He was back at the head of China's first republican government early the following year, but merely as "provisional" president. Lacking the military strength to pull a fractured country together, he said he was the place-warmer for a strongman, Yuan Shikai. The nascent republic soon shattered and Yuan crowned himself emperor. Pressure from Western powers and Japan exacerbated China's bleak situation. By 1916 Sun was back in exile again, in Japan.

For all that, Sun had brought down a rotten empire. For years

he had raised the alarm over China's direction, denouncing the Manchus and the rapaciousness of external powers. All his life, Sun had strived for a new republican order to turn a stricken China into a modern nation-state.

His ideas were hardly systematic, but he never deviated from the priorities of fostering national unity among Chinese, promoting democracy and improving people's livelihoods—his "Three Principles of the People". While railing against foreign depredations, he called for Chinese to embrace Western freedoms and rights (Sun's messianic drive may have derived from his version of Christianity). His was an astonishingly more cosmopolitan world-view than that displayed by today's Chinese leaders.

Yet the longest-lasting impact of Sun on Chinese political life derives from something different. In the early 1920s he listened to advisers from the Soviet Union, which had won his admiration by renouncing territorial claims in China. He reorganised the KMT along Leninist lines, giving himself almost dictatorial powers (in Leninspeak: "democratic centralism"). The immediate effects were striking: an alliance between the KMT and the young Communist Party and a northward military advance in 1926 under Chiang Kai-shek, Sun's heir, that toppled the warlords who were then wreaking havoc. Sun had died of liver failure the year before. He did not live to experience the brief national unity that Chiang imposed, nor the parties' fatal split and descent into bloodshed, nor their struggle over Sun's mantle.

Follow the Sun

And his legacy today? Consider that among his three principles, the two 20th-century dictators, Mao Zedong in mainland China and Chiang Kai-shek on Taiwan, gave a damn only about the first, national unity, on which, by their standards, they must be judged poorly. Sun's Leninist party organisation—never one of his hallowed principles—had a far more profound impact on the two autocrats, and still does on China's rulers today.

In Taiwan dictatorial KMT rule began crumbling a few years after Chiang's death in 1975. Democratic development since then, including within the KMT, and the growth of a prosperous civil society, seem in line with Sun's second and third principles relating to democracy and prosperity. But as for the first, a Chinese nationalism: forget it. Sun's portrait still hangs in schools and government offices, and looks serenely down on the frequent fisticuffs in Taiwan's parliament. But after resounding defeat in elections early this year, the KMT struggles for relevance on an island that is proud of its separateness from China. If there is any echo of Sun's idealism, it is in the student "Sunflower Movement", which wants to keep China at bay. For many Taiwanese, the Republic of China, Taiwan's official name, is a figleaf for independence; Sun is an old ineffectual ghost. The current president, Tsai Ing-wen of the pro-independence Democratic Progressive Party, performed no *yaoji* this year.

And China? Democratic centralism still prevails—exemplified by the party's monopoly on power, Xi Jinping's autocratic rule and the suppression of dissent. Were Sun to speak from his tomb, he might remind Mr Xi how, under the Communist Party, national unity, real democracy and even broad-based prosperity remain elusive. He might point out, too, that when Sun adopted Leninism it was to advance rather than trump his beloved principles. In his final will, Sun wrote: "The work of the revolution is not done yet." "Blimey," he might now say: "Couldn't you think of trying something different?" ■



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The battleground

Countdown

WASHINGTON, DC

A late flurry of support for Donald Trump erodes Hillary Clinton's lead

SO MUCH for Hillary Clinton's predicted cake-walk. So much for steady nerves. As the countdown of days to the most divisive general election of recent times dropped into single figures, a surge of support for Donald Trump made the contest appear suddenly much closer.

As *The Economist* went to press, Mrs Clinton's lead, which stood at seven percentage points in mid-October, had fallen to less than two points in an aggregate of recent polls. In other words, Mrs Clinton has a clear advantage, but Mr Trump could yet win this.

To get the requisite 270 electoral-college votes, he probably needs to win all the states Mitt Romney won in 2012—including North Carolina, where he has been trailing for most of the past few weeks—plus almost all the battleground states where he looks even competitive. They include Florida and Ohio, which would be daunting swing states even for a Republican less unsavoury to moderates and unpopular among non-whites than Mr Trump is. Mrs Clinton appears to have an easier path. Merely tallying those states that are safely Democratic gets her to 226 in the electoral college, which leaves her with a wider array of winning combinations. Thanks to a “firewall” of states where she has enjoyed steady polling leads, such as Colorado and New Hampshire, she could afford to lose Florida, Ohio, North Carolina and Nevada and still win the election. Yet those Demo-

crats who suppose electoral-college arithmetic would save Mrs Clinton if she were to lose the popular vote are setting themselves up for a shock.

As the polls have tightened nationally, so Mr Trump's must-win states have drifted towards him. In North Carolina, he was three points down at the end of October in an aggregate of polls collected by Real Clear Politics, a website; the state is now a toss-up. In Florida he has closed a four-point gap over roughly the same time. He has a small lead in Ohio, thanks to its relative sparsity of non-whites and many working-class whites (see next story). Win those three, and Mr Trump need only bag Iowa, where he is also ahead, and perhaps one other state, such as Pennsylvania or Wisconsin. That still looks tough, which is why betting markets gave Mrs Clinton around a 70% chance of victory. Yet a one-in-three chance of the Oval Office getting a Trumpian makeover is hardly a long shot.

Many headline-writers have pinned this shift on the Halloween surprise delivered by the FBI's director, James Comey, on October 28th. In a letter to Congress, Mr Comey reinvigorated a zombie scandal over Mrs Clinton's use of a private e-mail server as secretary of state by announcing that, over three months after the FBI concluded that she had done nothing worthy of an indictment, he had in effect launched a new probe into the affair. A batch of e-mails belonging to a close aide of Mrs Clin-

ton's, Huma Abedin, had come to his attention; they turned out to have been found on a device belonging to Anthony Weiner, a disgraced former Democratic congressman and Mrs Abedin's estranged husband. It also turned out that, far from knowing whether the e-mails involved Mrs Clinton or whether they contained classified information, Mr Comey's investigators had not even obtained permission to examine them. There appeared to be no chance they could do so before the election.

Even some Republicans condemned Mr Comey's intervention as reckless and unnecessary. They had a point. Mr Comey, a Republican who was appointed by Barack Obama, had been castigated by Republicans after letting Mrs Clinton off first time around, though the decision, he informed colleagues, was not even close (“At the end of the day,” he wrote in an internal memo, “the case itself was not a cliff-hanger.”) It seems likely that, faced with a certainty of being rubbished all over again if the new e-mail trove had come to light after voting day, he acted to cover his agency. Given how readily voters tend to think the worst of Mrs Clinton, the consequences could matter.

A poll sampled after Mr Comey's intervention suggests Mr Trump is now much more trusted than she is, which is amazing, given how riddled his stump speeches are with lies. That low opinion of Mrs Clinton perhaps makes it even likelier that Republicans will maintain their control of the Senate, another close contest, which has the potential to doom a Clinton presidency from the outset. That is because reluctant supporters of Mrs Clinton may now be even likelier to vote for Republicans down-ballot to keep her in check. Yet the polls, it is important to note, were tightening even before Mr Comey's gambit.

Mrs Clinton's vote-share has in fact ►►

► hardly fallen since the scandal. She has around 45% of the vote, which is close to her all-time best. The big change is a flurry of backing for Mr Trump from erstwhile undecided voters and supporters of Gary Johnson, the Libertarian nominee, whose vote-share has fallen by around three points in recent weeks. This suggests many of his remaining supporters, representing around five percent of the electorate, are disaffected Democrats—a group Mr Johnson's running-mate, Bill Weld, appeared to be addressing on November 2nd when he described Mrs Clinton as “a person of high moral character, a reliable person, and an honest person”. A former Republican governor of Massachusetts, running for the Libertarians, who appears to be inviting his supporters to switch to the Democratic nominee: this was an illustration of the trauma Mr Trump has caused America's political establishment.

On the basis of previous elections (which, admittedly, could mean little in this one) the polls are unlikely to move much before November 8th. There are not many undecided voters left; and pollsters have a habit of herding together towards the end of any campaign, which makes big polling shifts less likely. Perhaps only a big new scandal for Mr Trump—to be sure, a serious possibility—could change things much. That would leave the election to be decided by the parties' relative success in turning out their supporters to vote.

If the Democrats can get out their more populous coalition of non-whites, college-educated whites and millennials, Mrs Clinton will win. Her superior campaign organisation will help; the traditionally poor voting-record of non-whites and youngsters will not. The low enthusiasm many feel for her could exacerbate that. Indeed there is already evidence of such reluctance. Early voting suggests a lead for Mrs Clinton in several battlegrounds, but also points to much lower turnout by black voters than in 2012. That looks ominous for her in North Carolina, where nearly a quarter of the electorate is black. The state could turn out to be her insurance policy, or else her Waterloo. ■

White voters

What's going on

YOUNGSTOWN AND DELAWARE, OHIO

Support for Donald Trump from working-class whites is not what it seems

ON A building site outside Youngstown, Ohio, a crowd of workmen are labouring through drizzle to get a nursing home finished on schedule. None is eager to talk politics with a nosy reporter. But your correspondent's guide is Rocco DiGennaro, boss of the Local 125 construction-workers union to which they belong, and he urges them to speak freely.

“I'm not voting for the c**t. Why? Because she's a no good fucking c**t!” says Paul, a carpenter, and no fan of Hillary Clinton. “I'm voting for Trump.” There are two dozen builders and joiners on the site, all middle-aged white men, and most say much the same. “She pisses me off,” says

Don, a cement-mixer. “I'd be interested to see what a non-politician can do.” “I don't trust that broad with my guns,” says Clyde, another cement man. “Since I've been voting, it's always been Clinton or Bush; I want a different name,” says Rob, the site superintendent.

On the face of it, this is irrational. The men's union membership brings privileges, including pay a third higher than their non-unionised colleagues make, which Mrs Clinton supports and Mr Trump threatens to dismantle. The Republican nominee says American wages are too high. He says he “loves” right-to-work laws, an anti-union measure passed by Re- ►



The campaigns

On the trail

Donald Troubadour

“Love can kill, too.”

Donald Trump is worried that his supporters might stampede for love of him. *Los Angeles Times*

Street style

“I think Death Row [Records] and a lot of other fashion sources have influenced my look.”

Hillary Clinton acknowledges hip-hop influence on her clothing choices. *Power 105.1 radio station*

Turn down for what?

“We have three major voter-suppression operations under way.”

The Trump campaign hopes to lower turnout among Mrs Clinton's voters. *Bloomberg*

Make America eat their greens again

“Now [Michelle Obama] also planted an amazing vegetable garden at the White House. And I can promise you if I win, I will take good care of it.”

Hillary Clinton appeals to locavores.

Class struggle

“Trump has chosen his own way of reaching the hearts of the voters...He is representing the common people, and he is acting like a common guy himself.”

Vladimir Putin on the Republican nominee.

Cries from the heart

“Why are you even interviewing me? I don't get it. If I'm doing so poorly, is this to preside over a funeral here?”

Libertarian candidate, Gary Johnson, was confused by attention from the *Guardian*.

Double trouble

“I wasn't planning on doing it twice, it was a spur of the moment. The polls are rigged.”

A Trump supporter in Iowa was arrested for voting twice. *Iowa Public Radio*

Lies and statistics

“When you're working for Hillary, she wants to let people just pour in. You could have 650m people pour in...You triple the size of our country in one week.”

Mr Trump refuses to bow to the fact-checkers once again.

Basket case

“That man's conduct was deplorable.”

Trump's campaign manager on a supporter shouting “Jew-S-A” at a rally. *CNN*

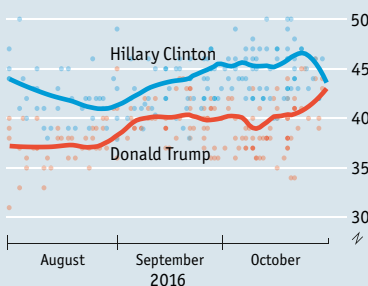
American Valhalla

“In a Donald Trump administration, there will be no bullshit!”

An infamous retired basketball coach, Bobby Knight, campaigned with Mr Trump.

Closer

Polling average, %



Sources: Huffington Post; The Economist

publicans in 26 states, which has exacerbated a steep drop in union membership in recent years. In business, Mr Trump shuns unions; outside New York and Atlantic City, where the building guilds are still fierce, he has hired non-union workers 80% of the time when contractually free to. So why are these Ohioans for Trump?

Understood broadly, that is perhaps the biggest question of this election. The Republican nominee trails Mrs Clinton by fat margins among almost every main category of voter, including non-whites, millennials and college-educated whites. Yet he is trouncing her among working-class white men; they back him by 30 points. They are the engine of the Trumpian insurgency, the group Republicans will find hardest to mollify if it fails, and a source of heartache for Democrats, too. Mrs Clinton's party was largely deserted by working-class whites after the passage of the Civil Rights Act in 1964—four years later less than 40% voted Democratic, around the same proportion Barack Obama won in 2012—yet its residual attachment to the unions and their concentration in Midwestern battlegrounds such as Ohio, which has picked the winner in 28 of the past 30 presidential elections, make the Democrats nonetheless concerned for their welfare.

Two main explanations have been offered for Mr Trump's success with working-class white men. First, wage stagnation is estimated to have left them worse off in real terms than they were in 1996. That is partly due to the decline of unions, which has reduced American workers' collective-bargaining power. It is also due to heightened competition from China and to technological change. By hammering trade deals, to which he inaccurately attributes most of those problems, Mr Trump has aimed to vindicate the sense of grievance over globalisation that many working-class whites feel.

Others, meanwhile, especially on the left, point to the racist nature of his appeal, as illustrated by Mr Trump's denigration of Hispanics, condescension, or worse, towards blacks and misty-eyed lauding of a past when whites were almost as synonymous with America as he makes them sound. "So important that you watch other communities, because we don't want this election stolen from us," he said, referring to blacks, before a lily-white crowd near Pittsburgh last month. In his secret heart, Mr Trump is said not to be particularly racist; he is nonetheless the most racially divisive presidential nominee since the segregationist George Wallace in the 1960s.

Both explanations for Mr Trump's success with working-class whites are true to a degree. Yet the nature of the privation and chauvinism that have attracted millions to him, including working-class white men especially, are often misunderstood.

An analysis of over 100,000 adults by



What makes them tick

Jonathan Rothwell of Gallup found that Mr Trump's supporters are most likely to live in areas beset with problems associated with economic duress, including ill health and low rates of social mobility. Some of the most wretched sinks of white poverty, including depressed mining towns in Appalachian Ohio, Pennsylvania and West Virginia, have fallen heavily for him. Youngstown, a steel city whose long decline was accelerated by the recession of 2007-09, also voted for Mr Trump in the Republican primaries—and around a quarter of the voters there were Democratic apostates. Yet the pitch of economic anxiety motivating Mr Trump's supporters has been exaggerated.

Great again

Struggling Appalachians, a group synonymous with geographical and cultural isolation as well as poverty, are not typical Trumpkins. They, the Gallup analysis also showed, are in fact considerably better off than non-Trump voters with comparable levels of education—even after controlling for race, to account for the fact that whites are richer than non-whites. The workmen on that site in Youngstown, some of whom were planning to vote Republican for the first time, make between \$40,000 and \$60,000 a year, which is not bad for pouring concrete. Indeed construction in Youngstown is booming. "I can't get enough people to make America great again," quips another local union boss, Robert Gerst of the Plasterers and Cement Masons. "If we get any greater I'm going to run out of guys to do the work."

Nor is resentment of free trade so powerful an explanation for Trumpism as is often made out. A poll by the Pew Research Centre during the primaries found that 60% of Mr Trump's supporters believed

trade had hurt their family's finances; by comparison, only 42% of backers of John Kasich, the governor of Ohio, said the same. Yet, according to Mr Rothwell, Mr Trump's supporters were not especially likely to have been hurt by free trade, or to live in the most manufacturing-heavy areas. Industrial regions hardest-hit by Chinese competition still tend to vote Democratic, as Youngstown probably will. Again, this chimes with the attitudes of those Ohioan builders. According to Dennis Duffey, secretary-treasurer of the statewide builders' union, Mr Trump's hostility to free trade was a big attraction to his 137,000 members; yet their industry is sheltered from its immediate effects, and, as it happens, none of the workmen in Youngstown mentioned the issue.

It is also worth noting that, though working-class white men are responsible for most of Mr Trump's net gains over Mrs Clinton and his Republican predecessors, they represent only around a third of his total vote. And the peculiar combination of pessimism and fervour that Mr Trump's supporters exude is similarly evident among many of his richer, better-educated fans. At a rally in Delaware, a suburb of Columbus, Ohio, a brief survey revealed a computer programmer, three teachers, a botanist, several small businessmen, and not a single working-class man. "I've owned three nurseries, a gas station, been the national director of a fabrics company and have a four-year college degree," is how Gil Burns, a 64-year-old Trump supporter who said he had last voted Republican in 1984, described himself. At over a dozen Trump rallies, in almost as many states, over the past year, your correspondent has met lawyers, estate agents and a horde of middle-class pensioners—and relatively few blue-collar workers. ▶▶

▶ Mr Trump's biggest supporters, in short, tend to live in down-at-heel and depressed parts of the country, but not to be struggling particularly themselves. This has driven some pundits to look for an alternative, or additional, explanation for Mr Trump's success—which racism might seem to supply. A growing number of surveys suggest Trump voters are unusually resentful at the steady draining away of the privileges American whites have traditionally enjoyed, which Barack Obama's victory in 2008 has come to symbolise.

According to the Pew Research Centre, Republican voters who viewed the prospect of America becoming a non-white majority country negatively were likely to have “warm” or “very warm” feelings towards Mr Trump. According to analysis by Philip Klinkner of Hamilton College, the most accurate way to pick a Trump supporter is to ask him whether he thinks Mr Obama is a Muslim. A belief that he is—a common proxy for hostility to the first black president—was held by around 60% of Mr Trump's primary supporters. As a predictor of Trump support, it is “more accurate than asking people if it's harder to move up the income ladder than it was for their parents, whether they oppose trade deals, or if they think the economy is worse now than last year,” wrote Mr Klinkner. “It's even more accurate than asking them if they are Republican.”

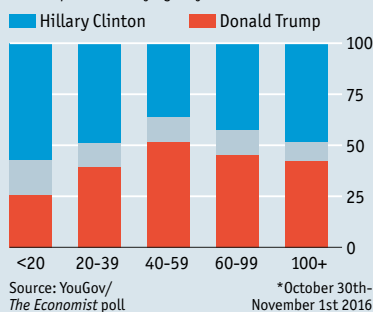
The wall

No wonder Mr Trump's dog-whistling and pledges to reassert the primacy of English are popular. Whites, polls suggests, are much less racist than they were, even if, under Mr Obama, that progress appears to have stalled. Yet the casual acceptance, at best, of Mr Trump's bigotry reflects a pattern seen in other countries when demographic and social change results in a group losing status. None of the workmen in Youngstown, some of whom had forsaken Democrats for the first time to vote against Mr Obama, considered Mr Trump's chauvinism off-putting. “He talks the same way we do,” almost all said approvingly. Then again, why should they be put off, when Republican leaders are also supporting Mr Trump? Paul Ryan, the Speaker of the House, described Mr Trump's attack on a Hispanic judge as a “textbook definition” of racism, but still backs him. It is a failure that will haunt his party.

Yet if many Trump supporters are to some degree racially resentful, this may not be what primarily motivates them. The chauvinism of the average Trump fan is less aggressive, and more despondent, than that would imply. The racist shouts common at Trump rallies are defensive and reactive; they are aimed at the Hispanic immigrants Mr Trump slanders and the black protesters who come to shout at him, not at blacks and Hispanics per se. Both

The Trumpy middle

Voting intentions by annual family income, \$'000
% of respondents* saying they would vote for:



these counts, a sense of economic grievance that is more generalised and fearful than acute, and a sense of racial grievance without racial superiority, reflect a wider feeling of malaise which has many causes.

It is fuelled by economic changes, but also the decline of once-cherished institutions, including family, church and labour unions, all contributing to a fear that the world is changing in ways that American workers, or else their children, cannot keep up with. Mr Trump's exaggerated miserabilism, about the state of America and the world, chimes with that pessimism. “Everything's a problem for us,” said Don, who earns \$25 an hour for pouring concrete. “There used to be a lot more middle-class jobs,” said Clyde bleakly, another concrete ladler. “These days there are just people high up working on computers and a lot of guys working in Denny's.” Mr Trump has no good answers to the gloom he describes. But his aggrieved supporters are so mistrustful of government (84% agree with his assertion that the election might be rigged) that they do not believe anyone else does either.

The decline of institutions has directly

enabled Mr Trump's rise among unionised workers. Ohio's construction unions have endorsed Mrs Clinton, and in recent elections Mr DiGennaro reckons that would have been enough to ensure around 80% of his 7,500 members voted Democratic. But he expects 40% to vote for Mr Trump on November 8th—and that was before visiting the worksite. “It could be higher”, he said afterwards. “Thank God the blacks and Latinos can see through Trump's bull-shit. I'm embarrassed by it.”

Another enabling factor is that the bull-shit was already familiar to millions of whites, because of the decline of another important institution, the mainstream media. Many of Mr Trump's supporters are more likely to get their information from right-wing blogs and talk-radio shows, which for the past two decades have been pushing hateful slanders against liberals, immigrants and non-whites. It can be disconcerting at Mr Trump rallies to hear how thoroughly their nonsense is believed. “I can't think of anything Trump could do that would stop me voting for him,” said Suzy Carter, a computer programmer in Delaware, who was convinced Mrs Clinton had had “over 100” people killed, which made her decision to vote for Mr Trump an easy one.

Viewed this way the real, but exaggerated and racially tinged, sense of grievance that on November 8th will drive millions of working-class whites to vote for Mr Trump seems just a little less dismal. That a swathe of voters are chauvinist and anxious is not news, after all. It has taken bad leadership and much rabble-rousing to make it a significant factor in how working-class whites are about to vote. It follows that more constructive politics, as well as faster economic growth, could do much to calm the fury. But neither of those things is currently easy to imagine. ■

The African-American vote

Early, but less often

ATLANTA

Black voters' enthusiasm—or lack of it—will help decide the election

PAULETTE SMITH is so keen on Donald Trump that she wrote a tune about him. “God's not running for president,” she sang before a rally in Marietta, Georgia, attended by his daughters, Ivanka and Tiffany. “So he sent Donald Trump to make America great again.” There is a dance to go with it, called the Trump Train. Ms Smith, who is black, is untroubled by the Republican nominee's attitude to women or portrayal of inner cities as “war zones”. “He's telling the truth,” she insisted.

At a get-together with black business-owners in nearby Atlanta, a city with a well-established black elite, Donald Trump junior reiterated his father's view that blacks had nothing to lose by picking him—a grim pitch to which, belatedly, Mr Trump has added some thoughts on school choice and investment incentives. Alveda King, a niece of Martin Luther King, announced that she had already voted for him; her uncle might have done so too, she reckoned, out of concern for family break- ▶

down. That old (if eroding) strain of social conservatism may be the main reason for Republicans to think they can one day regain some of the black votes they forfeited during the civil-rights era.

One day, perhaps, but almost certainly not this time. Mr Trump's black supporters maintain, like him, that the opinion polls are misleading, complaining that African-Americans who publicly back him risk insult and harassment. (Some are franker about the challenge: "This is the most black Republicans I've ever seen in one place," said William Givens, pastor of a Baptist church, at the Atlanta event.) But, in Georgia as in the country overall, surveys consistently suggest Mr Trump will claim an even tinier proportion of black voters than his recent predecessors. The consolation is that for him to win key states—and even the election—it might be enough for a chunk of them to abstain.

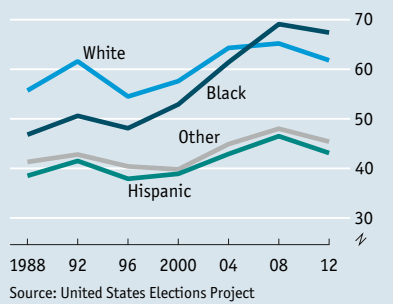
In 2008 blacks turned out in unprecedented numbers to elect Barack Obama; then and in 2012 they voted at higher rates than whites for the first times in history (see chart). That enthusiasm was vital in swing states with large African-American populations—places such as North Carolina, where roughly a quarter of the electorate is black, and which Mr Obama narrowly won in 2008 before narrowly losing in 2012. Florida, Ohio and Pennsylvania also have potentially decisive black constituencies. "In a really close race," says Andra Gillespie of Emory University, "African-American turnout puts you over the top." Hillary Clinton will snatch Georgia, as some polls have hinted she may, only with a powerful showing among black voters, who make up 30% of the registered total.

She might not get one. First, and most obviously, because Mr Obama is no longer on the ballot, though at his campaign appearances he declares that his legacy is. Those well-received stump speeches have inadvertently pointed up the tepidness of Mrs Clinton's support; so have Michelle Obama's wildly popular turns. Yet the disappointment also stems from Mr Obama's own performance in office, which some black voters regard as timid, draining their faith in what even well-intentioned presidents can deliver.

Then there is Mrs Clinton herself. She talks more often and explicitly about racism and bias, including among police officers, than Mr Obama did as a candidate; but some still hold her use of the loaded term "super-predators" in the 1990s, and her husband's criminal-justice policies, against her. Who has done black Americans more harm, one fatalistic Atlantan asks: a Trump fan waving a Confederate flag, or the Clintons? Some feel betrayed by Democratic politicians as a whole. "I grew up being told that as a black man I should vote Democrat," says Michael McNeely, who wants to become the first black presi-

Turning up

United States, voter turnout in presidential elections, by race, %



dent of Georgia's Republican Party, "and that's not good enough."

The Clinton team is aware of all this. In Georgia, North Carolina and elsewhere, there has been an energetic push to mobilise black voters—in the face of insidious efforts to disenfranchise them, activists say, such as the partisan purging of voter rolls or local restrictions on early voting. (Such ruses, they allege, have continued despite high-profile court rebuffs to voter-ID laws.) At Sunday service in Ebenezer Baptist Church, once co-pastored by MLK, Raphael Warnock, the current pastor, told worshippers that voting was a means to praise God. Along with 2 Chainz, a rapper, after the service he whisked some off in a "Souls to the Polls" bus convoy. Young people had to vote, he told his congregants, "so they don't end up in chains." The idea that his predecessor might have voted for Mr Trump was, he said incredulously, "ridiculous".

At the polling station a child asked John

Lewis, the congressman and civil-rights leader, what would happen if Mr Trump won. "He wants to take us back to another place and another time," Mr Lewis said. In black communities as elsewhere, that fear is Mrs Clinton's greatest asset. Her opponent's depiction of their woes seems, to many blacks, less a bid to recruit them than to persuade moderate whites of his compassion, or to pander to negative stereotypes. Few share his nostalgia for a supposedly glorious past; instead they recall the sort of discrimination of which, as a landlord in the 1970s, Mr Trump was accused.

Factor in his inflammatory talk of vote-rigging in "certain areas", his leadership of the birther movement, advocacy of stop-and-frisk policing tactics and flirtation with white supremacists, and it is unsurprising that, as Celinda Lake, a Democratic pollster, says, African-Americans are even more united in disliking Mr Trump than they were in liking Mr Obama in 2012. According to a report released this week by the Joint Centre for Political and Economic Studies, younger black voters—the hardest to enlist—are especially likely to be motivated by dismay at Mr Trump rather than affection for Mrs Clinton. Black voters "know what is at stake," Mr Lewis says. Mr Warnock expects a robust showing from the "the huge swathes of humanity" that Mr Trump has insulted.

Perhaps—but there are signs that aversion to him may not be enough. Analysis of early voting in Florida and North Carolina reveals that black turnout has declined. Last-gasp visits by Mr Obama to both states are evidence of how worrying that trend is for Mrs Clinton. ■



Enthusiasm curbed

Election brief: Foreign policy

World-shaking

WASHINGTON, DC

Hillary Clinton's foreign policy would be similar to Barack Obama's. Donald Trump's would be like nothing America has seen before



TO EXPLAIN what foreign policy would be like under Hillary Clinton, allies start by describing her feelings about America. It matters that the former secretary of state grew up in the Midwest and was a young “Goldwater girl”, backing the sternly anti-communist Barry Goldwater, during his failed presidential run in 1964. Mrs Clinton “sees America as a force for good”, and as First Lady was marked by seeing her husband use military power to bring peace to the Balkans, says a former senior official. He draws a contrast with Barack Obama, a man instinctively wary when the clamour mounts for American intervention.

Another former official calls Mr Obama unusually focused on “global” threats, such as climate change, pandemics, nuclear non-proliferation and far-flung terror networks. To secure Chinese co-operation on climate change, or Russian help in curbing Iran's nuclear programme, Mr Obama has been willing to downplay “geopolitical” threats, such as Chinese land grabs in the South China Sea or Russian incursions in Eastern Europe. Mrs Clinton, predicts that ex-official, “is likely to tilt the balance back” towards “traditional” geopolitics.

Yet other insiders caution against assuming that Mrs Clinton would be much more hawkish in her actions than Mr Obama—not least because some intractable problems will dominate her in-tray. Start with Syria. In the presidential debates she talked of pushing for a no-fly zone and safe havens in Syria. But in a speech to bankers in 2013, recently leaked, she noted that a no-fly zone would require risky strikes on Syrian air defences, some in heavily populated areas. Insiders predict she will begin with a review of how the Assad regime's resilience, Russian intervention and opposition weakness have limited her options since she was last in office.

Veterans of the Obama administration expect Mrs Clinton to reach out to Israel, Egypt, Saudi Arabia and Turkey—long-time partners whose relations with Mr Obama are dire. But they predict limits to such bridge-building. An ex-official notes that Mrs Clinton calls Middle East peace “a priority” (without clarifying how much of one), but for Israel's prime minister, Binyamin Netanyahu, peace with Palestinians is “no priority at all”. Another colleague suggests that Mrs Clinton will keep Mr Obama's nuclear-arms deal with Iran, but



Where next?

will be more willing publicly to counter such Iranian provocations as weapons transfers to terror groups or harassment of American ships. During the campaign she talked of an “intelligence surge” against Islamic State (IS). That empty phrase distracts from her likely approach, involving more continuity than change.

In Asia, North Korea's recent aggressive actions involving nuclear tests and missile trials will head Mrs Clinton's agenda. Allies say she has signalled support for tougher sanctions, perhaps on North Korean workers overseas and on North Korean access to banks, and for anti-missile defence co-operation with Japan and South Korea—all steps that alarm China. Chinese officials have further reasons for anxiety. They recall Mrs Clinton's defence of women's and human rights at a conference in Beijing in 1995, and have not quite trusted her since. Chinese leaders quietly cheered when the present campaign saw Mrs Clinton forced to disavow the Trans-Pacific Partnership (TPP), a trade pact that would bind America more closely with 11 Asia-Pacific nations, not including China.

If elected, her relations with Russia's autocratic leader, Vladimir Putin, would begin in a glacial state. Mr Putin did not hide his anger when, in 2011, the then-secretary of state questioned the fairness of Russian parliamentary elections. In 2016 the Clinton campaign, backed by American spy chiefs, accused Russia of trying to

meddle in the presidential election by stealing e-mails from leading Democrats.

In contrast, when Trump advisers explain their candidate's worldview, they start with how their boss feels about himself, his gut instincts and abilities as a negotiator—with pesky policy details to be filled in later. They describe a “realpolitik kind of guy” who sees a dangerous, ungrateful world, which for too long America has been asked to fix on its own. Keith Kellogg, a retired lieutenant-general and adviser to Mr Trump, compares his boss to Ronald Reagan for his willingness to treat Russia as a competitor with whom deals can be made, notably when making common cause against Islamists in Syria.

Critics call Mr Trump a man of thoroughly un-Reaganesque views. After all he has praised Mr Putin for his “very strong control over his country”, and suggested that America's duty to defend NATO allies might be conditional. Asked by the *New York Times* if he would defend the Baltic republics from Russia, he replied: “If they fulfil their obligations to us, the answer is yes,” grumbling about NATO members who missed targets for defence spending.

Interviewed by *The Economist* in 2015, Mr Trump called China's construction of airstrips on reefs in the South China Sea a hostile act, adding: “However, it is very far away. And they're already built.” He breezily predicted that Japan might offer a solution: “If we step back they will protect themselves very well Japan...used to beat China routinely in wars.”

Mr Trump says he will renegotiate the nuclear-arms deal with Iran, and pressure China into neutralising the North Korea threat. He has called climate change a hoax and promised to cancel billions of dollars in payments to United Nations climate-change programmes. He says he would “bomb the shit” out of IS, without explaining how this would be done.

Mr Trump is at his most detailed when outlining his suspicion of free trade. In his first days in office he pledges to renegotiate the NAFTA trade pact with Canada and Mexico and put the TPP on hold. He would have China declared a currency manipulator, saying the yuan is undervalued—a charge most economists think out of date. Asked about the risks of a trade war, Mr Trump's trade adviser, Dan DiMicco, says his candidate thinks that America has been in a trade war with China for 20 years. Mr DiMicco, a former CEO of Nucor, a big steelmaker, says: “The era of trade deficits is over,” predicting that the threat of tariffs can be used to achieve balanced trade.

Mr Trump knows what his voters want to hear: that America holds a winning hand, if it is ruthless enough to play it. Many of his promises are nonsense. But given the chaos he could unleash, voter anger in America will be the least of the world's worries. ■

Lexington | Donald Trump, vigilante

Good people have been frightened and angered into backing a dangerous man



ON NOVEMBER 8th around 60m Americans are likely to cast ballots for Donald Trump to be president. That will present the country with a puzzle. If nearly a quarter of the adult population are Trump-backers, many good people will have ended up supporting a bad man.

Partisanship explains some of this gigantic folly, as does widespread distrust of the Democratic nominee, Hillary Clinton. But another cause lies in something harder to criticise: the desire of most people to think of themselves as good and useful citizens, capable of providing for and keeping safe those people and values dear to them. After more than a year of meeting Republican voters and Trump supporters at rallies and campaign events and twice interviewing the candidate himself, Lexington is unexpectedly struck on election eve by echoes from America's stand-your-ground movement. That movement has led dozens of states to pass laws which allow gun-owners to use lethal force when they reasonably believe that their safety is threatened, with no duty to retreat when they are in their home or other lawful place. Vitally, this defence can be invoked even if householders misjudge the perils that they face, in the heat of the moment.

Critics call such laws vigilante justice. They cite horrible mistakes, as when stranded motorists are shot dead for knocking on a door in search of directions or a telephone. Some see racial bias at work when courts absolve white householders of killing black men who alarmed them. But once passed, such laws are difficult to repeal. For that would involve convincing supporters that they are wrong to believe that they are the last and best line of defence for their family and property—a hard task.

Quite a few Republicans, including those who initially backed more mainstream rivals in their party's presidential primaries, sound strikingly like stand-your-ground advocates when defending a vote for Mr Trump. Even if not every Trump voter takes all his promises literally, they feel heeded and respected when someone of his stature—a very rich man who could be a member of the elite, but instead chooses to side with them—agrees that their home, America, is under assault, whether from foreign governments scheming to “rape” the economy or by Muslim terrorists allowed in as refugees. At rallies in swing states from Arizona to North Carolina, this reporter has heard the cheers when Mr

Trump roars that America has every right to fight back, even if that involves rough justice or being “so tough”, as he puts it.

Looking back, perhaps political opponents or news outlets were wasting their time when they challenged Mr Trump for exaggerating and making up his facts. Critics were missing the point when they chided the Republican for policies that sound like appeals to bigotry, sexism or other forms of prejudice. For if a vote for Mr Trump feels like an act of self-defence, his supporters no more want him to be fact-checked or nagged than they themselves would care to be second-guessed after blasting away at a shadowy figure on a darkened porch. What counts is their sense that when respectable people are protecting their own, they should be afforded the benefit of the doubt.

During the campaign Mr Trump has explicitly encouraged such thinking. His original call in December 2015 for a “total and complete shutdown” on Muslims entering America, later modified to become a ban on immigration from terror-prone regions, was justified as a reasonable response to uncertainty, rather than as a fully worked-out counter-terrorism strategy. Not long after a mass-shooting in southern California apparently inspired by the Islamic State terror network, the businessman called for a Muslim ban “until our country's representatives can find out what the hell is going on.” To the election's last days he has shown a talent for fanning fearful conspiracy theories, most recently by falsely claiming that the election will be rigged by corrupt officials allowing large numbers of illegal immigrants or the dead to vote.

Not all who will vote for him are diehard Trump supporters. Many Republicans have fallen in line behind him, rather than fallen in love. But his talk of jobs, lives and values under assault unites conservatives. Party grandees appalled by their nominee's success should ponder how they have spent years denouncing Washington as corrupt, and accusing Democrats of threatening the country's future. Not many months ago Senator Ted Cruz of Texas, who came second in the Republican primaries, went around wooing Christian conservatives by beseeching God to “awaken the body of Christ, that we might pull back from the abyss.” As the primary contest began in the new year his supposedly less doctrinaire rival, Senator Marco Rubio of Florida, made his pitch to the hard right by asserting that Barack Obama had “deliberately weakened America”, accusing the president of gutting the armed forces and betraying allies because he saw America as “an arrogant country that needs to be cut down to size”.

Republicans reap what they sowed

Having painted the established order as an assault on all that America cherishes, however, Mr Trump's rivals offered only a reshuffling of political leaders in Washington as their solution. Mr Trump proposed something much more stirring: to take protection of the homeland into his own hands, as a sort of vigilante strongman. “I alone can fix it,” as he told the Republican National Convention. “I am your voice.” That is one reason why so many will forgive his boorishness, his refusal to release his tax returns, his praise for sundry foreign autocrats and other flaws that would normally doom a presidential nominee. Supporters hear a presidential candidate talking of the need for desperate measures in the name of self-defence, and that resonates. As a result, they judge him as they would judge themselves, should they hear window-glass shattering in the dead of night. Such voters will not easily be stood down, however this election ends. Mr Trump's malign influence will not quickly fade. ■



Dams in the Amazon

Not in my valley

SÃO PAULO

Hydropower is not as reliable as people thought. New ways to generate electricity are becoming more attractive

EARLIER this year Arnaldo Kabá, chief of Brazil's Munduruku people, journeyed from his home in Brazil's Tapajós valley to London to demand a halt to projects which, he believes, threaten his people's land. Flanked by activists in monkey costumes, he showed up at the steel-and-glass British headquarters of Siemens, a German engineering firm that makes turbines for hydroelectric dams, and demanded an audience with its boss in the country. The boss was not around; the company promised Mr Kabá a meeting later.

The chief is especially exercised about the São Luiz do Tapajós (SLT) project, in which Siemens is not involved. It would dam one of the last big unobstructed tributaries of the Amazon (see map next page). The project would provide about a third of the hydropower that Brazil plans for the forthcoming decade, but it would also flood 376 square km (145 square miles) of land where the Munduruku hunt, fish and farm. "The Tapajós valley is our supermarket, our church, our office, our school, our home, our life," explained Mr Kabá.

The Munduruku won a battle in August when IBAMA, Brazil's environment agency, suspended licensing for the project, saying that Eletrobrás, the utility leading it, had provided too little information on its social and environmental impact.

That decision might still be reversed. Since it was made Brazil has impeached one president and installed another, Mi-

chel Temer. His priority is restoring growth to an economy suffering its worst-ever recession. The new government has put IBAMA's decision-making, which many investors regard as too slow and cumbersome, under review.

The tussle over the Tapajós dam is part of a bigger fight about Brazil's energy future. SLT is an example of a new sort of hydropower project, which floods a smaller area than traditional dams and therefore ought to cause less disruption and environmental damage. The massive Itaipu dam on the border with Paraguay inundated an area nearly four times as large. But critics of hydropower say "run of river" projects like SLT, which use a river's natural flow to turn turbines, do not work as well as advertised. Though less destructive than conventional dams, which require bigger reservoirs, they still provoke opposition from people like the Munduruku. Other energy sources, such as gas and wind, are becoming more competitive. Brazil has "an opportunity" to rethink its energy policies, says Paulo Pedrosa, an energy official.

Hydropower has long been Brazil's main way of generating electricity. Most forecasts suggest it will remain so. The government intends to build more than 30 dams in the Amazon over the next three decades. The military dictators of the 1970s had little compunction about flooding vast areas of forest and displacing thousands of families. More recent (democratic) govern-

ments have turned to run-of-river dams. The world's third-largest hydropower plant by output, Belo Monte on the Xingu river, opened earlier this year.

But newfangled dams have problems. More than conventional ones, their output of electricity fluctuates with the seasons. Belo Monte can produce 11,000MW when the Xingu is in spate, but less than a tenth of that in the driest months (September and October). Climate change may worsen the problem. Some climate models predict that river flows in large parts of the Amazon will fall by 30% in coming decades. Deforestation is delaying the onset of the rainy season in some areas by six days a decade, according to research published in *Global Change Biology*, a journal.

A river crawls through it

Drought can be expensive. In 2014 power from conventional dams dipped because of a dry spell, forcing electricity companies to buy from gas- and coal-powered generators at high spot prices. The risk of such fluctuations rises with run-of-river dams. Carlos Nobre, a former chief of research at the ministry of science, technology and innovation, thinks more frequent droughts will make future hydropower projects in the Amazon unprofitable.

Some energy planners think the answer to the shortcomings of run-of-river dams is to go back to the big-reservoir dams of the past. That is the solution favoured by Romeu Rufino, chief of Brazil's electricity regulatory agency. It would eliminate the problem of variation in river flow (though not the risks that come with drought). The price would be causing environmental and social damage on the scale that earlier dams did.

New fuels may give Brazil other options. Its potential for solar and wind energy is among the highest in the world. The ►►

Also in this section

39 Rio's Pentecostal mayor

39 Femicide in Argentina

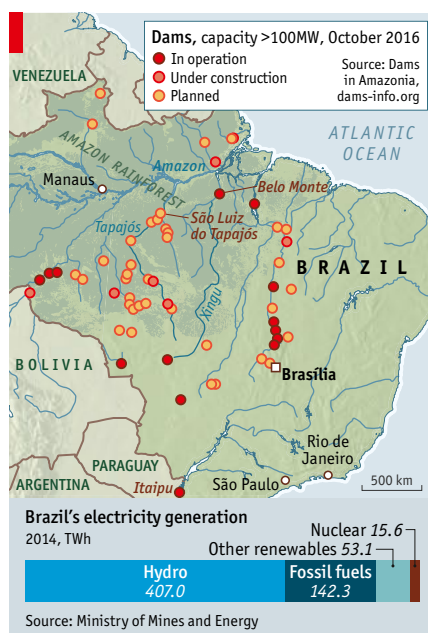
40 Bello: Venezuela and the Vatican

government has promoted them with lavish tax breaks. In the blustery north-east, wind power overtook hydropower this year; wind turbines now generate 36% of the region's electricity, up from 22% in 2015. The Energy Research Company, a firm linked to the energy ministry, expects renewable generating capacity apart from hydropower to double by 2024.

Generators fuelled by natural gas have been hurt by the subsidies lavished on renewable energy. But, though less climate-friendly than hydropower, they are beginning to compete with it as a source of steady baseload electricity. Brazil now produces gas in abundance as a by-product of pumping oil from its offshore wells. Its marginal cost of production is nearly zero. The future of baseload energy is "hydro-thermal", rather than hydro alone, says Adriano Pires of the Brazilian Infrastructure Centre, a think-tank in Rio de Janeiro.

What Brazil's planners will ultimately decide is unclear. Decision-making is split among various agencies, including the energy ministry and the National Council for Energy Policy. Many officials, in their posts for decades, have pet projects, among them dams in the Amazon.

The recession gives them extra time to reconsider the future energy mix. It has



caused a sharp and unexpected drop in electricity use; consumption is unlikely to return to its pre-recession level until 2018. By then, Mr Kabá and his allies hope, dams like the one that threatens to flood the Tapajós valley will be deemed obsolete. ■

Violence against women

Murder and machismo

BUENOS AIRES

Fighting femicide in Argentina

POLICE called to a house near the Argentine city of Mendoza on October 23rd made a grim discovery. They found the body of Claudia Arias, a 31-year-old mother of three, alongside the corpses of her aunt and grandmother. The women had been beaten and stabbed to death. Two of Claudia's children, an 11-year-old boy and a ten-month-old girl, were seriously wounded. Daniel Zalazar, her ex-partner, was arrested on suspicion of murder. Police believe the couple had fought over the paternity of her youngest daughter. The children are recovering in hospital.

The triple murder shocked Argentines. So too did its timing. Four days before, thousands of demonstrators, mostly women dressed in black, marched through Buenos Aires and other cities to demand that the government do more to prevent violence against women. Claudia Arias was among them. It was the third march called by Ni Una Menos (Not One Less) since June 2015, when hundreds of thousands protested in Argentina, Uruguay and Chile. The latest demonstration—"Black Wednesday"—was a response to the rape and murder of Lucia Pérez, a 16-year-old student, in Mar del Plata in Argentina on October 8th.

Last year an estimated 235 Argentine women were victims of "femicide", defined as the murder of a woman because of her sex. Horrific though the number is, Argentina is less dangerous for women than most other Latin American countries. The murder rate for women is around a tenth of that in El Salvador and Honduras and is lower than in the United States. Where Argentina stands out is in the activism that the violence has stirred up.

The country has relatively high levels of education, strong civil-society groups and a "long history of feminist activism", points out Maxine Molyneux, a sociologist at University College London. *La Voz de la Mujer* ("Voice of Women"), an anarchist-feminist newspaper, was published at the end of the 19th century. Protest has forced the government to act, sluggishly at first, but with increasing urgency.

Until now, it has focused on law enforcement. In 2009 the government of then-president Cristina Fernández de Kirchner enacted the "women's comprehensive protection law", which pledged to "prevent, punish and eradicate" violence against women. In 2012 her government joined others in Latin America in introducing anti-femicide laws, which raised the

Rio de Janeiro

A Pentecostal's progress

SÃO PAULO

Sin city elects a preacher as mayor

RIO DE JANEIRO is better known for bikinis than fire and brimstone. But on October 30th Cariocas, as the city's residents are known, elected a Pentecostal bishop, Marcelo Crivella, as their mayor. Mr Crivella, a senator from the conservative Brazilian Republican Party (PRB), trounced Marcelo Freixo of the leftist Socialism and Liberty Party.

Mr Crivella's victory—after two unsuccessful campaigns—has rekindled talk of Pentecostals' ascendancy in Brazilian politics. The PRB is the political arm of the Universal Church of the Kingdom of God (UCKG), Brazil's second-biggest Protestant sect. It was founded in 1977 by Edir Macedo, a former Rio state lottery official (and Mr Crivella's uncle). The UCKG's prosperity gospel, preached in thousands of churches and through the 16 radio and television stations that helped make Mr Macedo a billionaire, appeals to Brazil's aspiring poor. Besides capturing Rio, the PRB increased its nationwide vote share by half compared with its performance in the last local elections four years ago.

This has liberal Cariocas and other like-minded Brazilians quaking in their

Havaianas. Many fret about the spread of Pentecostals' stern views on such issues as gay rights and abortion. So far, though, they have been political underachievers. Protestants (of whom Pentecostals are a subset) are thought to make up a quarter of Brazil's population. But just 15% of deputies in Brazil's congress share their faith. Despite its gains, the PRB won just 3.8% of the votes in local elections. Mr Crivella, the first Pentecostal to govern a big city, played down his links to the UCKG during the campaign.

His victory owes more to his conservatism than to his faith, argues Edin Abumanssur of the Pontifical Catholic University in São Paulo. Voters abandoned the left, blaming it for Brazil's recession and for sleaze under left-wing presidents over the past dozen years.

Rio's earthly concerns will prevent Mr Crivella from pursuing a religious agenda. He has already pledged to continue public financing for Rio's gay-pride parade and its salacious samba schools. He has promised to improve schools, hospitals and public transport. Mr Crivella will be judged on his temporal successes. So will his fellow Pentecostal pols.

▶ maximum prison sentence from 25 years to life. The next year she launched a helpline for victims of domestic violence.

Progress has been slow. Government financing for the national women's council, the agency responsible for putting the protection law into practice, was derisory until last year, when its budget was trebled. Although the law mandated annual reporting of femicide statistics, poor co-ordination between the statistics institute and the supreme court, which puts out the data, delayed publication until last year. Women calling the helpline wait up to half an hour to get through.

The police do not yet take domestic violence seriously enough. At least a fifth of the women killed last year had complained to police about the men who were later accused of their murders. Many officers still believe, wrongly, "that domestic violence is a private matter", says Sabrina Cartabia, a leader of Ni Una Menos.

Mauricio Macri, who succeeded Ms Fernández as president at the end of 2015, is trying to do better. Under a new plan the government will spend 750m pesos (\$50m) over three years to build 36 women's refuges and increase the electronic tagging of violent men.

Activists say that the urge to commit violence comes from a culture of machismo that encourages male misbehaviour. To eradicate such attitudes "you have to start young," says Ms Molyneux. Mr Macri, who once suggested that women were in fact pleased to be the object of catcalls, is now heeding that lesson. His new plan would introduce "gender perspectives" into the national curriculum, encouraging teachers "constantly to refer to both sexes" and to abjure sexual stereotypes. It will take more than that to uproot machismo. But investing in classrooms as well as police stations is a good idea. ■

Bello | What is to be done in Venezuela?

Vatican-sponsored talks are more promising than they look

BOTH the timing and the presentation were inauspicious. On October 24th Nicolás Maduro, Venezuela's embattled president, made an unscheduled call on Pope Francis. Meanwhile, in Caracas, a papal envoy announced that the Vatican had agreed to co-sponsor talks between the government and the opposition. The news came just days after the government-controlled electoral authority suspended—and perhaps cancelled—the referendum to oust Mr Maduro that the opposition seeks and the constitution allows. The opposition, which had long sought papal mediation, was at first taken aback when it came.

The talks, which also involve the South American Union (Unasur), were widely written off even before they began, under the aegis of Claudio Maria Celli, an experienced Vatican diplomat, on October 30th. In fact, they offer the only chance of a swift and peaceful return to constitutional rule in Venezuela.

That is urgent. Since replacing the late Hugo Chávez in 2013, Mr Maduro has presided over the dissolution of his country. His state-socialist economic policies, combined with lower oil prices, have produced a savage slump: according to the IMF, by the end of this year the economy will be 20% smaller than in 2013. Inflation is surging. Prolonged shortages of basic goods are causing palpable hunger. Infant mortality is rising sharply.

The people have turned against the regime. In December the opposition won an election for the national assembly. Polls show that 80% of respondents want a change and more than 60% would vote to recall the president. Mr Maduro, a bovine figure, is a prisoner of Chávez's ghost. He sees himself as the guardian of his mentor's "revolution". Rather than share power, he has slid into dictatorship.



He rules by decree, ignoring the assembly. Many analysts think his plan is to tough it out until his term ends in 2019.

Can he get away with it? Twice in the past two months the opposition has organised vast demonstrations to press for the recall referendum. But the regime retains a monopoly of hard power. In what a foreign security analyst calls "a creeping military coup", Mr Maduro has turned many government responsibilities, including food distribution, over to the armed forces. He uses selective repression to intimidate opponents. According to the Venezuelan Penal Forum, an NGO, there are more than 100 political prisoners.

Radicals in the opposition, among them Leopoldo López, a prisoner since 2014, trust in further mass protests. Their implicit strategy is to force the army to choose either to fire on unarmed demonstrators or to break with the regime. That is risky. A descent into violence would help neither the opposition nor the country. Many Washington think-tankers are huffing and puffing for the United States to take tougher action. It is hard to see that helping. In 2015 it imposed sanctions on several

Venezuelan officials; Mr Maduro milked the episode for nationalist propaganda.

Since 2014 he has had desultory conversations with the opposition, through Unasur, whose secretary-general, Ernesto Samper, is sympathetic to *chavismo*. The opposition, rightly, suspects that Mr Maduro used this "dialogue" to play for time. This week it called off a protest march after the government released five political prisoners. But Mr López's party and others are suspicious of the talks. Mr Maduro's aim may be to use them to divide the opposition.

That Unasur is still at the table obscures the fact that the Vatican's involvement changes the nature of the negotiations. For the first time, the two sides have sat down to discuss an agenda. This includes restoring the rule of law, human rights (read, releasing all political prisoners), the economy and the electoral timetable. Thomas Shannon, an American diplomat, visited Caracas this week to back the talks. By agreeing to intervene in Venezuela at last, Pope Francis has put his prestige on the line.

The negotiations will not be easy. The aim should be to broker a transition that would see Mr Maduro restore constitutional rule or be replaced, either through an early election or by a national-unity government. Despite public pledges of loyalty, much of the army wants a transition. And Mr Maduro is running out of cash. The government faces debt payments of \$13bn over the next year, while its international reserves have sunk to just \$10.9bn (mainly in gold). The constitution requires the assembly to approve increases in the debt limit. Investors are likely to insist on that. Mr Maduro's bargaining position is less impregnable than it looks. That is why the talks offer the best hope of saving Venezuela.



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Lebanon

Census and sensibility

BEIRUT

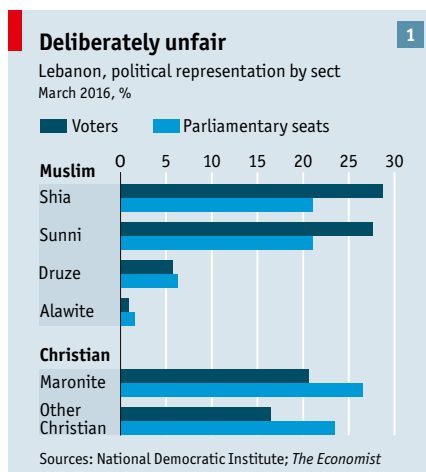
New data reveal a looming crisis for Lebanon's ruling elite, exposing the fiction at the heart of the country's politics

FEW Lebanese politicians have weathered their country's rolling political storms better than Michel Aoun. The 81-year-old rose from warlord to military commander to prime minister at the end of the country's lengthy civil war, before Syrian warplanes bombed him into exile in 1990. Having made peace with his former enemies, he returned years later to lead the most powerful Christian party in Lebanon. On October 31st he became the country's 13th president.

It has taken Lebanon more than two years and 45 failed attempts to elect a president. The political deadlock has paralysed decision-making and crippled basic services in a country already buckling under the strain of 1m Syrian refugees. It has also exposed the clunky inadequacies of Lebanon's political system.

When it was first carved out of the crumbling Ottoman empire, Lebanon was intended as a haven for Christians in the Middle East. Their numbers have since dwindled after decades of war, emigration and low birth rates. But their political clout remains. Half of the seats in parliament are reserved for Christians, a number pegged to a national census conducted in 1932 when Christians made up 50% of the population. There has been no census since.

Official government figures obtained by *The Economist* show just how lopsided



this arrangement has now become. The data, taken from the voter registry, reveal that only 37% of Lebanese voters are Christian. It is little wonder that many fear a new census may inflame tensions in a country deeply divided along sectarian lines.

"A new census would upset the order of things," says Walid Jumblatt, the leader of Lebanon's Druze (a small esoteric sect which developed out of Islam but has little in common with it) and chairman of the Progressive Socialist Party. "It is a very sensitive issue. The results of a new census would cause many problems. It would irri-

tate some sections of the community. There are already too many tensions between Shias, Sunnis and Christians. A census is not something we need right now."

The Economist obtained the voter registration lists, which include information on the religious affiliation of the country's 3.6m eligible voters, after they were posted on a website belonging to the Interior Ministry. They have since been taken down.

The data show that Maronite Catholics, once the largest sect in Lebanon, now make up only 21% of voters. That crown has passed to the Shias, now 29% of those listed, followed closely by the Sunnis, who make up 28%. Given their lower birth rates and higher rates of emigration, Christians are likely to be an even smaller share of the general population than they are of voters. Yet while the Sunnis and Shias each have 27 seats in the 128-member legislature, the Maronites have 34 (see chart 1).

Whenever Lebanon erupts in violence, efforts are made to tinker with, though not fundamentally alter, these imbalances. The Taif Agreement, which ended the country's 15-year civil war (1975-1990), stripped the Maronite presidency of much of its original power and strengthened the roles of both prime minister and Speaker of parliament, which are always held by a Sunni and Shia, respectively. Another agreement in Doha after violence flared up in Beirut in 2008 saw the Shia-led opposition under Hizbullah win the right to veto major decisions. Parliament's dysfunction, seen in its inability to elect a president for more than two years, is partly a product of these power-sharing agreements.

Daily as the parliamentarians may, the fib underpinning Lebanon's political system will only become more egregious. Records of voter age also included in the reg- ▶▶

► istry show how Muslims make up a large majority of the country's young (chart 2). So Christians will find their control over half of parliament even harder to justify in the years to come. Try as he may, Mr Aoun will face an uphill battle if he attempts to claw back the presidential powers lost by Christians at Taif.

Change will be hard, though. Any new formula will lead to sectarian strife, which no one wants to see in Lebanon," says Randa Slim of the Middle East Institute, a think-tank based in Washington. "The Christians have half of parliament, the Sunnis have the prime minister's office and Hizbullah are too busy in Syria. The men who run this country have no interest in renegotiating the status quo. It would lead to conflict."

Another problem looms for tiny Lebanon. Since the civil war began in neighbouring Syria, Lebanon has taken in 1m refugees, who are now roughly a quarter of the population. The great majority of them are Sunni, making their absorption as citizens impossible without upending the already strained sectarian balance. Lebanon faced a similar conundrum over the 450,000 Palestinian refugees who entered it from Israel and Palestine from 1948 onwards. Rather than integrate them, the government issued repressive laws limiting their ability to get work, creating an underclass where radicalism was free to fester.

Christians in Lebanon fear, with good cause, that rebalancing the country along new sectarian lines will leave them a depleted minority in their own land. Yet the current order of parliamentary over-representation may be sustainable for another decade or even two; it also may not. Stony silence on the matter appears to be the government line. But ignoring impending crises such as these in the Middle East has a tendency to lead to bloodshed. ■

Saudi Arabia's reforms

Building on sand

RIYADH

The kingdom's young reformers are meeting old obstacles

FOR evidence that a new era has dawned in Saudi Arabia, look no further than the cabinet. Out are the stodgy old princes; in are the (relatively) youthful reformers. Since assuming the throne last year, King Salman has installed a new generation of ministers closely aligned with his son, 31-year-old Muhammad bin Salman, the deputy crown prince. On October 31st the king completed the reshuffle by replacing Ibrahim al-Assaf, the old finance minister (in place for the past 20 years), with Muhammad al-Jadaan, head of the country's Capital Markets Authority.

The change comes as Prince Muhammad tries to implement an ambitious set of reforms, known as "Vision 2030", aimed at weaning the kingdom off oil by curbing public spending, diversifying the economy and attracting foreign investment. The kingdom's new leaders, many of whom are former businessmen or bankers, are expected to boost that effort. Mr Jadaan, for his part, oversaw the cautious opening of the Saudi stockmarket to big foreign investors last year.

But it will take more than new management to convince analysts that the kingdom is serious about reform. "They've been talking about this stuff for 30 years," says a diplomat in Riyadh, the capital. He points to the King Abdullah Financial District (KAED), a cluster of gleaming skyscrapers in the northern part of the city. When laying the foundation stone a decade ago, the late King Abdullah envisioned the district as a pillar of the non-oil economy. But KAED is a flop. Banks and other businesses looked past the towers and saw a closed economy and stifling social restrictions, which never changed.

Today the government is more focused on enacting its bold plans, says Muhammad al-Tuwaijri, the former boss of HSBC's Middle East and north Africa division, who is now deputy minister of economy and planning. "Believe me, this is discussed every week," he says. Progress reports are required from each ministry. For doubters, KAED is still a useful barometer. Prince Muhammad hopes to salvage the project by making it a "special zone" with light regulations, a more flexible visa regime and a direct connection to the airport. None of that has happened yet.

Smaller steps have already been taken that show progress, but also a lack of touch. In September, for example, the government slashed salaries and benefits for



The prince with a plan

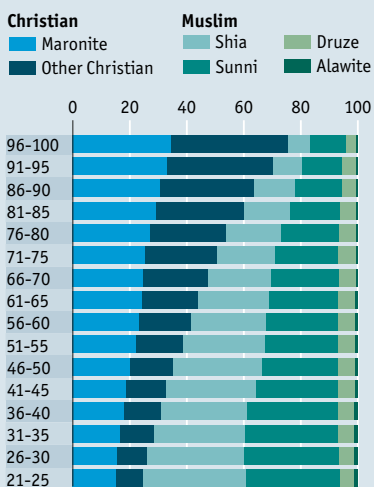
public-sector employees, who make up two-thirds of Saudi workers. But the move was made with little warning, contributing to a collapse in consumer confidence. Earlier in the year, cuts to generous subsidies led to a spike in water bills and an outcry on social media. The veteran minister for water and electricity was duly fired and replaced by a former businessman. "He took the blame for a policy that wasn't thought through," says John Sfakianakis of the Gulf Research Center, a think-tank.

A bigger problem is that the vision itself is fuzzy. Prince Muhammad commands an army of Western consultants, but his National Transformation Programme, the follow-up to Vision 2030, is both oddly specific and frustratingly vague. It includes benchmarks for such things as the issuing of halal certificates, but fails to explain how the government intends to achieve more important goals, such as more than doubling foreign-direct investment by 2020. Many of its objectives are still "under study". The reformers have prioritised the "low-hanging fruit", admits Mr Tuwaijri. More complicated initiatives, such as his own effort to privatise public companies, will follow in due course, he says.

Business-minded ministers are eager to promote private investment, but other reforms are making this work more difficult. ►►

Signs of the future

Lebanon, voters by age and sect, March 2016, %



Source: The Economist

▶ A sevenfold hike in business-visa fees will probably deter foreign firms. Local companies that depend on cheap inputs are suffering. Almarai, a big dairy, has said its earnings will decline by over \$130m due to the government's austerity measures. There has also been a rise in public arrears to construction firms, which has led them to cut staff and withhold salaries. Some foreign labourers have been left stranded without pay in desert camps.

Before the collapse in oil prices, two large Saudi contractors—the Saudi Binladin Group and Saudi Oger—were responsible for most of the kingdom's infrastructure projects. But state spending cuts have left both firms mired in debt. Saudi Oger is owed billions of dollars by the government, most for work it has completed. It, in turn, owes billions to banks (and still more to contractors, suppliers and workers). The Binladin Group also complains of unpaid contracts. Neither firm is known for its efficiency, so the government may be trying to set a new tone. But its actions have unsettled the Saudi banking system and the wider economy.

Local motion

Businesses have also been vexed by the government's efforts to make private firms replace relatively cheap foreign workers with more expensive Saudi nationals, a policy referred to as "Saudisation". The mobile-phone industry was ordered to employ only locals by September. The government has provided training for locals and now pays some of their salaries. But in general Saudis lack the skills that employers want. Schools stuff young heads with religion, but neglect more practical subjects such as maths and science. Few Saudis are willing to take entry-level or blue-collar jobs. To meet the government's quotas, some companies simply pay locals to stay at home.

The IMF recently cut its economic growth forecast for the kingdom's non-oil sector this year to 0.3%, from 1.6%, on account of the government's austerity. But it is expected to rebound next year. "The majority of the necessary public-spending cuts have already happened," says Capital Economics, a consultancy. A successful \$17.5bn international bond sale, the largest ever from an emerging market, has already allowed the government to resume paying contractors, and investors' enthusiasm for snapping up the paper is a good sign.

But the reforms envisioned by Prince Muhammad and his team run much deeper than mere austerity. Investors are still waiting for more meaningful changes, such as the promised listing of shares in Saudi Aramco, the gigantic national oil company. "This is the medium-hanging fruit that the world will be watching to see if the reform project will be successful," says Mr Sfakianakis. ■

Cronyism in South Africa

Friends with benefits

An ombudsman finds worrying signs of influence-peddling

ON THE day that Jacob Zuma, South Africa's president, was due to meet his Zimbabwean counterpart in Harare, an anti-corruption ombudsman back home released a report that may make his continued rule every bit as precarious as that of the ailing Robert Mugabe. The report into "State Capture", compiled by the former Public Protector, Thuli Madonsela, details a disturbing web of influence exerted over parts of the South African state by a powerful family of Mr Zuma's chums.

The report does not provide proof of criminal wrongdoing by Mr Zuma. But it presents more than enough evidence to suggest that his wealthy benefactors—the brothers Atul, Ajay and Rajesh Gupta—were involved in the firing and appointment of government ministers and the award of large contracts by Eskom, the large state-owned electricity utility.

Mr Zuma's dwindling band of supporters will, no doubt, argue that the report exonerates him of any wrongdoing. But that would be to misread the nature of Ms Madonsela's findings; for this is but a first salvo in a legal barrage that may see Mr Zuma out of office before the end of 2017. All that Ms Madonsela had to do in this report was show that there was enough apparent evidence of wrongdoing to justify her binding order that the government establish a judicial commission of inquiry that, in turn, must now investigate alleged influence-peddling by the president more fully.

Take the details in her report of testimony by the deputy finance minister, Mcebisi Jonas, who said that he had been offered 600m rand (\$44m) by Ajay Gupta. All he had to do in return was agree to be appointed finance minister and then to replace key executives in the National Treasury, which was a "stumbling block" to the Gupta family's business ambitions. When Mr Jonas declined the offer Mr Gupta upped it, asking if he had a bag big enough to hold 600,000 rand in cash that he could take with him right away. A few months later the finance minister, Nhlanhla Nene, was abruptly fired and replaced by an unknown backbencher who appears to have spent more time with his friends the Gupatas than he did in his ministerial office.

The call for a judicial commission is worrying in that it would seem to suggest that Ms Madonsela had little faith in the independence of her successor, Busisiwe Mkhwebane. But it is also tactically astute. Throughout her report Ms Madonsela



Zuma's latest headache

complains of how her investigation was hamstrung by a shortage of money and obstruction by the president. Her order (which Mr Zuma may now try to block) that the government appoint a commission that is "adequately resourced" and run by a judge chosen solely by the Chief Justice ought to lead to a robust probe into the relationship between Mr Zuma and his friends. Ms Madonsela has ordered that the commission report back in no more than 180 days after its appointment—starting the ticking of a clock that may count down Mr Zuma's last days in office. ■

Boko Haram

Rounding up the survivors

MAIDUGURI

If you are young and male the army may arrest you as a jihadist

THE men who queue for food in a camp in Bama have something in common: almost all of them are old. Young men who were fit to fight have been either conscripted or killed by Boko Haram, says a commander of the government forces that pushed the jihadists out of this town in north-eastern Nigeria last year.

Now more than 10,000 people live behind the high walls of a former hospital in Bama, which has been converted into a camp for the internally displaced and is guarded by soldiers. Among the throngs, women sit sewing prayer hats and children roll tyres through the dust. But hardly a working-age man can be seen. Data from the International Organisation for Migration show that there are more than two adult women for every man aged 18 to 59 in Bama, which previously sat in the centre of ▶

► Boko Haram's self-declared caliphate.

Since they started fighting for an Islamic state in 2009, the jihadists have kidnapped more than 10,000 boys and trained them in boot camps. Those loyal to Boko Haram's recently deposed leader, Abubakar Shekau, murder Muslims who refuse to join them. But there is another explanation for the discrepancy, and it comes from the army itself.

Young men who escape to government-controlled areas are often separated from their families and detained, survivors told *The Economist*. Being young, male and alive is seen as evidence of guilt, according to Amnesty International, a human-rights group. "Any man of 20 to 30 is taken straight for screening," says a 54-year-old cattle trader, who was held for two months. A second survivor calls the screening process an "attempt at removing young men". Arrests are sometimes conducted en masse. Both men say they were rounded up and taken from Bama's camp to a detention centre. They claim that boys as young as ten were arrested with them. Amnesty had recorded three such mass arrests by May. Less commonly, city residents are also targeted. Rabi'u Usman, a taxi driver, was arrested last year after attempting to tip off vigilantes about a suspicious passenger. The man detonated a suicide vest, killing only himself, after Mr Usman stopped at a checkpoint. Mr Usman then spent four months in detention.

The government acts as if anyone in a rebel-held area supports Boko Haram, says an aid worker in Maiduguri, the biggest city in the north-east. Yet 2.1m people are thought to be stuck in such areas. The jihadists often kill those who try to flee, even though the group has been pushed out of major towns.

The army has no legal right to detain civilians. The International Criminal Court lists the mass arrest and abuse of male suspects by the Nigerian army as a potential war crime. It believes that more than 7,000 people have died in military detention. That is almost half the number of deaths attributed to Boko Haram since May 2011, according to the Council on Foreign Relations, a think-tank.

Perhaps the most notorious of the Nigerian armed forces' screening facilities is Giwa barracks in Borno state, where about 1,200 people, including children, are incarcerated. At least 149 of Giwa's detainees (mostly men) died between January and May this year, according to Amnesty. Some appeared to have suffered gunshot wounds. Survivors report horrific conditions, including overcrowding, hunger and disease. They sleep in a squat and defecate into bags. "The first thing they did every morning was to ask if any people had died," the cattle-herder reports.

Several female suspects told *The Economist* that they witnessed men being round-

Censorship in Kenya

X-rated everything

NAIROBI

Is the film censor out of control?

WHAT does a film certification board do? In Kenya, the job seems to have expanded a lot. As well as certifying films, Ezekiel Mutua, the head of the Kenya Film Classification Board (KFCB), has also promised to raid strip clubs to prevent a wave of "bestiality". Also, he has raged against homosexuality and threatened to regulate Netflix as a possible threat to national security. This wave of censoriousness has amused the Kenyan press and made Mr Mutua into a national figure. But some Kenyans worry that it hints at the government's growing willingness to use censorship ahead of a tense general election next year.



The KFCB has existed since 1963. It has long been moralistic: in 2014 it banned "The Wolf of Wall Street" from distribution because of its "extreme scenes of nudity". Under Mr Mutua, who became the CEO last year, it has become far more active. In March he claimed that foreigners were organising a mass sex and drugs party called "Project x" in Nairobi, which they would film and sell as pornography. In July he threatened a nightclub over a speed-dating night he claimed was an "orgy of lesbians". On October 17th he said that women were being paid "peanuts" to perform sex acts on dogs.

It is questionable whether any of these accusations are real—or that the KFCB even has the authority to make threats based on them. Nonetheless, they have been splashed across the Kenyan press, and won Mr Mutua a following among social conservatives.

The worry is that, in time, the country's self-appointed moral guardian will go beyond policing morality. Mr Mutua seems to have plenty of fans in government, says Patrick Gathara, a Kenyan cartoonist. A bill in parliament to widen the remit of the film board would also give him more power to regulate advertisements and live events, such as plays. Some of that could easily tip into political censorship. "At the moment, they're seeing what they can get away with," says Mr Gathara. The next stage, he worries, will be to use the film board to choke off political criticism. First they came for the alleged lesbian orgies, and Kenyans did not speak up.

ed up in groups of tens or hundreds, blindfolded, and loaded onto Hilux trucks. "There was one day when they took three sets of men, maybe 150 of them each time," claims a woman who was released last year. "We never saw them again." No independent investigation has been conducted into the killing of 640 recaptured Giwa detainees, who escaped during a Boko Haram attack in 2014.

Rabe Abubakar, a defence spokesman, denies allegations of abuse, saying that "these are all efforts to ensure the safety of people in camps." He adds that human-rights desks have been set up within each military unit since President Muhammadu Buhari, a former dictator, came to power last year promising to end the insurgency and address the abuses that had proliferated under his predecessor. Some inmates do report an improvement in conditions.

"The soldiers themselves said that in previous times they killed, and now they don't," recalls one man, who was released this year. Over 3,000 detainees have been freed by an investigation committee comprising members of the government and the armed forces, says Borno's attorney-general. Suspects are tried before being found guilty, he said, though lawyers retort that few trials have actually taken place.

Boko Haram has kidnapped girls as sex slaves and conscripted boys as fighters, so north-easterners are understandably keen to see its "caliphate" destroyed. But they do not welcome the persecution of anyone who looks vaguely like a jihadist. As Boko Haram is pushed out of the huge territory it controlled two years ago, further abuses seem likely. And the rage at the Nigerian government that sparked the insurgency in the first place will not be extinguished. ■



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The battle for Russia's history

Remember, remember

MOSCOW

Memorial was founded to commemorate victims of state repression. Now the human-rights group may fall victim itself

“HE WHO controls the past controls the future. He who controls the present controls the past,” George Orwell wrote in “1984”. As Russia’s politics grows more Orwellian, the fight over its past is heating up. The Kremlin’s latest target is Memorial, the country’s most respected human-rights group, set up in the 1980s to commemorate victims of Stalin’s terror.

On October 29th thousands of people queued in a park opposite the headquarters of the agency once known as the KGB to read out the names of some of those whom Stalin had executed. The park features a monument to those victims, a large stone brought from the Solovetsky Islands, site of one of the first Soviet labour camps. Volunteers handed out bits of paper with names printed on them: “Zherebenkov, Dmitry Filatovich, 57, a worker in a cement factory. Executed on September 21st 1937. Zherikov, Semen Nikiforovich, 26, a labourer in a limestone quarry. Executed on March 9th 1938.”

The event has been held annually for ten years, but Arseny Roginsky, Memorial’s chairman, said he had never seen so many people. Ordinary Muscovites kept arriving from 10am until 10pm, undeterred by rain and snow. The names they managed to read were a drop in the bucket of Stalin’s terror. In the peak years of 1937 and 1938, according to Memorial’s figures, at least 30,000 people were executed in Mos-

cow, and 700,000 throughout the country.

Memorial was perhaps the most successful civic institution created during Mikhail Gorbachev’s *perestroika* reforms. One founder was Andrei Sakharov, the Nobel Prize-winning physicist and human-rights activist. Another was Mr Roginsky, a historian jailed in 1981 for publishing a *samizdat* almanac entitled *Pamyat* (“Memory”). By the time of his release in 1985, the word *pamyat* had become the name of an anti-Semitic nationalist movement, forcing Mr Roginsky’s group to adopt the foreign-sounding name “Memorial”.

In the wars in Chechnya beginning in the 1990s, Memorial investigated and denounced abuses by the Russian army, including murdering civilians and torturing detainees. Journalists came to rely on the group for information. Its human-rights activists were constantly under pressure; some, including Natalia Estemirova, lost their lives. But until recently, the group was allowed to pursue its historical activities untouched. No longer. Last month the government declared Memorial a “foreign agent”—once a Stalinist term for traitors, now a legal classification intended to throttle troublesome civil-society groups.

The foreign-agents law was introduced in 2012, at the outset of Vladimir Putin’s third presidential term. It required any organisation receiving money from abroad and engaging in “political activity” to regis-

ter. At first, none did. The issue was not the money—charities with foreign donors were happy to acknowledge them—but the definition of “political activity”.

“We understand political activity as taking part in a competition for political power,” says Mr Roginsky. But under the Kremlin’s definition, any attempt to shape public opinion or influence government policy was “political activity”. In the case of Memorial this included statements objecting to the war in Ukraine and the killing of Boris Nemtsov, an opposition leader; and opposing the law on foreign agents.

Memorial must now label all of its publications—including lists of Stalin’s victims—as the work of a foreign agent. This will put pressure on anyone who comes into contact with the group, such as the thousands of teachers and schoolchildren from remote parts of the country who had participated in its education projects.

Fun with facts

That the Kremlin has struck against Memorial now is no surprise. In Mr Putin’s third presidential term, control over Russia’s history has become as important as control over television, oil and gas were in his first two. Unable to deliver economic growth, the Kremlin needs to cook up reasons to keep the population in a constant state of mobilisation against external threats. The way the propagandists tell it, Russia is surrounded by enemies and can only be defended by Mr Putin. The past is reshaped to fit this story. The second world war is presented as a Russian victory over the West; the government has commissioned new history books that present the Molotov-Ribbentrop pact to carve up Poland between the Soviet and Nazi regimes as a self-defence measure. Even national security organs are caught up in the struggle over ►►

▶ the past. According to *Kommersant*, a daily, a recent meeting of Russia's security council focused on measures to prevent the "falsification" of history by foreign states and international organisations. It identified six sensitive historical issues, including the ethnic policy of the Russian empire, Russia's role in defeating fascism in the second world war, and "political crises" (read: Soviet crackdowns and invasions) in East Germany, Hungary and Czechoslovakia.

Mr Putin derives his legitimacy not from free elections, but from a historical narrative that links him to the long procession of Russia's rulers. This starts with Prince Vladimir the Great, the tenth-cen-

tury ruler of the Kievan Rus proto-state that Russians see as the progenitor of their own. Mr Putin has just had a huge statue of Vladimir erected opposite the Kremlin; another Russian city recently built one of Ivan the Terrible (see box). Stalin, who is presented as a strong imperial ruler, is another role model. Olga Vasilyeva, a religious nationalist recently appointed as education minister, has praised the Soviet dictator for restoring state patriotism to the centre of Russian history: "The highest interest of any citizen is the interest of the nation."

Russian liberals are not surrendering their history easily. The more pressure the state applies to Memorial, the stronger is

the counter-reaction. The past few years have seen the birth of a grassroots movement calling itself "last address". Volunteers erect plaques at the final known addresses of those who were arrested in the Stalin years and never returned. Although supported by Memorial, it has no formal organisation that can be shut down.

Mr Roginsky says Memorial now faces three key tasks: "We must not let them kill us, we must retain our dignity and we must carry on our work." Judging by the growing number of plaques on Russian houses and the lines of people queuing up to read out the names of Stalin's victims, the fight is far from over. ■

Putinism's icons

A tale of two Vladimirs

MOSCOW

In Russia, statues are politics by other means

VLAGIMIR PUTIN has a new neighbor: a 16-metre-tall bronze monument to Vladimir the Great, a tenth-century Slav prince. The statue stands just outside the Kremlin's red walls. "In Soviet times it would have been Lenin," says the sculptor, Salavat Shcherbakov.

The monument's backers claim it commemorates the thousand-year anniversary of Vladimir's death in 2015, but the political subtext is clear. The proto-state which Vladimir ruled was based in Kiev (it is known as Kievan Rus), and Ukraine sees him as its founding father. His face adorns Ukraine's hryvnia note, and another monument to him already towers over the Dnieper river, where he baptised his people into the Orthodox faith. (He supposedly first rejected Judaism, Catholicism and Islam, telling Muslim envoys who demanded abstinence that "drinking is the joy of the Rus.") Russia's leaders, in turn, see the prince as the progenitor of modern Russia. "He's our prince," says Mr Shcherbakov.

Critics call the monument a crude gesture of Russian dominance. "It's plain for all to see that Prince Vladimir is actually President Vladimir," wrote Ekaterina Schulmann, a political scientist, when the plans were made public. Historians, too, question the logic. "When Vladimir was alive, Moscow did not exist," notes Igor Danilevsky, an expert on ancient Rus. The prince, who married the sister of the Byzantine Emperor Basil II and was baptised in Crimea, died in the early eleventh century. His domain split into warring fiefs that eventually gave rise to Russia, Belarus and Ukraine.

In March 2014 Mr Putin invoked the prince's legacy to justify the annexation of Crimea. "Suddenly people were interested in ancient Rus," says Mr Danilev-



Vlad the Great, hint-hint

sky. Soon afterwards, the Russian Military-Historic Society (RVIO), a Tsarist-era body revived in 2012, announced plans for the monument. The design-selection committee was headed by Bishop Tikhon, a clergyman believed to be Mr Putin's *dukhovnik*, or spiritual adviser.

Russia has been on a monument-building spree lately. Last month the city of Oryol unveiled a statue of Ivan the Terrible. Mr Shcherbakov is working on a likeness of Mikhail Kalashnikov, inventor of the famous rifle. In the current Russian political model, says Evgeniy Asse, a prominent architect, "the past is the main source of greatness."

France's president self-destructs

Into the abyss

PARIS

François Hollande's approval falls to 4%

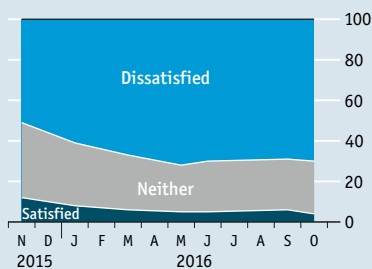
THE French have an expression, *l'appel du vide* ("the call of the void"), to refer to the compulsive urge to do something self-destructive, such as leap off a cliff. It captures the *frisson* felt in contemplating the act, but resisting it. President François Hollande, however, seems to have surrendered. In a 662-page book published last month by two journalists, based on recorded interviews with the Socialist president, Mr Hollande insults all and sundry: judges, footballers, his own ministers and more. That a leader seeking re-election could engage in such a politically suicidal exercise, six months before France's presidential election, has left his allies dumbstruck and his political future in freefall.

It was surprising enough that a sitting president in such turbulent times chose to meet the reporters, Gérard Davet and Fabrice Lhomme, fully 61 times over four years. Often they chatted at the Elysée Palace; sometimes he dined at their place. More shocking was what Mr Hollande said. He called the judiciary a "cowardly institution", the national football team "badly brought-up kids", the poor "toothless". He belittled the stature of Claude Bartolone, the speaker of parliament, and the education of Najat Vallaud-Belkacem, his education minister, neither of whom—unlike Mr Hollande—went to the Ecole Nationale d'Administration, the elite civil-service graduate school. *En passant*, Mr Hollande admitted to having authorised four targeted killings by the French secret services.

The damage was instant. Within days, the president dispatched eight letters of apology—to bodies representing judges, magistrates and prosecutors—claiming, creatively, that his comments bore "no relation to the reality of my thinking". A poll ►►

Can't get no...

Satisfaction with President François Hollande
France, % polled



Source: Ipsos/CEVIPOF/Le Monde

► taken after the book's publication recorded his approval rating at just 4% (see chart). In the past, when Mr Hollande has dug himself into a hole, his friends have helped him clamber back out. This time, they handed him a spade. Manuel Valls, the prime minister, spoke of his "anger" and his deputies' "shame". Mr Bartolone described his "stupefaction": a president, he added, has an "obligation of silence".

The French elected Mr Hollande in 2012 as an antidote to the frenetic Nicolas Sarkozy, his centre-right predecessor. They wanted, to use Mr Hollande's campaign slogan, a "normal" president. At times, notably after the *Charlie Hebdo* terrorist atrocities last year, Mr Hollande has looked the part. Yet despite his reputation for private charm, he has mostly failed to appear presidential. He does not make voters angry so much as indifferent. "I am the ghost of the Elysée," he says in the book. Relations between Mr Hollande and French voters now look irreparable.

How did the president end up here? He suffers from "hyperconfidence", suggests a former aide, which might explain his naive faith that the reporters would publish a less devastating book. This trait may yet lead Mr Hollande to run again, against all odds (and the desires of a growing list of Socialist deputies). With unemployment beginning to drop, and the economy doing a bit better, he might think he has a chance. He must decide by December 15th, the deadline to stand for the party's primary.

Yet even if Mr Hollande were to stand aside, polls suggest that the Socialists would perform disastrously in the presidential election's first round, failing to make it to the run-off ballot. The party's best alternative, Mr Valls, would not beat either the centre-right candidate or the nationalist Marine Le Pen. The prime minister's mistake, says a friend, was not resigning earlier this year to preserve his own political future. Mr Valls has begun to warn that the party could "exit" history. Faced with the prospect of annihilation, Mr Hollande would appear to have little choice but to give up. Unless, as the book suggests, he really is unafraid of the void. ■

More arrests in Turkey

Goodbye, "Republic"

ISTANBUL

A flagship secular newspaper is hit as the purges spread

LOADED with page-turners such as the latest exam procedures for food inspectors, Turkey's official gazette, the journal that archives the everyday business of state, used to be as good a cure as any for insomnia. No longer. In the wake of this summer's violent attempted coup against the government of Recep Tayyip Erdogan, no newspaper in Turkey is read with more trepidation. With its lists of thousands of universities, news outlets and hospitals closed since the coup, and of the 100,000 officials sacked from state institutions, the gazette has turned into the chronicle of a seemingly insatiable purge. Under a state of emergency that allows Mr Erdogan to rule by decree, it may soon become the only Turkish paper worth reading.

Much of the media were already controlled by government loyalists. Now nearly all are muzzled or intimidated. Over a hundred journalists have been jailed. On October 31st the crackdown hit *Cumhuriyet* ("Republic"), a flagship daily of the secular left as old as modern Turkey itself. Police detained the paper's editor, Murat Sabuncu, its leading cartoonist and a dozen or so columnists and executives. An arrest warrant was issued for its former editor, Can Dundar, who already faced charges for publishing articles on secret Turkish arms shipments. Mr Dundar fled the country earlier this year.

Prosecutors accuse *Cumhuriyet* of act-

ing in cahoots with the Gulen movement, an Islamic sect suspected of engineering July's coup, and with the Kurdistan Workers' Party (PKK), which Turkey and Western countries consider a terrorist group. To most observers, that sounds bonkers. *Cumhuriyet* had been savagely critical of the Gulenists long before the ruling Justice and Development (AK) party, which allied itself with the movement for nearly a decade, broke with it around 2013.

The detentions suggest that few government critics are safe. Some 40,000 people, ranging from generals directly involved in the coup to Gulenist bureaucrats, Kurdish activists and leftist writers, have been detained since the summer. "[Erdogan] wants to establish a new country under his authority," says Ozgur Mumcu, one of *Cumhuriyet*'s writers, "and everything the old Turkey represents will be eradicated sooner or later."

AK insists it is simply protecting Turkey from enemies at home and abroad. "We just saved this country from a bloody coup attempt," says Taha Ozhan, an influential MP. His office is a short walk away from a wing of the parliament bombed by jets during the coup. "This is the context." Critics say the government is gutting what remains of Turkey's democracy. Only a day before the *Cumhuriyet* detentions, the official gazette announced the closure of 15 other news outlets, most of them Kurdish. The same decree dismissed 10,131 more public officials and 1,267 academics. Another decree suspended attorney-client privilege in terrorism cases. It scrapped a system that offered academics a say in electing heads of their universities. Mr Erdogan will now appoint rectors directly.

Meanwhile, the Turkish strongman is whipping up support among nationalists and Islamists, an alliance he expects to ►►



It's our last real newspaper, leave it alone

▶ hand him additional powers in a referendum in 2017. He has revived plans to restore the death penalty, a move that would spell the end of Turkey's membership negotiations with the European Union. In the country's southeast, scarred by a year of deadly clashes between the PKK and the army, his government has ousted scores of elected Kurdish officials. The arrests of the co-mayors of Diyarbakir, the region's biggest city, on terrorism charges were followed by an internet blackout in as many as 15 provinces. Mr Erdogan now says he will take the fight to the PKK in northern Syria so as to protect gains made by Turkish troops in an incursion in August. He has also demanded a bigger role in Iraq's offensive against Islamic State forces in Mosul.

The Republican People's Party (CHP), the main secular opposition, swept up initially by the nationalist exhilaration that followed the failed coup, has turned into a shellshocked bystander. Emergency rule by decree has rendered parliament useless, says Selin Sayek Boke, the CHP's deputy head. It is "a preview", she adds, of what Turkey will look like if Mr Erdogan gets the additional powers he wants.

By the time the preview is over, there may be no critical media outlets left to report on it. The official gazette will happily pick up the slack. ■

The German elections in 2017

Best frenemies

BERLIN

Germany's chancellor and Bavaria's premier prefer not to share a stage

THE next election for Germany's parliament, the Bundestag, is less than a year off, but as the country mercifully lacks America's interminable primary system, its campaign season is only now getting underway. The kick-off was a gathering on November 4th of Bavaria's centre-right party, the Christian Social Union (CSU). The party, led by the Bavarian premier, Horst Seehofer (pictured, right), hoped to appeal to conservatives with tough talk on immigration. But one figure was conspicuously absent. For the first time since 2000, the CSU did not invite Angela Merkel, the boss of the Christian Democrats (CDU) and Germany's chancellor.

The CDU is the CSU's national sister party, and the two back Mrs Merkel as a bloc in Bundestag elections. But since September 2015, when the chancellor opened Germany's borders to refugees, Mr Seehofer has become her most vexing critic. At the CSU's convention in November 2015, he harangued her for nearly 15 minutes with demands for a limit to the number of



Angela's Horst of troubles

refugees Germany would accept, addressing her with the informal pronoun *Du*.

Refugee numbers have since dropped, and Mrs Merkel has tightened policy in many ways. But she still rejects Mr Seehofer's demand for a fixed limit as unconstitutional. (He wants at most 200,000 a year; more than that had already arrived in the first nine months of 2016.) This intramural fight is the main reason why Mrs Merkel has not yet declared that she will run for a fourth term. She will probably do so at the Christian Democrats' convention in December. Mr Seehofer is not invited.

In theory the centre-left Social Democrats (SPD) should benefit from this bickering. Although they are the third party in the "grand coalition" that now governs Germany, they will revert to being the CDU/CSU's arch-rivals during the campaign. But the SPD is notoriously disorganised, and at the moment it is uncertain who its candidate for chancellor should be.

The default is Sigmar Gabriel, the party's current boss and Mrs Merkel's economics and energy minister and vice chancellor. Rotund and jovial, Mr Gabriel can be a loose cannon; he recently gave a group of far-right protesters the middle finger. Many in his party consider him erratic, and would prefer to run Martin Schulz, president of the European Parliament. But he may prefer to stay in Strasbourg.

In a direct match-up, Mrs Merkel would beat either of them. According to polls, voters would pick her over Mr Gabriel by a 62% to 25% margin. In a contest with Mr Schulz, she would win by 48% to 37%. But Germans do not choose their chancellor directly; that is the job of a majority in the Bundestag. So everything comes down to coalition politics.

On February 12th a so-called federal convention, consisting of the Bundestag and an equal number of delegates from the

16 federal states, will choose Germany's next president. The head of state—currently Joachim Gauck, who is retiring—is largely a figurehead who is expected to stand above partisan politics. But the process of choosing him is a dry run for possible coalitions in the Bundestag.

Setting a president

The CDU/CSU controls only 43% of the federal convention. Mrs Merkel had hoped to find a CDU/CSU candidate who could win the support of either the Social Democrats or the Greens. (A new party on the populist right, the Alternative for Germany, is considered a pariah.) But several possible candidates turned her down, including the president of the Bundestag, Norbert Lammert, a Christian Democrat who commands cross-party respect.

Mrs Merkel's back-up plan was to suggest Frank-Walter Steinmeier, the foreign minister. He is a Social Democrat and the most popular politician in Germany, though after losing to Mrs Merkel in the race for chancellor in 2009 he is not seen as posing her any threat. By presenting Mr Steinmeier as above politics, she might have swayed the CDU to vote for him along with the SPD. But last month Mr Gabriel gauchely put Mr Steinmeier forth as the SPD's partisan favourite, making it harder for the Christian Democrats to support him (and annoying both Mr Steinmeier and Mrs Merkel).

Mrs Merkel's worry now is that each major party will enter the convention with its own candidate. That could send voting into the third round, where a plurality suffices. An alliance of the three leftist parties—the Social Democrats, the Greens and the Left, an ex-communist party—could then defeat and embarrass the CDU/CSU. This would raise the spectre of a "red-red-green" government come the autumn, even though current polls do not give the trio of parties a majority (see chart).

For Mrs Merkel and Mr Seehofer, this "leftist front" is the greatest threat. And that is why this estranged couple will, sooner or later, kiss and make up. ■

Still mostly right



Charlemagne | For our freedom and yours

Poland's illiberal turn poses a wicked dilemma for the European Union



IF EUROPEAN history once seemed to have arrived at its terminus in 1989, it has sped off in a new direction in Poland. After winning the country's first post-1989 outright majority in elections one year ago, the populist Law and Justice party (Pis) immediately set about undermining independent checks on its power, from the constitutional court to public media. Such antics would disqualify an aspirant from membership of the European Union, but it is harder to punish miscreants once they are inside. Surrounded by problems outside its borders, from Russia to Turkey to Libya, the EU now confronts a particularly chewy one within.

Outsiders sometimes lump Poland's government in with the other populists making the running in much of western Europe. But while it shares their hostility to outsiders and taste for economic statism, Pis is a very Polish phenomenon. Its chairman, Jaroslaw Kaczynski, who runs the country from the party's headquarters (the prime minister, Beata Szydlo, is a cipher who does her leader's bidding), is fixed on completing what he considers an unfinished revolution. Mr Kaczynski believes the Polish state was captured by a cosy, treacherous elite after 1989, with the connivance of the EU. His aim is to overturn and replace it.

Mr Kaczynski often clashed with Poland's constitutional court during a previous stint in office, from 2006-07. That explains his attempt this time around to stack the court with cronies, the proximate cause for the row with the EU. But perhaps a more important lesson was provided by the EU's experience with Hungary. Under Viktor Orban, who took office in 2010 with a booming majority, Hungary's government began its own assault on independent institutions. The EU howled but proved powerless; other governments chose to remain largely silent. Mr Orban now sits supreme on top of the "illiberal" state he boasts of building, taking regular potshots at Brussels.

Bruised by its experience with Hungary, in 2014 the European Commission, the EU's executive arm, established a "rule of law framework" as a means to bring wayward governments to heel, which fell short of suspending their EU voting rights, as Article 7 of the treaty allows. But talks with Poland have gone nowhere: last week, as the latest Brussels deadline whooshed by, the government dismissed its concerns as "groundless". Frans Timmermans, the first vice-president of the commission and Poland's

chief tormentor, has vowed not to back down. Article 7 may yet be invoked. But it can be applied only with the backing of EU governments, and Mr Orban has Mr Kaczynski's back.

Here lies a lesson. Most countries of the former eastern bloc joined the EU not to dissolve their sovereignty, but to safeguard it. That preserves the EU's popularity in the region—support for membership remains strong in Hungary and Poland—but leads governments to different places. Donald Tusk, Mr Kaczynski's predecessor (and arch-enemy), sought to place Poland at the heart of Europe and to bind it close to Germany. Mr Kaczynski, by contrast, is doubling down at home and picking fights with Brussels where useful. In the summer EU officials thought they had clinched a deal on the court with the government, before Mr Kaczynski blew it up at the last minute.

This is bad news for Brussels. Like all its deadliest weapons, Article 7 was designed never to be used. But the theory of deterrence works only if the threat is credible, and the Poland row is testing that proposition to destruction. By pursuing its case against Poland to the end in order to deter others from imitating Mr Kaczynski, the commission may instead turn the spotlight on its own impotence (and fuel accusations of arrogance). Just as Mr Kaczynski has aped Mr Orban's success, Europe's next delinquent government will learn the lessons of Warsaw.

That does not mean Poland will seek to export its illiberalism, as some have supposed. Mr Kaczynski has muttered about re-opening the EU's treaties; his Europe minister, Konrad Szymanski, speaks vaguely of returning powers from Brussels to governments. But in truth Poland's gaze is fixed firmly inward. Nursing grievances and lacking allies, Mr Kaczynski is without the means to bring change to Europe. Poland's relationship with Germany has foundered. Its bond with France has been shattered by Pis's bungling of a deal to buy Airbus helicopters. Mr Kaczynski's supposed friends in the central European Visegrad group are shuffling away in embarrassment; even Mr Orban is said, sotto voce, to consider him a little unhinged.

Poland is not yet lost

Domestically, Pis does face one near-term threat: its reckless fiscal pledges, including a generous child-benefit payment and a plan to cut the retirement age. Some European politicians now think a borrowing crisis is the only way Mr Kaczynski can be stopped. Another problem is the government's insistence on stuffing the bureaucracy with unqualified loyalists. Shorn of expertise, the civil service is struggling even to spend its EU subsidies. Nonentities have been placed in positions of authority; a former kebab-shop owner and Pis councillor now oversees research in a large state energy firm. Government contractors speak of brazen incompetence. Scandals look likely before Pis's term expires.

Because their country needs Europe—on energy, Russia policy and EU subsidies—Pis's Poland-first approach will ultimately prove self-defeating. Yet that leaves plenty of time to do lasting damage to Poland's democratic institutions and political culture. Mr Kaczynski's reign has already proved worryingly polarising. European politicians insist that theirs is a club of values, not convenience, and respect for the rule of law is baked into the treaties. But just as it cannot force governments to curb deficits or accept refugees, Brussels cannot impose liberalism by diktat; and other governments do not seem minded to rock the boat when they are trying to plug the leaks sprung by other crises. Mr Kaczynski will win this battle, because Europe has no idea how to fight. ■



The Chinese in Britain

Raise the red lantern

Helped by high-end immigration from the mainland, the Chinese community is coming out of its shell

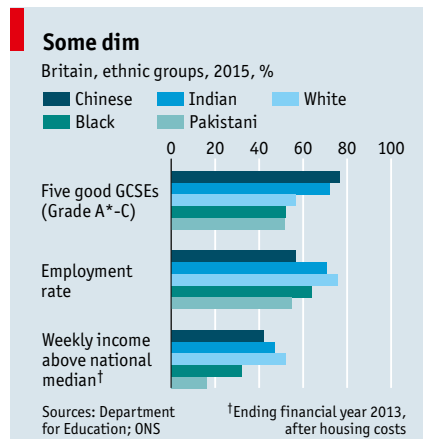
IN MANY ways, Alan Mak was a classic child of immigrants. His parents came from what was then the British colony of Hong Kong to run a takeaway in York in the late 1970s. He shared a room with them until he was in secondary school, in a flat above the shop with no inside bathroom. But he worked hard, got into Cambridge and became a lawyer and small-business owner. Then, last year, he took a step that few other ethnic Chinese have taken: he stood for Parliament in the seat of Havant in southern England and won, becoming the first MP of Chinese origin. Whereas there are about a dozen black MPs and about twice that many of South Asian descent, Britain's Chinese have long been a silent minority, in politics and wider society. That is now changing, spurred on by a new mindset among British-Chinese and changes in China itself.

The 2011 census recorded 390,000 ethnic-Chinese in Britain. Jackson Ng, a second-generation Chinese barrister and one of about ten other Chinese to stand for Parliament last year, believes the real number could be more than 600,000. "Many people don't engage with the census," he says.

The Chinese have in many ways been a model minority as well as a silent one. They have no religious reasons to clash with Britain's mildly Christian culture. They are highly dispersed, which eases their integration. What's more, community workers say, they claim even less from

the state than they are entitled to. "Chinese people try to be self-sufficient and some feel they lose face if they claim benefits," says Mei Sim Lai of the Chinese Welfare Trust, a charity. Only 7% of Chinese 16-year-olds receive free school meals, compared with 12% of whites and 24% of Pakistanis.

Chinese children are Britain's cleverest. In GCSE exams, taken at 16, last year 77% achieved five good grades, slightly more than Indians (72%) and streets ahead of the national average of 57%. Even more impressive, among those on free school meals 74% achieved the same standard; the national average was 33%. Unsurprisingly, Chinese students' entry rate to university, at 58%, is the highest of all ethnic groups.



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But for decades this success has not translated into higher visibility, or even better chances of employment. Second-generation Chinese have typically gone into solid professions, such as accountancy and medicine, like their Indian counterparts. But their employment rate, at just 57%, is much lower than that of other, less well-qualified groups (see chart). And very few Chinese have moved into civic positions of influence, such as school governors. Of 18,000 local councillors around the country, perhaps a dozen are Chinese, reckons Alex Yip, a councillor in Birmingham. "We are by culture inward-looking. We look after our families first, we don't want trouble," says Ms Lai. She drums into foreign Chinese students that it is not enough just to get good grades.

The challenge now, says Mr Mak, is to turn a strong story of integration into influence and engagement. British-born Chinese are starting to do that, he says, and getting a boost from a new type of migrant. Students from mainland China, many of them now more affluent than those from Hong Kong, make up a quarter of all those entering full-time taught master's degrees in Britain. The number coming from China to study at British universities has nearly doubled in the past decade, to around 90,000. Nearly a quarter of foreign pupils at private boarding schools are Chinese.

Many stay on in well-paid jobs. One in ten works in finance. They are more likely to be found enjoying a glass of bubbly at the monthly gathering of the Association of Chinese Finance Professionals than washing dishes in Chinatown. The *Sunday Times* Rich List has long been peppered with South Asian names. But now a few Chinese ones are cropping up among the wealthy. Yan Huo is the founder of Capula, a hedge fund; Ning Li is the boss of Made.com, a bespoke-furniture website. ▶▶

Some of the newcomers are getting involved politically. Xingang Wang arrived in 2001 for a master's degree at Imperial College London. He now works in finance and ran for Parliament last year, unsuccessfully. He intends to try again. Once you have a good economic life, he says, you want to participate more.

The balance of the community is being changed not just by more wealthy arrivals at the top but by fewer poor ones at the bottom. Illegal Chinese immigration came to public attention in 2000 when 58 Chinese migrants were found dead in the back of a lorry that had come through the Channel Tunnel. Then, in 2004, 23 drowned working as cockle-pickers in Morecambe Bay.

Chinese social organisations say that, in the past decade, opportunities in a booming China and tighter immigration controls in Britain have meant that fewer illegal migrants are trying to come. Tougher penalties on employers have had an impact. So has the introduction, in 2007, of fingerprinting of those on visas. There may be as many as 100,000 illegal migrants in

Britain, says Mr Ng, many in debt to traffickers. But he estimates that illegal arrivals are about a tenth of what they were in 2004.

The tilt towards Mandarin-speaking mainlanders has caused some friction. For decades, the majority of Chinese came from Hong Kong. They spoke Cantonese and tended to look down on the poorer, less cosmopolitan mainlanders. Now, though, the prejudices are starting to reverse. Some of the older, Hong Kong-born generation, less worldly and less well integrated, feel left behind.

And being a model minority has often worked against the Chinese. The squeaky wheels get all the oil, says one community worker. The different origins of Chinese groups, whose roots are in Singapore, Malaysia and Taiwan, as well as China and Hong Kong, mean the community is not united. But that also helps integration. Some South Asian MPs focus on issues in Asian communities. But Havant has very few Chinese. "I am not representing the Chinese," says Mr Mak. "I am serving all the people of my constituency." ■

total. This support has mitigated the effects of flat government funding for science in recent years. The government has said only that it will make good any shortfall in money from Horizon 2020, the EU's scientific-research programme.

There is also angst over the uncertain future of EU nationals in Britain, who make up 17% of researchers and academics in higher education in the country. Foreign scientists are already turning down jobs because of lack of clarity over their future immigration status. Like those in every other industry, scientists want an easy, rapid immigration system for students, researchers and workers in order for the sector to thrive. Yet movement of labour is almost certain to be restricted by Brexit.

Another coming headache is the question of common regulatory standards. Europe accounts for a quarter of worldwide pharmaceutical sales, and an authorisation from the EMA opens the door to this market. David Davis, the Brexit secretary, says he wants to agree with the EU on a "standardised" approval process. If that effort fails and Britain creates its own system, it is likely that the introduction of new medicines to British patients will be delayed. The EMA's departure from London, which will surely follow any kind of Brexit, will further reduce the sector's influence. Japan's foreign ministry has warned that if the EMA were to go, "the appeal of London as an environment for the development of pharmaceuticals would be lost".

Last, there are concerns about trade. Access to the EU market is a significant factor in firms' decisions to invest and operate in Britain. Pharma is a global industry with supply chains and processes that cross borders. Almost 45% of Britain's exports in the life sciences go to the EU's market of 500m consumers; EU trade deals have provided access to a further 50 foreign markets. Selling more to emerging markets, as many Brexiteers are keen to do, will not plug the gap, since these countries are focused on low-cost generic drugs.

The government has made the continued growth of the life sciences a priority; the sector may be among those to benefit from Theresa May's promised "proper industrial strategy", whatever that turns out to be. Yet, as a recent report by QuintilesIMS, a health-care consultancy, concludes, although some measures may mitigate the decision to leave the EU, the consensus in the industry is that these cannot match the opportunities offered by EU membership. The lobbying is already well under way. On October 31st AstraZeneca, a multinational based in Cambridge, warned that pharma companies would leave unless Britain's health service loosened its famously tight purse-strings when it comes to paying for breakthrough drugs. Persuading companies to stay could prove an expensive business. ■

Life sciences

Life after Brexit

Medical and pharmaceutical firms ponder their position outside Europe

WITH its world-class research universities and embrace of exotic new medical technologies, Britain has long been a leader in the life sciences. The first mammal to be cloned—a sheep called Dolly—was born in Scotland. The creation of so-called "three-parent babies", the result of a technique to prevent mitochondrial diseases from being passed from a mother to her child, was pioneered and has so far been legalised only in Britain.

Innovations such as these help the industry to generate over £60bn (\$74bn) a year and employ 220,000 people, many of them in the "golden triangle" of research sites in Oxford, Cambridge and London, whose universities are among the world's top ten. This strong research base supports a sizeable and flourishing private sector. As a result, Britain has the largest pipeline of new pharmaceutical candidates in Europe; it raised a third of all European biotech venture capital last year. The European Medicines Agency (EMA), the European Union's main pharmaceutical regulator, is based in London.

At least, it is for now. That, and much else, has been thrown into doubt by the vote in June to leave the EU. Many now wonder whether this hotspot for life sciences, which many had thought might



The late Dolly: ewe and European

come to rival San Francisco or Boston, will continue to thrive. Brexit presents the industry with problems in four main areas: winning research funding, finding talent, dealing with regulation and trading with other countries.

Britain is a net beneficiary of EU research funding, attracting €8.8bn (\$9.8bn) in such grants in 2007-13, equal to 19% of the

Cyber-security

Britain flexes its cyber-muscles

Online attacks by foreign powers will be met in kind, vows the government

PHILIP HAMMOND, the chancellor of the exchequer, is not a man given to making dramatic statements. Known as “Spreadsheet Phil” during his cost-cutting stint as defence secretary, he does dry better than the Sahara. Yet on November 1st, addressing a geeky conference hosted by Microsoft, Mr Hammond declared that not only was Britain developing its offensive cyber-capabilities, but it was doing so “because the ability to detect, trace and retaliate in kind is likely to be the best deterrent”. It was a statement of intent that few Western governments have been prepared to make so explicitly.

Mr Hammond went on to say that a “small number of hostile foreign actors” had developed capabilities that threatened the security of Britain’s critical national infrastructure and industrial control systems. Faced with such an attack, Britain needed to be able “to respond in cyberspace” because the alternative was to turn the other cheek or to retaliate by conventional military means, with all the legal and escalatory risk that entails.

To be fair, this was only one part of a speech launching a £1.9bn (\$2.3bn) investment in a national cyber-security strategy that will include wide-ranging defensive measures designed to protect government, industry and private citizens from the growing threat of criminal activity on the internet. But it was by far the most controversial part, and also the part that raises the most questions.

It has long been accepted that an offensive cyber-capability is as much part of fighting a modern war as planes or missiles. Since Russia’s war on Georgia in 2008, cyber-attacks have been established as the way in which state-on-state conflicts are most likely to begin. Nor has anyone expressed much surprise to learn that Britain and America have recently been using cyber-offensives to cut Islamic State off from the internet.

But it gets more complicated when it comes to responding to attacks of the kind that the Obama administration last month officially accused Russia of carrying out on American political institutions. Mr Obama has promised a “proportional” response. Joe Biden, the vice-president, went further, implying that Vladimir Putin would soon be on the receiving end of a covert cyber counter-attack.

Mr Hammond appears to have something similar in mind should the need

The Article 50 case

Taking back control

The High Court rules that Parliament must vote to trigger the Brexit process

IT IS rare for a court judgment to cause turmoil in the foreign-currency markets. Yet the pound soared on the morning of November 3rd after the High Court in London ruled that only Parliament has the authority to trigger Article 50 of the European Union treaty, the legal route for Britain to leave the EU. The markets’ response reflects the view either that Parliament might choose to block Brexit altogether or, perhaps more plausibly, that it will attach conditions to an act invoking Article 50 that make a “soft” Brexit more likely.

The government is appealing to the Supreme Court, which will take the case early next month. The government still asserts that it alone has the right to invoke Article 50 under the royal prerogative, which gives it sole authority over foreign

policy and over the making (and un-making) of treaties. But the High Court explicitly rejected this line in its judgment. Its argument is that the 1972 European Communities Act, which gives effect to Britain’s EU membership, is a matter of domestic law, not of foreign policy. A decision to invoke Article 50 could lead to Britain’s exit from the EU within two years without any further parliamentary involvement, in effect overturning the 1972 act. The court’s judgment is that any such step requires prior parliamentary approval.

Beyond the arcane issues of Britain’s unwritten constitution and the royal prerogative lie some big political arguments. Although Brexiteers campaigned on the promise to take back powers from Brussels and Luxembourg to Westminster, they have resisted the closer involvement of Parliament in the process because a large majority of MPs in the House of Commons and of peers in the House of Lords backed the Remain side in the referendum. Yet since the referendum produced a clear majority to Leave on a very high turnout, it seems unlikely that Parliament will actually block Brexit.

The prime minister has promised to keep Parliament informed over her plans for Brexit, but not to give a “running commentary” for fear that this will undermine her negotiating position. Yet she has also promised a Great Repeal Bill that will give domestic effect to most EU law after Britain leaves the club. And it is also clear that Parliament will need to approve the terms of Britain’s departure and of its future relations with the EU.

The Supreme Court may well endorse the High Court’s judgment. But even if it does not, the political argument for giving Parliament greater say both in the triggering of Article 50 and in the lengthy negotiating process that will follow now seems unanswerable.



Still sovereign

arise—which, if Andrew Parker, the head of Britain’s security service, is right, could be at any time. Possibly by coincidence, a *Guardian* interview with Mr Parker (the first a head of MI5 has given to a newspaper) appeared on the same day as Mr Hammond’s announcement. While nodding his head to the enduring menace of terrorism, Mr Parker singled out the threat represented by Russia and its use of espionage, subversion and cyber-attacks across Europe to achieve its foreign-policy aims. It is “MI5’s job to get in the way of that”, he said.

None of this makes it clearer what Britain would actually do if faced with a serious cyber-attack by a foreign power. The rules of this game have yet to be written. But the message that Mr Hammond wanted to deliver both to adversaries abroad and voters at home was clear enough: do not think you can attack us with impunity. The prime minister, Theresa May, was defined by her six years running the Home Office. She wants the cornerstone of her government to be security. Cyber-security is no exception. ■



Online governance

Lost in the splinternet

Left unchecked, the growing maze of barriers on the internet will damage economies and hamper political freedom

FREE-SPEECH advocates were aghast—and data-privacy campaigners were delighted—when the European Court of Justice (ECJ) embraced the idea of a digital “right to be forgotten” in May 2014. It ruled that search engines such as Google must not display links to “inadequate, irrelevant or no longer relevant” information about people if they request that they be removed, even if the information is correct and was published legally.

The uproar will be even louder should France’s highest administrative court, the Conseil d’État, soon decide against Google. The firm currently removes search results only for users in the European Union. But France’s data-protection authority, CNIL, says this is not enough: it wants Google to delete search links everywhere. Europe’s much-contested right to be forgotten would thus be given global reach. The court will hear the case on December 2nd and may hand down a verdict by January.

The spread of the right to be forgotten is part of a wider trend towards the fragmentation of the internet. Courts and governments have embarked on what some call a “legal arms race” to impose a maze of national or regional rules, often conflicting, in the digital realm. Left unchecked, the trend towards a “splinternet” will cause eco-

nomie damage, hamper digital innovation, restrict free speech—and, according to a recent report for the World Economic Forum, a conference organiser-cum-think-tank, ruin the “internet’s enormous capacity to facilitate human progress”.

The internet has always been something of a subversive undertaking. As a ubiquitous, cross-border commons, it often defies notions of state sovereignty. A country might decide to outlaw a certain kind of service—a porn site or digital currency, say—only to see it continue to operate from other, more tolerant jurisdictions.

As long as cyberspace was a sideshow, governments did not much care. But as it has penetrated every facet of life, they feel compelled to control it. The internet—and even more so cloud computing, ie, the storage of vast amounts of data and the supply of myriad services online—has become the world’s *über*-infrastructure. It is creating great riches: according to the Boston Consulting Group, the internet economy (e-commerce, online services and data networks, among other things) will make up 5.3% of GDP this year in G20 countries. But it also comes with costs beyond the erosion of sovereignty. These include such evils as copyright infringement, cybercrime, the invasion of privacy, hate speech,

espionage—and perhaps cyberwar.

In the analogue age, such transnational problems would have been dealt with in the appropriate intergovernmental organisation. On criminal matters, information was exchanged through bilateral mutual legal-assistance treaties (MLATS). But such mechanisms are designed for limited amounts of information in a slow-moving world. Now cross-border data flows are the rule (see chart 1, next page) and technology is evolving fast. Urs Gasser, executive director at the Berkman Klein Centre for Internet & Society at Harvard Law School, says that the existing system of international co-operation is becoming overwhelmed.

A complication is the conflict over jurisdiction, whereby laws in one country are irreconcilable with those in another. The problem is fed, in turn, by the fact that governments struggle to obtain data held in foreign countries, notably America, where most of them are stored. Foreign law-enforcement agencies, even those from friendly democratic countries, must go through a cumbersome procedure to secure a warrant from an American judge before asking companies to hand over data.

In response, governments are trying to impose their laws across the whole of cyberspace. The virtual and real worlds are not entirely separate. The term “cloud computing” is misleading: at its core are data centres the size of football fields which have to be based somewhere. Facebook, Google and other tech giants have offices and employees worldwide. So governments, especially those of big countries, can often find a vital point to squeeze and force companies to comply with national laws and regulations. »

► Internet & Jurisdiction, a think-tank based in Paris, has documented dozens of cases of such extraterritoriality. Some are crude, as when police in Brazil in March arrested a local Facebook executive because WhatsApp, the firm's messenger service, did not provide information requested for a criminal investigation (WhatsApp does not keep copies of messages).

Some cases attempt to set legal precedents: for example, on whether data should be subject to the laws of the country where they are held, or where a company is based. In 2013 a judge in New York told Microsoft to turn over the e-mails, housed in a data centre in Ireland, of a suspect in a drug investigation. In July the firm won an appeal against the order, but America's Department of Justice is seeking to reopen the case. New laws often include clauses with extraterritorial reach. The EU's General Data Protection Regulation will apply from 2018 to all personal information on European citizens, even if the company holding it is based abroad.

In many cases, laws seek to keep data within, or without, national borders. China has pioneered the blocking of internet addresses with its Great Firewall, but the practice has spread to the likes of Iran and Russia. Another approach is "data localisation" requirements, which mandate that certain types of digital information must be stored locally or remain in the country. A new law in Russia, for instance, requires that the personal information of Russian citizens is kept in national databases. Controlling access to information makes it easier for autocrats to keep tabs on the population. Elsewhere, though, data-localisation policies are meant to protect citizens from snooping by foreign powers. Germany has particularly stringent data-protection laws which hamper attempts by the European Commission, the EU's civil service, to reduce regulatory barriers to the free flow of data between member-states.

Fragmentation caused by government action would be less of a concern if other factors were not also pushing in the same direction. One of the founding principles of the internet—that any device on the net-



work should be able to communicate with any other—is being eroded by new technologies, such as firewalls and a separate "dark web", which is only accessible using a special browser. Commercial interests, too, are a dividing force. Apple, Facebook, Google and other tech giants try to keep users in their own "walled gardens". Many online firms "geo-block" their services, so that they cannot be used abroad.

All this does not yet spell the end of the open, freewheeling internet, cautions Vint Cerf, one of the inventors of the internet, who now works for Google. And he accepts that governments have a duty to protect their citizens. Yet Mr Cerf worries about the damage that will be caused if barriers continue to be erected. Some problems are technical: fragmentation tends to reduce the internet's resilience, for instance its ability to function reliably even when part of the network is damaged.

More important are the economic costs. A splintered internet would hamper its role as a remarkable innovation engine. Start-ups, in particular, would find life harder. Data-localisation requirements and other barriers can cut GDP growth by more than one percentage point in some countries, reckons the European Centre for International Political Economy, a think-tank, in a study published in 2014.

The highest price, though, would be the harm to political freedom. Never has it been easier for people to express and organise themselves. Although the internet has given a stage to many unpleasant characters, including terrorists, it has also been a boon to free speech—especially in authoritarian states that regard the internet as a tool for subversion by the CIA.

Elders of the internet—among them politicians, entrepreneurs and others who want the network to remain an open global commons—have started to push back. On November 14th like-minded souls will gather in Paris for the first international conference dedicated to finding ways for countries to co-ordinate internet policies.

Obstacles on the internet, just like barriers to trade, are easy to decry but hard to

prevent. The experience of governing other global commons offers little help. When governments were negotiating treaties to regulate the use of the seas and outer space, they were talking about realms beyond territorial sovereignty, not a domain that overlaps with and undermines it.

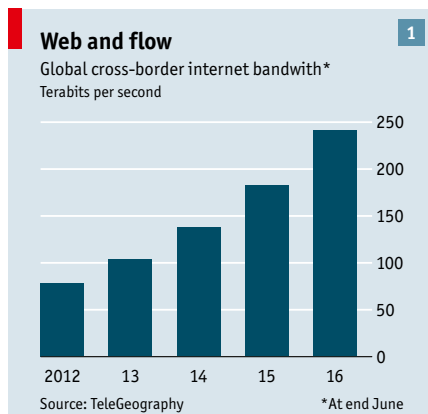
Agreeing on common rules, let alone creating an intergovernmental "World Internet Organisation" would take decades. Nor would it be desirable: putting governments in charge is unlikely to produce decisions acceptable to those who run the internet—or to those who seek to defend political freedom. "We need to be as creative as the inventors of the internet," says Paul Fehlinger of Internet & Jurisdiction, which is organising the Paris conference.

Internet experts distinguish between governance "of" the internet (all of the underlying technical rules that make it tick) and regulation "on" the internet (how it is used and by whom). The former has produced a collection of "multi-stakeholder" organisations, the best-known of which are ICANN, which oversees the internet's address system, and the Internet Engineering Task Force, which comes up with technical standards.

Finding consensus on technical problems, where one solution often is clearly better than another, is easier than on legal and political matters. One useful concept might be "interoperability": the internet is a network of networks that follow the same communication protocols, even if the structure of each may differ markedly. Perhaps, say some, law-enforcement agencies could agree on how to streamline the growing volume of requests they make for digital information (see chart 2).

Institutions that deal with rules "on" the internet are emerging, notes Carl Bildt, a former Swedish prime minister. He is the chairman of the Global Commission on Internet Governance, a group of experts which in June published a report on online policy. The Freedom Online Coalition is a partnership of 30 governments co-ordinating their efforts to protect human rights in cyberspace. The Internet Governance Forum, a series of events sponsored by the UN, offers a place for all "stakeholders" to pitch in. The countries that have signed the Budapest Convention on Cybercrime are working to harmonise their laws.

"Multi-stakeholderism" may be, like democracy, the worst form of governance except for all the other ones. If nothing is done the open internet could, in a decade or two, be a thing of the past. Take the right to be forgotten: the ECJ meant it to cover only search results, and made exceptions for journalistic content. But two other courts, in Belgium and Italy, recently ruled that a newspaper and a website, respectively, had to modify or delete content in their archives. "What we currently have," says Mr Bildt, "is the law of the jungle." ■





Tech firms' pay wars

Money honeys

SAN FRANCISCO

As they battle to hire and hoard talented employees with huge pay packages, tech firms may change Silicon Valley for the worse

LARGE technology firms used to hold on to their high-flying employees by agreeing not to poach them from each other. "If you hire a single one of these people, that means war," Steve Jobs, Apple's then boss, warned Sergey Brin, a founder of Google, in 2005. That was an illegal arrangement, and in 2015 Apple, Google, Adobe and Intel paid a \$45m settlement to engineers whose pay had been held down as a result.

Today wage suppression in Silicon Valley is even more of a distant memory than dial-up internet and mainframe computers. Last year technology companies in America recorded expenses of more than \$40bn in stock-based compensation. Exact comparisons are difficult, but to put that sum in perspective it is roughly 60% more than the bonus pool paid to the New York employees of Wall Street banks.

The money tech firms throw at employees has ballooned as competition to hire and hang on to top talent in engineering, data science, artificial intelligence and digital marketing has soared. Even entry-level engineers can easily earn \$120,000 a year, more than most people their age can make on Wall Street; mid-career executives with technical expertise who choose to work at large public companies such as Apple, Google and Facebook will pocket several million, including stock grants. The boss of one startup complains that he cannot find a competent chief operating officer who will work for less than \$500,000 a year.

All this is driven by a number of elements. The price of housing plays a part in pushing up salaries. The cost of living in the Bay Area is now 41% higher than the national average and 7% higher than the next most expensive place, New York City, according to Brant Shelor of Mercer, a consultancy. But the biggest spur of change is the enormous appetite for talent. Unlike the best lawyers or doctors, who can see only a limited number of people each day, those with exceptional technical expertise can transform a company because they are capable of creating products that are many times more attractive and thus a lot more lucrative, explains Marco Zappacosta of Thumbtack, a digital marketplace.

Come into my parlour

Google, Facebook and Amazon alone probably hire around 30% of all American computer-science undergraduates, reckons Roelof Botha of Sequoia, a venture-capital firm. These big public companies not only pay handsomely, but also wield a hiring advantage with the huge amount of stock they are willing to hand to promising candidates. Last year Alphabet, Google's parent company, issued around \$5.3bn in stock-based compensation, equivalent to a fifth of its gross profits. That amounts to an average of \$85,000 in stock-based compensation per full-time employee.

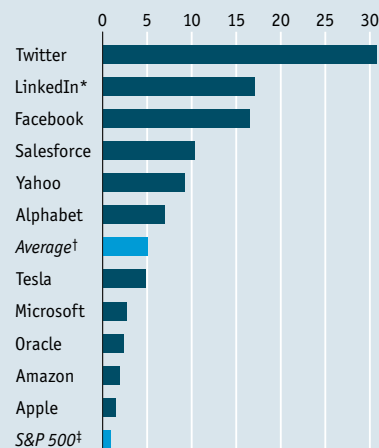
Whereas non-tech companies in the S&P 500 give out, on average, the equivalent

of less than 1% of their revenues in stock-based compensation, the norm for big technology firms is around five times that (see chart). Last year Facebook, for example, recorded stock-based compensation expenses equivalent to around 17% of its sales; Workday, a software firm, and Twitter had stock-based charges of some 20% and 31% of their revenues, respectively.

Stock-based compensation has its roots in the early days of Silicon Valley, when startups could not afford to pay employees much, if anything, and asked them instead to take a small piece of the company that might rise in value later. What is different today is that many of the Valley's firms are mature with proven track records, so their stock is already valuable and can be used to greater effect. It is being deployed to "strategically hoard" the best talent, says ►►

The talent trap

Stock-based compensation in US tech firms
As % of revenue, 2015



* Acquired by Microsoft June 13th 2016
† Firms worth over \$1bn
‡ Excluding tech firms

Source: Bloomberg

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► Patrick Moloney of Willis Towers Watson, a consultancy. Once locked in, that talent is then assigned to important projects. This deters people from going to rivals or launching their own startups.

To maintain their grip on top employees, the tech giants use several tactics in addition to handing out stock. Some provide generous signing-on bonuses that can be clawed back if an employee leaves within three years. Amazon heavily weights stock grants to an employee's third and fourth year with the company, as an incentive for them to stay and continue to work hard. Another common practice is to offer a "retention" bonus to make employees who are considering going elsewhere reconsider. Apple, Google and Facebook are rumoured to keep a list of companies they do not want to lose talent to, and supervisors are empowered to offer large bonuses to prevent people moving in that direction. A famous example of this occurred in 2011, when Neal Mohan, a senior Google executive, was considering leaving for Twitter. Some say he was offered a bonus of \$100m in stock to stay at Google.

The top ten

"It's gone too far," says one venture capitalist among the many bemoaning how large public technology companies suck up so much talent with their lucrative equity packages. The munificence of the large tech firms raises the stakes for others. Word of lavish offers spreads among colleagues. As a result, the top 10% of talent are getting paid what only the top 2% would otherwise fetch, says Richard Lear of Vantage Partners, a consultancy.

Even companies that are not doing well offer financial incentives to keep people. Twitter, whose stock is languishing as it struggles to make money from its social-media platform, has seen many talented people depart. The firm is believed to be offering bonuses of up to \$1m to persuade its top engineers to stay for another few years.

Not surprisingly, startups find it hard to compete in the war for talent. The best positioned are high-flying "unicorns", Valley-speak for private companies valued over \$1bn. These companies, such as Uber and Airbnb, have raised lots of money and are willing to use it lavishly to lure people out of the large public firms. They can offer high cash salaries, but also try to attract employees by suggesting their stock will look better when they finally go public. After someone has been at a unicorn for around four years, they can receive "refresher" grants of stock to give them an additional incentive to remain.

Lacking the same resources, smaller startups blame the giants for distorting the market for high-flyers. "I get the feeling that I can't compete for objectively proven, brilliant talent," says Mike Driscoll, the boss of Metamarkets, an analytics startup. "All I

Startups

Silicon Beach

Los Angeles has become a booming hub for startups

HOLLYWOOD has produced plenty of films about underdogs rising to claim the limelight. Now Los Angeles is experiencing its own real-life Cinderella story, as the area's technology scene has been transformed from backwater to boomtown in just a few years. Hordes of venture capitalists from northern California, once long dismissive of their southern neighbour, now regularly commute in search of deals in a less heavily hunted spot than the Bay Area. In 2016 the city's startups received around \$3bn in funding, around six times more than in 2012, according to CB Insights, a research firm.

Evan Spiegel went to Stanford University in the heart of Silicon Valley, but he wanted to live and work close to the sea. So he based his new company one block from the Pacific in Venice Beach, which is better known in Los Angeles for its silicone-enhanced bodies than the silicon chips that gave the Valley its name. Mr Spiegel's firm, Snap, is best known for its ephemeral Snapchat social-media messages and is now valued at a whopping \$18bn. Other successful technology firms are thriving nearby, including Dollar Shave Club, an e-commerce firm recently sold to Unilever for \$1bn; Ring, a "smart" doorbell company, and Riot Games, maker of "League of Legends", a popular online multiplayer contest.

Los Angeles is now the third-most prominent outpost for startups in America, after San Francisco and New York. It has several advantages, including good universities, warm weather, a relaxed culture, proximity to San Francisco and much lower costs. Michael Schneider, the boss of Service, a customer-relations startup, reckons he would need to have

can do is hire diamonds in the rough, who will almost certainly get poached away by larger companies when they start to emerge as very talented." Smaller fry try to find employees with a different temperament, perhaps those willing to take greater risks or others who find working at a large company dispiriting.

The rising cost of talent has also pushed up the level of funding startups need to raise. The idea that it is cheap to launch a firm is a myth, says Evan Williams, who co-founded Twitter and set up Medium, an online-publishing platform. "It's harder and more expensive than ever to make a startup successful." The more money young companies raise from investors to pay their employees, the harder it is for



Better than surfing down Sand Hill Road

raised at least 40% more money if based in San Francisco, "just to pay for the same space and people".

Although Los Angeles has fewer experienced engineers, those that are there tend to be more loyal, not least because there are fewer firms out to poach them. Startups can convince people to move. Ophir Tanz of GumGum, an advertising startup, says he has recruited several employees looking for a more balanced life away from cities like New York and San Francisco.

Los Angeles may at last be getting the attention it deserves. "The original monetisation of the internet was created here, not Silicon Valley," says Mark Suster, a venture capitalist with Upfront Ventures, referring to pioneers such as Applied Semantics, bought by Google. But for Los Angeles to establish itself as an enduring place for startups, it needs Snapchat to continue to thrive and go public, which could happen as soon as next year.

them to break even or become profitable.

The tactics employed by the large tech firms carry risks. One is to the entire ecosystem of Silicon Valley. In the future, entrepreneurs with a world-beating idea for a startup may recoil at the price of a garage to launch it in. Some startups are already moving elsewhere to hire cheaper engineers and reduce other costs. They don't have to go very far from the Bay Area, perhaps to southern California (see box) or other states. In the long term, there is a risk that the Valley could resemble South Korea: dominated by a handful of giant *chaebol*-like companies that soak up all the talent and squeeze out smaller startups.

Another risk is the wrath of investors and the public. Under generally accepted ►

accounting principles, companies are required to deduct stock-based compensation to calculate profits, but many emphasise alternative measures, and as a result plenty of shareholders have not been paying attention to the vast amounts being doled out. Spencer Rascoff, the boss of Zillow Group, an online property firm, thinks that stock-based compensation should be paid a lot more attention. "When it's ignored by companies and investors it gives companies the opportunity to use stock compensation like funny money," he says. "It's not. It's dilutive to shareholders."

Few shareholders question expenses when firms are flying high, but the mood could change swiftly if the stockmarket plunged, or a company's performance were to falter, as happened this year at Twitter and LinkedIn. Tech bosses may think that because they deliver products and services people like, even adore, they do not have to worry about the kind of backlash against high pay that Wall Street suffered. They shouldn't count on it. ■

Japanese entrepreneurs

Slow to startup

TOKYO

Japan needs to do more to encourage new businesses

WANTEDLY, a LinkedIn for Japan's millennials, would not be out of place in California. The thriving firm's offices feature trendy furniture and a ping-pong table. Akiko Naka, the 32-year-old chief executive leads a young team that forgoes the usual black-and-white attire of Japanese business to pad around in jeans and socks. Meeting rooms are named after characters from a famous *manga* comic.

Yet Wantedly is a rarity. Since the fertile

years of the 1980s, and a brief dotcom boom that began in the late 1990s, Japan has fared badly in encouraging similar startups. Just 31% of Japanese think being an entrepreneur is a good career choice, beating only Puerto Rico at the bottom of a study carried out in 2014 by Global Entrepreneurship Monitor (GEM), a report compiled by a group of universities worldwide. By comparison, America scored 65%, China 66% and the Netherlands 79%. Shinzo Abe, Japan's prime minister, has tried to encourage people to start new businesses to help revive the economy. Startups create more jobs, and more productive ones—something Japan desperately needs. (Its productivity per hour worked is approximately 65% of America's.)

Mr Abe has made it easier and faster to start a business, and things have improved modestly. Venture capitalists, for example, stumped up ¥92.8bn (\$900m) in the first half of this year, up from ¥76.5bn in the same period in 2015. A stronger stockmarket means initial public offerings are more common. A few promising companies are emerging, mainly in life sciences and biotech. Spiber, one such firm, makes new materials from proteins, such as a super-strong silk similar to that spun by spiders.

Far more needs to be done, especially about risk aversion. Most Japanese are afraid of failure. Tamako Mitarai, who set up a firm selling knitwear made by people affected by the 2011 earthquake and tsunami in Tohoku, says she wanted to inspire people who had lost their livelihoods with the hope that they would follow suit. Yet five years later, few have done so.

"It doesn't have to be like this," says William Saito, an entrepreneur turned government adviser, who adds that Japanese companies carried on funding him when he was setting up businesses and failing on the west coast of America. "This is not about something in the Japanese DNA, but about social structures," reckons Jiro Kokuryo of Keio University.

The main problem is an inflexible labour market. Although the system is loosening a little, Japanese companies value and reward lifetime service. The typical salaryman slowly working his way up the company ladder remains an alluring role-model for graduates, and people are unlikely to hop from company to company. This makes it hard for startups to attract mid-level people—hence, says Ms Naka, all her fresh-faced employees.

Wantedly provides a forum for businesses and jobseekers to find one another. But Ryo Ishizuka of Mercari, an online peer-to-peer Japanese marketplace that has expanded to America, says it is hard to fire people, which makes life difficult for startups as they grow and evolve.

These things may account for why young women head many of Japan's successful new businesses. "They already face

problems of upward mobility in the workplace, so they have less to lose by going it alone," says Mr Saito. It needs to be easier for companies to close, too. Only 12% of Japan's small- and medium-sized firms are under five years old, compared with 33% in America. Old companies are kept on life support, sometimes with government assistance, impeding new ones from starting.

Established companies also receive more attention than startups from government schemes designed to help small firms, such as R&D tax credits. Meanwhile, too much of the burden falls on individuals if their firm goes bankrupt, as banks—the main source of financing—demand onerous guarantees.

The government could also do away with a host of regulations that restrict or ban many of the most popular forms of startup. Uber operates only luxury cars in Japan, not its regular service. Airbnb's room-letting takes place in a grey area. That is a shame, says Mercari's Mr Ishizuka, as consumer-to-consumer businesses have most potential in Japan.

As the costs of starting a business fall, and the security of lifetime employment becomes harder to find, it is a good time for Japan to tackle these issues. The GEM numbers suggest that although the overall appetite for starting a business may be small, 19.5% of Japanese who believe they have the ability set up a firm actually do so, which is more than Americans manage at 17.4%. Japan has the potential, but its entrepreneurs need a break. ■

Chinese aerospace

We are sorry to announce

ZHUHAI

China's aerospace ambitions are big, but the departure clock is still ticking

STEALTH fighter jets are designed to be as furtive as possible and sneak through radar without being noticed. China's new J-20 stealth fighter demanded plenty of attention as it roared over the heads of spectators during its public debut at the Zhuhai air show this week. The message was clear: China is aiming high in the aerospace business. That ambition, though, is as much about commercial aircraft as it is about fighter jets, and in particular one model was noticeably absent from the show: the C919, a single-aisle short-haul passenger jet which China is developing to take on Airbus and Boeing.

Over the next 20 years both the European and the American aerospace giants forecast that China will become their biggest single market due to demand for new aircraft by Chinese airlines keen to meet ►



Naka does it her way



I think we need to make it bigger

► the rising middle classes' desire for air travel. Boeing estimates that China will need 6,810 jets worth \$1trn over that period (see chart). The state-owned Commercial Aircraft Corporation of China (COMAC) is eager to supply some of those planes. This puts Airbus and Boeing in a tricky spot: "Their problem is that their biggest customer wants to become their biggest rival," is how Michael Goldberg of Bain & Company, a consultancy, sums it up.

China's aerospace ambitions are not just a matter of national pride. The country is keen to move up the manufacturing value chain. Making military jets is one thing, but mastering complex production systems to produce relatively large numbers of passenger aircraft that must meet the extremely high quality and reliability standards demanded by international airlines is quite another. The bigger game is that, if China can manage this, the lessons can be applied across other industries.

Tally-ho!

COMAC was founded in 2008 to develop a range of aircraft. In an impressive display of its determination, within just two years it had built a factory and offices for more than 50,000 workers in Shanghai. But then it hit turbulence. The first aircraft, a regional jet called the ARJ21, only entered service in June with Chengdu Airlines, eight years behind schedule. And the larger C919, designed to compete directly with the popular Boeing 737 and Airbus A320 family of short-haul models, is now three years behind schedule. Although the first mock-up was revealed at a glitzy party in Shanghai last November, only a scale model appeared at Zhuhai. The aircraft is now unlikely to enter service until 2019 or 2020.

The ARJ21 has suffered problems with dodgy wiring, cracks in the wings, faulty doors and its performance in rain. This has led COMAC to proceed more cautiously with the C919 to try to make sure every-

thing is right by the time it enters service. Taking extra care is laudable, but its adds time and that is costing COMAC orders. Most analysts say that by the time the C919 flies, its technology will be that much older so that its fuel efficiency will lag newer versions of Boeing's 737 and Airbus's A320. Foreign buyers have therefore steered clear. Although COMAC has received more than 570 orders from 23 customers for the C919, and more than 400 for the ARJ21, virtually all of these are from Chinese airlines and leasing companies, which presumably have been subjected to some patriotic arm-twisting.

Still, the Chinese are pressing on. At the air show COMAC announced a joint venture with Russia's United Aircraft Corporation to build a wide-bodied jet to carry around 280 passengers. Although it is due to enter service in 2025, analysts believe it, too, will arrive much later. The Chinese government also wants to make more of the sophisticated systems that it currently buys from Western firms for its aircraft, such as engines and avionics. In August, China set up a state-owned engine maker with \$7.5bn of capital to produce engines for COMAC's future programmes.

At present, Western suppliers see the

rise of Chinese aerospace as a boon. If COMAC produces all the C919s on its books, Honeywell, an American engineering group, would make \$15bn from supplying it with parts. CFM International, a joint venture between General Electric and Safran of France, stands to earn \$16bn from the list price of its engine sales. So far, neither Airbus or Boeing see COMAC as much of a threat to their sales outside China. But the Chinese have made it clear that both companies will be expected to help build China's aerospace industry if they want to win future orders for larger aircraft.

That means working with the Chinese without giving away too much technology. Airbus has built two final-assembly plants in northern China for planes which China has purchased. Boeing has just entered into a similar collaboration with COMAC to complete work on 737s. Boeing also buys some basic parts from Chinese firms, like the rudder for the 787. But so far trickier tasks—including those involving a bit of secret sauce, such as wing assembly—have stayed at home. It is not clear how much all of this will help the Chinese. If it comes together, the C919 just might fly at Zhuhai's next air show in 2018. ■

Online advertising

Keeping watch

NEW YORK

Digital advertisers go into battle over online privacy

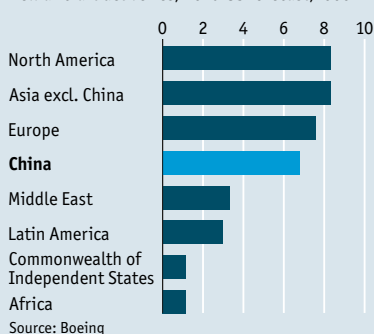
ONLINE advertising is booming. Digital-ad revenues in America in the first half of the year reached a record \$32.7bn, according to the latest figures from the Interactive Advertising Bureau, a trade group. For marketing folk, digital ads have great appeal because consumers' online data can be used to direct what they think are the right advertisements to the right shoppers. But tracking has become increasingly contentious in both America and Europe.

On October 27th America's Federal Communications Commission (FCC) announced a new rule to protect personal privacy online. Internet-service providers, such as AT&T and Comcast, must now ask consumers for permission if they want to gather and share data deemed to be sensitive, including financial information and users' browsing history.

However, the FCC's rule is notable not for settling a debate, but stirring it. Marketers and digital-ad firms insist that they already police themselves well. They consider data on browsing and apps, in particular, to be essential for targeted advertising. Under the FCC's rule consumers can "opt in" to share this information, but firms fear ►►

On the runway

New aircraft deliveries, 2016-35 forecast, '000



▶ that many will not.

There is a limit to the FCC's order, which perversely makes it only more controversial. It will restrict data collection by internet providers, but have little impact on broader online tracking. Notably, it does not affect so-called "edge-providers" such as Google and Facebook, which have operated under a separate privacy framework from another agency, the Federal Trade Commission (FTC).

For advertisers, the result is an increasingly lopsided industry. Any new restrictions on companies, such as Verizon, which are vying to expand their digital ad businesses, will bestow more power to the already mighty Google and Facebook, points out Brian Wieser of Pivotal Research Group. For consumers, the result is a muddle: limits for gathering data depend on the identity of the gatherer. "Nothing in these rules will stop edge-providers from harvesting and monetising your data, whether it's the websites you visit or the YouTube videos you watch or the e-mails you send," declares Ajit Pai, an FCC commissioner who voted against the order.

The question now is whether regulators will look at this mishmash and apply stricter limits to Google and Facebook, too. "I think they have started a snowball rolling down the hill," says Dan Jaffe of the Association of National Advertisers (ANA). He calls the FCC's rule "highly misguided and harmful". The matter may well be decided in court. Even before the new order was issued, broadband firms were challenging the FCC's authority to regulate them as utilities. If they succeed, the new rule will probably be thrown out.

As this fight continues, another front is opening up in Europe. On October 19th the European Court of Justice ruled that internet-protocol addresses, which identify connected devices, are subject to Europe's data-protection laws. This could restrict ad companies' activity even more. Then Irish privacy advocates filed a suit challenging the "Privacy Shield", the name of a new deal between America and the European Union for sharing personal data across the Atlantic. And a group of European privacy commissioners wrote to WhatsApp, a messaging firm owned by Facebook, questioning WhatsApp's new policy of sharing consumers' data with its parent.

In America, Marc Rotenberg of the Electronic Privacy Information Centre, an advocacy group, contends that if the FTC fails to take action over WhatsApp's new policy, Europe might doubt the agency's ability to enforce privacy protection. That, he argues, would undermine the Privacy Shield. The ANA's Mr Jaffe is apprehensive: "There are multiple sets of attacks that have taken place in the past week or two that have dramatically increased concerns about privacy and the ability to utilise consumer data." Stand by for a long struggle. ■

Niche smartphones

A sea of black mirrors

How to stand out from the crowd

ON JANUARY 9th 2007 Steve Jobs stood before an audience of some 45,000 people in San Francisco and announced a "revolutionary and magical product": a slight slab of expansive black touchscreen with just a single button. Compared with the ugly, cluttered devices of the day, the iPhone was revolutionary. It was also hugely influential. A technicolour pageant of rival designs—the clamshell, the slide, the banana, the candybar and the BlackBerry—resolved into a uniform black mirror. And nearly every smartphone on the planet still looks like the device which Jobs revealed that day.

Nor is that similarity to be found just in hardware design. Nearly a fifth of smartphones sold last year operate on Apple's iOS software. The rest run variations of Android, an open-source operating system provided by Google. Just two companies—Apple and Samsung—accounted for over 40% of smartphones sold in 2015, according to CCS Insight, a research firm. Huawei came in a distant third with 8%.

In this bland and uniform market some producers spy an opportunity. One of those is Kodak, which invented the digital camera that led to the loss of its lucrative film and chemicals business and to its own demise. Kodak emerged from bankruptcy protection in a much reduced form in 2013 and is now taking aim at the way most people today snap pictures: on their mobile phones. The company has just launched the Ektra, a heavily customised Android

phone with features designed to appeal to photography enthusiasts.

Kodak's phone is made for it by Bullitt Group, a small British firm that also produces Caterpillar-branded "rugged" phones. In May, Bullitt tied up with Jaguar Land Rover, a British carmaker, to make phones which are supposed to reflect the endurance of its go-anywhere four-wheel-drive vehicles. Sonim, an American firm, also churns out rugged phones. In China, Snail Mobile produces a phone purely for gamers—it has side buttons of the sort usually found on hand-held gaming controllers. A Russian mobile network makes the YotaPhone, which has two screens, one similar to a regular smartphone and a second black-and-white low-power display, like those used by e-book readers. This set-up extends the phone's battery life. Vertu, a British producer once owned by Nokia, manufactures high-end luxury smartphones with high-end prices to match.

Niches are not just found, but also made: AG Mobile, a South African firm, this year launched a range of inexpensive Nelson Mandela-branded phones and tablets. Another AG phone is branded in the name of a local rapper. Xiaomi, a Chinese company that now competes with global phone-makers, got its start in niches and gained plenty of attention by offering users a say in new software features.

Peter Stephens, Bullitt's boss, reckons that the various niches bundled together account for maybe 4-5% of the entire smartphone market. That is tiny, but with some 1.4bn smartphones shipped last year, it is still a substantial chunk. And while the overall market for smartphones notched up annual growth of 7% in 2015, the "other" category (which excludes most big makers) grew at twice that rate. Profit margins should be better, too—if the niche operators can stand the pace and the big boys don't move in to some of their patches. ■



You'll have to speak up, I'm on my niche phone

Schumpeter | Political business

American business finds itself without a political home



AS AMERICA'S presidential election approaches the country's business class is in its weakest political position for decades. Twenty years ago both parties competed to be the most pro-business. Today they compete to denounce the malefactors of great wealth. The most startling change is that business has lost control of its ancestral party, the Republicans. Donald Trump may well embody many an American business type: somebody who inherits a fortune and goes on to make it even bigger. But he has taken over the Republican Party by channelling blue-collar anger against all elites.

Mr Trump has trashed free trade, liberal immigration rules and other corporate non-negotiables. Big companies have shied away from donating to his campaign. Meg Whitman, the boss of Hewlett Packard Enterprise, has called him "reckless and uninformed". Tom Donohue, head of the United States Chamber of Commerce, has described his policies as "pretty sort of stupid".

All this has driven lots of business people to cross the political aisle: an Ipsos poll shows that 53% of those earning \$250,000 or more (the top 5% of households) plan to vote for Hillary Clinton, compared with 25% who intend to vote for Mr Trump. Yet the Democratic Party is hardly a comfortable home. Mrs Clinton may share her husband's enthusiasm for business, but her party has shifted sharply leftward since the 1990s. She has abandoned her former support for the Trans-Pacific Partnership trade deal and unveiled a slate of policies for micromanaging the business world, such as "nudging" companies to invest long-term.

There are big structural reasons why business finds itself homeless. The financial crisis of 2008 and the prolonged stagnation that followed have poisoned the well of pro-business feeling. The political system has become more hostile to liberal Republicans (a near-extinct breed anyway, most of them from the north-east) and conservative Democrats (many of them from the South) who supported pro-business policies.

That said, business has also contributed to its own problems. The elite is increasingly divided between big businesses (which have done relatively well in recent years) and small business (which has suffered), and between knowledge-based industries (which like to flaunt their cultural liberalism) and Main Street firms (which are more traditional). Business has also lost its old

claim to bipartisan respect. Companies have focused on campaigning for their narrow commercial interests. Washington is packed full of lobbying shops and industry groups that concentrate on stuffing legislation with titbits or creating special privileges. Those business groups that have continued to dwell on broader problems have thrown in their lot with the radical right. This made sense in the 1970s, when America needed to undo the New Deal economic model to cope with competition from Japan and the Asian tigers. But it has become counter-productive as the conservative movement has turned increasingly doctrinaire. After the presidential race of 2008 many leaders of small businesses supported Tea Party activists, who want to destroy the state despite the fact that the real challenge lies in reinventing it; Michael Porter of Harvard Business School points out that America's public investment in transport infrastructure is a lower proportion of its GDP than either Europe or China.

What should business do about its newly homeless state? One argument is that it should just wait for the inevitable return to normality. This is short-sighted. The populist wing of the Republican Party is probably here to stay (and Mr Trump is likely to keep stoking its anger with a new television channel). Mrs Clinton will face formidable opposition from new liberal lions, such as Bernie Sanders and Elizabeth Warren, if she tries to move to the right (ironically, the fact that she has spent so much time giving highly paid speeches and hobnobbing with billionaires will make it harder for her to move to the centre).

The current anti-business mood is more than a local squall. Messrs Trump and Sanders have their counterparts across the world: Britain voted for Brexit despite vigorous opposition from business leaders. The millennials increasingly associate business with crookery rather than prosperity. One poll, conducted by Frank Luntz, a Republican, found that only 2% of his respondents in the 18-26 age group respected bankers and only 6% admired business people. For a striking number of young people the business of America is not business, but atoning for past sins.

Back to basics

Business elites need to recover their sense of collective mission and collective responsibility to fight these deeply rooted changes. They must improve the image of business; the majority of ordinary people own America's giant corporations through their pensions, so "they" are actually "we". Business needs to rethink support for anti-government radicals and look at fixing America's most obvious problems: its deteriorating infrastructure, a labyrinthine tax code, a second-rate education system, stagnant wages for average workers, and poor productivity growth. Such pragmatism would align business with the broad mass of Americans who worry that a polarised political system is contributing to the country's woes: there are substantially more Americans who identify themselves as independents (42%) than either Democrats (28%) or Republicans (28%).

The American businesses have an impressive record of helping the country address its deepest political problems. In the mid-19th century the northern business elite embraced "internal improvements" and opposed slavery. During the second world war, business leaders helped turn the country into an arsenal of democracy. In the 1970s and 1980s they embraced deregulation and tax reform. It is time for American business to recover its public spirit—or it will enter the next presidential election in an even weaker position than it is in today. ■



Shale oil

Permian hyperbole

MIDLAND, TEXAS

A seductive myth is in the making about the “Saudi Arabia” of Texas

ON THE outskirts of this west Texan city, on top of one of America’s most prolific oilfields, sit 230 square miles (600 square km) of scrubland owned by one family for more than a century. David Fasken, a Canadian lawyer, paid about \$1.50 an acre (\$3.70 a hectare) back in 1913, hoping to make a fortune out of cattle. But the land lacked sufficient groundwater. Before he died some years later, he swore it was the worst deal he had ever done.

Today the farm, still owned by a few Fasken heirs, is valued in the billions. Oil-rich land in the Permian Basin, a 250m-year-old sea of oil lying up to 12,000 feet (3.7km) underground, has changed hands this year for an average of more than \$25,000 an acre. On October 31st Occidental Petroleum (Oxy), a large American oil company, said it had paid \$2bn in cash for 59,000 acres in the Permian. Amid a flurry of such deals, Bernstein, a research firm, predicts prices will go as high as \$100,000 an acre. The nicknames range from “Saudi America” to “Texarabia”.

But Tommy Taylor, head of oil at Fasken Oil and Ranch, smells a rat. He has worked on the Permian, where oil was first struck in the 1920s, long enough to sense its booms and busts. (“In the 80s, man, this place dried up and looked like it was going to blow away.”) He cannot afford to be swept up by the whiff of Wall Street hype. Fasken survives on its own cashflow, which means watching the pennies on

each well it drills, and every hydraulic-fracturing (fracking) crew it employs. Mr Taylor says it is hard to justify the high land prices with oil at less than \$50 a barrel—especially the costly horizontal wells that run pipes for miles underground. So Wall Street’s excitement perplexes him. “Our recoveries suggest it will be very difficult for wells to be economic at these prices,” he says.

Another Permian veteran, Scott Sheffield, chief executive of Midland-based Pioneer Natural Resources, tells a more seductive story. The Permian, he argues, has as much oil beneath it as the biggest field in Saudi Arabia, Ghawar. The oil is cheaper to extract than in most countries within the OPEC oil cartel. It could last 100 years.

His view has helped stoke excitement on Wall Street. Of the new rigs deployed to drill oil in America since the nadir in May, more than 60% have been in the Permian (see chart). The vast majority are horizontal ones. Deloitte, a consultancy, says more than \$20bn was raised in public markets in the first half of the year, much of it to finance acquisitions in the Permian. IHS, another consultancy, calculated in late September that access to oil in the Permian explained 40% of all upstream oil merger deals in America this year, up from 7% in 2011 at the start of the shale boom.

According to the most recent figures from government’s Energy Information Administration (EIA) the Permian is the only prolific shale bed in America where

Also in this section

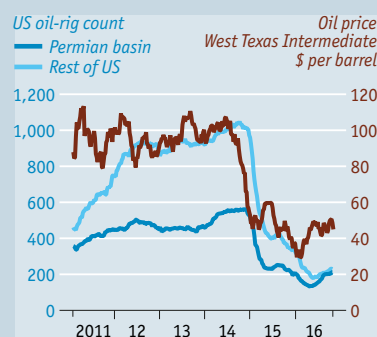
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net production is still rising. The field’s resilience underpins the view that shale producers have weathered the storm unleashed in 2014, when OPEC flooded the market to drive out high-cost producers. Rabah Arezki of the IMF says they have avoided bankruptcy by cutting costs to improve efficiency. He reckons they have permanently added to supply which, combined with slower demand-growth in emerging markets and efforts to reduce consumption to slow global warming, will prevent oil prices recovering to the \$100-plus levels of a few years ago.

But analysts say that, if the excitement over the Permian is to last, oil prices will need to stabilise at above \$50 a barrel, and the banks will need to keep funnelling money to Permian producers, because ▶▶

Basin of dreams



Sources: Baker Hughes; Thomson Reuters

without it their cash flows are insufficient to finance expansion.

This week prices of West Texas Intermediate fell to around \$46 a barrel, after OPEC's efforts to agree on a global production cut by November 30th frayed at inconclusive talks on October 28th-29th in Vienna. Disputes persist about how much to cut. Saudi Arabia, historically the swing producer, is loth to bear a disproportionate share of the burden.

The Permian has many layers of oil-bearing "stacked" shale which, Mr Sheffield says, has the same sort of recoverable-resource potential as Saudi Arabia's Gha-

war. But that is using the term "resources", unrelated to the cost of extraction. The EIA's latest estimate is that proven reserves in the basin are 722m barrels. That, as Arthur Berman, a Houston-based petroleum geologist, points out, is comparable to Denmark's. By contrast, Saudi Arabia's proven reserves (albeit unaudited by outsiders) are given as 268bn barrels.

Costs are also debated. Some Permian producers claim their "break even" costs are below \$30 a barrel. But, says Mr Berman, that usually excludes interest payments, corporate costs and other components of profitability. And, says Fasken's Mr

Taylor, investors need to factor in how fast shale wells decline, and the limit to how many can be drilled horizontally before they start crowding each other out.

None of this suggests the Permian is a bad bet. Oxy, for instance, floods depleted oil wells with carbon dioxide to enhance recovery, which helps explain its investment. As long as interest rates remain low and investors are hungry for yield, they can probably justify a splurge in west Texas, and help influence global oil prices to boot. But they would be wise to listen to a penny-pincher like Mr Taylor as well as to the Permian's perma-bulls. ■

Buttonwood | A turning-point?

The deflationary theme in financial markets was overdue for correction

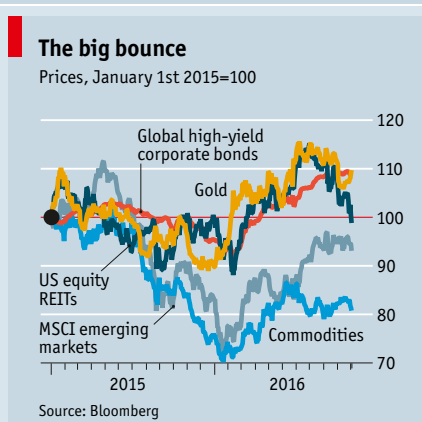
EVERYONE wants to spot the moment when markets change trend. By riding one of the great bull markets—the rally in equities from 1982 onwards, for example—or avoiding a crippling bear market like that of 2007-08, fortunes can be made, or saved. The key lies in spotting the turning-point.

Commentators see several potential turning-points in today's markets. The first is in government bonds. The ten-year American Treasury bond yield bottomed at 1.37% on July 7th and has since risen to 1.80%. The ten-year German bond yield reached a low of -0.18% on around the same date and has since edged back into positive territory, at 0.13%. British bond yields of the same maturity have shown an even sharper shift, rising from 0.61% to 1.17% thanks to worries about the economic impact of Brexit.

These yields are still very low by historical standards. But there has been a revival of talk that the long downward march of bond yields (and upward march of bond prices) dating back to 1982 may at last have reached an end.

A second turning-point may already have occurred, earlier in the year. Risky assets seem to have recovered in unison, with emerging-market equities, speculative or "junk" bonds, commodities and American property funds all reversing their poor performances of 2015 (see chart). David Ranson of HCWE, a research firm, says the trigger for the turnaround was the rally in the price of gold, which suffered its latest low at the end of 2015 and has rebounded by 20% this year.

The start of 2016 was marked by nervousness about the Chinese economy, the speed of monetary tightening in America and the risks of deflation. But China's economy has continued to grow and the Federal Reserve has yet to push



up interest rates again after its first increase in December 2015 (it may raise rates again next month). Deflation fears seem to have receded a bit. Gavyn Davies of Fulcrum Asset Management says that the headline inflation rate in advanced economies has risen from zero at one stage last year to 0.5%, and may reach 1.5% next year.

So one possible explanation for the market shifts is a perception that this is now a reflationary, not a deflationary, era. Gold has pulled out of a precipitate bear market; it fell by 44% between September 2011 and the end of last year. Perhaps its rebound is a sign that gold bugs' worst fears about inflation and depreciating paper currencies are coming true at last.

Maybe. But Mr Davies points out that the pickup in headline inflation is largely the result of the rebound in commodity prices. Core inflation remains stuck in a narrow 1-1.2% range and seems likely to stay there. This is hardly a sign that we are heading for Weimar Germany-style hyperinflation.

More plausible, perhaps, is the idea that financial markets had overdone the deflationary fears. Bank of America Merrill

Lynch has compiled data on financial assets (equities and government bonds) and real assets (commodities, property and collectibles) going back to 1926. It found that the latter are cheaper, relative to the former, than at any time in this 90-year period. The adoption of quantitative easing (QE) by central banks has had a much greater impact on the price of financial assets than on property.

So some of the recent market trends may simply stem from a feeling that real assets have become too cheap (or financial assets too expensive). Perhaps this may turn out to be a significant change in trend, but even then the really tricky bit will be deciding whether there is more money to be made from buying property and gold, or from selling equities.

It would be surprising, however, if real assets rose as far (or financial assets suffered as much) as they did in past cycles. First, the commodity bull market of the 2000s was largely driven by China's investment boom, and it is hard to see that being repeated. Second, as the developed world ages, baby-boomers will be trying to offload their properties to struggling millennials—hardly the recipe for an extended property boom.

Meanwhile, central banks have repeatedly shown that they will fire the monetary bazooka if financial markets take fright; they would welcome neither a collapse in equity markets nor a big leap in bond yields.

In short, there may well have been a short-term turnaround in financial markets because deflationary fears went too far, and bond yields fell too low. But a lot more evidence is needed to declare this a long-term turning-point of the kind seen back in 1982.

China's industrial policy

Plan v market

SHANGHAI

Academics in China wrangle over the government's role in the economy

IT IS not quite Keynes-Hayek, but Lin Zhang is a marvel in its own right. Perhaps the most famous debate in the history of economics was that between John Maynard Keynes and Friedrich Hayek—a clash over the benefits and perils of government intervention that exploded in the 1930s and still reverberates today. It has echoed around Chinese lecture halls in recent months. Justin Lin, a former chief economist of the World Bank, who leans to Keynesian faith in public spending, has squared off against Zhang Weiying, a self-professed Hayekian who doubts bureaucrats can ever beat the free market.

Like their predecessors, Mr Lin and Mr Zhang have been sparring over two decades. And whereas Keynes and Hayek were down the road from each other (respectively, in Cambridge and London), the Chinese professors are now only a few paces apart, both at the prestigious Peking University. Their latest debate has been one of their fiercest, becoming a talking point for the domestic press, other academics and even officials.

At issue is one of the big questions facing China's economy: does industrial policy work? The idea that the government can champion specific industries is central to Chinese policy. Officials have long favoured different sectors, from textiles in the 1980s to renewable energy this decade. China's growth record would seem to vindicate this. But critics disagree, arguing that favoured companies produce little innovation. The prominent airing of the Lin-Zhang debate reflects concerns as debt levels rise and the economy slows.

Mr Zhang kicked things off in August with a speech on why industrial policy is "certain to fail". The core problem, in his eyes, is the limits of human cognition. State planners may think they know which technologies will be important, but they are gambling. In the 1990s, the Chinese government spent vast sums building a television industry, only for cathode ray tubes to become outdated. Mr Zhang also worries about incentive problems. The safest choice for local officials is simply to follow the central government's direction, but that leads to the kind of overcapacity that has plagued China's solar-panel industry.

For Mr Lin, such views are almost heretical. Much of his work has revolved around the idea that countries can succeed by promoting industries that play to their comparative advantages. Early innovators take big risks and may not be rewarded; the government needs to encourage them by building infrastructure and giving tax breaks. And because resources are limited, it should help identify which industries are most important. China, Mr Lin insists, is a model of this approach.

Others have piled in to the debate, often trying to find a middle ground. Huo Deming, a leading economist, highlighted their different perspectives: Mr Zhang focuses on policy failures and Mr Lin on market failures. Li Daokui, another high-profile economist, noted the irony that government support has been critical to China's growth, but that the best companies rarely start with state backing. An official with the National Development and Reform Commission, a central-planning agency, cryptically acknowledged the need to "adjust" industrial policies in line with China's more challenging economic backdrop.

Mr Zhang and Mr Lin, for their part, are not about to declare a truce. Peking University has scheduled a one-on-one debate between them on November 9th. It should be a lusty, though good-natured, clash. And if Keynes and Hayek are any guide, the dust will never settle on it. ■

America's foreign debts

Net debt, big returns

WASHINGTON, DC

The exorbitant privilege looks greater than ever

AS DONALD TRUMP sees it, America's trade deficit is a sign of economic weakness, proof that lousy trade deals have sent production overseas. But Uncle Sam does not just import goods from the rest of the world and send nothing in return (though that would be a lucrative arrangement). Rather, the net inflow of goods is matched by a net outflow of stocks, bonds and other financial assets.

That makes America a debtor. In theory the interest and dividends paid to foreigners should chip away at national wealth in future. Since 1989 foreigners have owned more assets in America than Americans have owned overseas; in the jargon, the net international investment position (NIIP) has been negative. But America is an unusual borrower. For almost all of that time, it has received more income on its overseas investments than it has paid out to foreigners. This is strange: it is akin to someone's savings earning more than enough interest to service his far bigger debts.

This contrast is getting starker (see chart on next page). In recent years the NIIP has tumbled to -44% of GDP, the lowest since 1976, when the data begin. Yet net primary income—the returns—has held steady at about 1% of GDP. In dollar terms, America's NIIP deficit is almost seven times as big as any other country's. As a percentage of GDP, 11 rich countries have worse NIIPs; only one—Greece—earns net positive returns (probably thanks to its bail-outs).

The disparity between America's balance-sheet and its earnings is sometimes attributed to the "exorbitant privilege" of printing the dollar, the world's reserve currency. Everyone wants dollars, it is said, so America can raise funds more cheaply than others. Two other factors help. First, foreigners like to buy low-yielding American debt, but Americans investing overseas are keener on higher-yielding equities. Second, America seems to earn more on some of its investments of a given type.

A paper last year by Stephanie Curcuru and Charles Thomas of the Federal Reserve argues that the second effect is by far the most important. Between 1990 and 2010 the average yield America received on its foreign direct investments (FDI) was about 6.2 percentage points higher than what it paid out on comparable liabilities. The authors attribute this mainly to the greater risk of investing overseas and to America's high corporate taxes, rather than to any mysterious benefit attached to ►►



Lin-Keynes is on the left

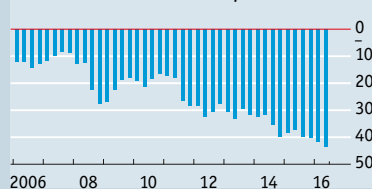
Imbalance-sheet

United States, foreign investment balance
As % of GDP

Net overseas income



Net international investment position



Source: Bureau of Economic Analysis

▶ issuing the world's reserve currency.

But that does not help to explain the recent widening of the gap between the NIIP and net returns. The current-account deficit, which includes the trade deficit, is only partly to blame for the worsening balance-sheet. At 2.6% of GDP in 2015, it was less than half what it was in 2006. The NIIP is being pushed higher because of the strong dollar (which reduces the dollar value of American overseas investments) and the rapid rise in American share prices, says the IMF; it forecasts that the NIIP will reach -63% of GDP by 2021. So, because the economy has performed strongly, foreign investors in America have booked bigger paper gains than Americans invested overseas, despite generating less income. Sometimes privilege isn't all its cracked up to be. ■

Brexit and venture capital

Turning off the tap

British venture capitalists, it turns out, voted Bremain

EUROPE has yet to produce a rival to Silicon Valley, but London's "Silicon Roundabout" by Old Street station is closest. As a funding hub, the city's venture-capital industry tends to attract more money than rivals in Berlin, Munich or Paris. And more venture capital is invested in Britain, relative to its GDP, than in any other big European economy. Britain's vote to leave the European Union threatens this lead. Besides unknown risks, there is a prosaic worry: the most important backer of such firms is the European Investment Fund (EIF), an EU institution, whose mandate includes "fostering EU objectives".

As the biggest investor in European venture funds, the EIF supplied almost a fifth of all commitments last year, with Britain, France and Germany the main recipients. It is also among the largest and earliest investors in any fund. For every pound it pumped into Britain in 2015, the EIF reckons it mobilised another four of private capital. Venture-capital managers debate the extent to which the EIF spurs private investment, but generally accept it is a linchpin of the industry. Nenad Marovac, of DN Capital, a technology investor, says its withdrawal from Britain would be "devastating". It would exacerbate other difficulties caused by Brexit uncertainty. American institutional investors have "turned off the UK," says one manager; European family offices are putting their venture allocations on ice, complains another.

At present it is business as usual, at least until there is "some clarity about the relationship between the UK and the EU", insists the EIF's Ulrich Grabenwarter. This has reassured firms such as London-based Isomer Capital, which applied for EIF money after the referendum. Yet huge uncertainty remains about what happens once Britain starts the leaving process, expected to be triggered by March. After then, whatever the EIF's public stance, some fear that British applications will gather dust.

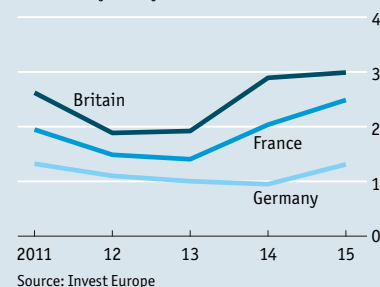
The first to suffer will probably be Britain-focused funds, says Matthias Ummenhofer, formerly of the EIF, and founder of Mojo Capital, a Luxembourg-based venture-capital fund. But British firms that invest at least two-thirds of their capital in the EU might retain a good case for EIF support, he adds. Much will depend on how the Brexit talks go, and on Britain's future relationship with the European Investment Bank, the EIF's main shareholder. If Britain stops contributing to the bank, its other members may well direct venture funding elsewhere. If so, the British taxpayer would be asked to plug the gap, perhaps via the state-owned British Business Bank.

British venture-capital managers argue it would make sense for the government to pick up the tab, given the sums involved: the EIF invested €656m (\$728m) in Britain last year, of which €295m went directly into venture-capital funds. The Treasury has merely promised consultations to "ensure appropriate investor certainty". Looking on the bright side, the British Private Equity & Venture Capital Association, a trade body, says Brexit could give a boost to venture-capital trusts and enterprise-investment schemes, tax-advantaged vehicles whose privileges are currently limited by EU state-aid rules. Optimists also note that the EIF does invest outside the EU. But the amounts are smaller and usually limited to multi-country managers.

Rated People, a London-based online marketplace, is the sort of internet company all governments like to foster. Its chief

Before Brexit broke

Venture and growth capital investment, €bn
Worldwide, by country of investor



Source: Invest Europe

financial officer, Tim Parsons, says that its growth depended on an injection of equity in 2011 from Frog Capital, an EIF-backed fund, that it used to add staff and expand across the country. Other European governments have provided more funds for innovation. Bpifrance, for instance, a sovereign fund, committed €685m to French venture-capital firms last year, compared with just £78m (\$120m) from the British Business Bank for its venture-capital firms.

London's status as a financial hub has kept it just ahead of the venture-capital pack until now. But, like other British business sectors, the venturers are now looking to the government for assurances that, for them, Brexit does not mean Brexit. ■

Taxation in India

Lost in transition

MUMBAI

India's tangled system of taxes will be simplified rather than overhauled

AIR-CONDITIONING doesn't feel like much of a luxury in parts of India, but the taxman begs to differ. Cooled restaurants are deemed posher. Their patrons are liable to additional taxes the unventilated masses do not bear. Luckily for sweat-prone diners there is a catch: the tax only applies to the service and not the food, so only part of the tab incurs the extra levy. In their wisdom, India's bureaucrats once decided that 60% of a restaurant's offering is food, and so air-conditioning triggers a service tax payable on just 40% of the bill.

Indirect taxation in India often seems the product of a micromanaging bureaucracy run amok. The result of combined taxes levied by its 29 states, union territories and the central government is that the same products in different regions, or different products in the same region, are taxed at different rates. This makes it difficult to trade between states. Tariffs are enforced by internal borders at which lorries languish for hours. It also distorts the econ- ▶▶

omy in favour of goods and services taxed at lower rates (usually as a result of energetic lobbying). The agreement in August to subsume all manner of national and regional levies into a single goods-and-services tax (GST), applicable nationwide, was hailed as a historic opportunity to rid the economy of both problems, potentially adding two percentage points of GDP growth a year.

Since then, as so often happens, politics seems to have got in the way of sound economics. Whereas it had once been assumed the GST would be levied at a single rate, with a few exemptions (eg, for food, health care, etc) and a “sin” rate (tobacco and alcohol), the end result is looking far more complicated. The central government, in negotiations with state authorities, has put forward a schedule of seven different GST slabs ranging from 4% for gold to 26% or more for middle-class goods, with other goods being taxed at 6%, 12% or 18%, and basic goods remaining exempt.

Economists are aghast: much of the gain from moving to a single tax-rate nationwide came from stamping out the inefficiency of multiple rates, which prod businesses towards providing goods and services favoured by the tax code rather than by consumers. Government officials have justified the newly added complexity by arguing that a sudden move to a single headline rate would have resulted in sudden price surges for goods that are currently taxed at a lower level.

In fact, the central and state governments involved are trying to reduce the costs and risks of moving to a new tax structure, even if it means some of the benefits are lost. The new system has to be agreed by a new “GST council” made up of the finance minister and his counterparts at state level. It is meeting over the course of October and November. The states are concerned they are giving up their right to levy their own consumption taxes and will be inadequately compensated. The central government has had to guarantee states they will be reimbursed if they lose out, at least for the first five years.

Because revenue data are so poor, nobody can precisely gauge the potential impact of moving to new tax rates, much less model it. But bureaucrats in Delhi are said to be fretting that a bold move to a new single-rate system might leave them on the hook at a time when the government has pledged to cut the budget deficit. To avoid losing out, they want the new GST rates to mirror existing taxes, complete with their favourable treatment for unventilated eateries. So biscuits will continue to fall in different bands depending on how luxurious the government judges them to be. Creamy ones, for example, will suffer particular punishment.

Things will be a touch simpler—the seven rates will replace several hundred tax

Aid in kind

Free two shoes

New studies should cool the warm glow surrounding shoe donations

CAPITALISM has clocked the ethical consumer. Shoe brands like TOMS and Skechers tease in customers by matching purchases with a donation of a pair of shoes to a child in need. So far, TOMS has handed out 60m pairs of shoes, letting fashion-conscious consumers feel good about boosting children's health, access to education and confidence. But evidence suggests that shoppers' warm glow is unjustified.

Handing out aid in kind gives plenty to worry about. It could suck life from local markets, and foster a culture of aid-dependency. Handing out goods rather than cash runs the risk of spending money on things people neither need nor want. To find out if its intervention had worked, TOMS, to its credit, asked a group of academics to investigate and gave them assurances that they could publish whatever they liked. In late 2012 they randomly picked which of 1,578 children across 18 rural communities in El Salva-

dor would receive pairs of TOMS' black-canvas, rubber-soled shoes. By comparing the places and children who received the shoes with ones that did not, they could work out how much these boots really gave back.

The first of two studies found that TOMS was not wrecking local markets. On average, for every 20 pairs of shoes donated, people bought just one fewer pair locally—a statistically insignificant effect. The second study also found that the children liked the shoes. Some boys complained they were for “pregnant women” and some mothers griped that they didn't have laces. But more than 90% of the children wore them.

Unfortunately, the academics failed to find much other good news. They found handing out the free shoes had no effect on overall shoelessness, shoe ownership (older shoes were presumably thrown away), general health, foot health or self-esteem. “We thought we might find at least something,” laments Bruce Wydick, one of the academics. “They were a welcome gift to the children...but they were not transformative.”

More worrying, whereas 66% of the children who were not given the shoes agreed that “others should provide for the needs of my family”, among those who were given the shoes the proportion rose to 79%. “It's easier to stomach aid-dependency when it comes with tangible impacts,” says Mr Wydick.

The findings have prompted TOMS to change its strategy. It is adopting approaches more likely to have a big impact, such as matching purchases of sunglasses with free sight-correction. Increasingly it gives shoes as rewards for children who join community-building projects. Even so, its “one for one” shoe offering faces a basic problem: it is aimed at children who want shoes, but are too poor to buy them. For children that poor, other things would help more. As Mr Wydick notes: “You can't eat shoes.”



Not a model of philanthropy

levels nationwide, estimates Neelkanth Mishra of Credit Suisse, a bank. That levies will be the same across India will create a true single market for the first time in its history. And there are fervent hopes that, because businesses will have to register invoices in order to qualify for tax rebates, more will be pushed into the formal economy, so boosting both long-term economic growth and the tax kitty.

A lack of resolve on indirect taxation

bodes ill for the next stage of fiscal reform. Praveen Chakravarty of the IDFC Institute, a think-tank, points out that India is far too reliant on indirect taxes, such as those on goods and services, rather than direct levies on income or wealth. Fewer than 50m pay direct taxes in a country of 1.3bn. Shifting the burden to direct taxes would be fairer but involve taking on entrenched interests far more powerful than non-air-conditioned restaurateurs. ■

Refugees in Sweden

Seeking asylum—and jobs

STOCKHOLM

Too few refugees, not too many, are working in Europe

WHEN Ameen first arrived from Aleppo, he was thrilled to have made it to Sweden. Speaking as he takes a break from a protest near parliament, he says he thought there would be plenty of jobs. But none was available. Now that the government has made it harder for family members to join the refugees, some have taken to Stockholm's cobbled streets. The rules on asylum-seeking in Europe mean refugees like him have to stay in their country of arrival. "If we could leave, many of us would," he says.

A big reason refugees cause alarm across Europe is the fear that they will steal jobs. But a more serious problem may be their joblessness. France, Germany and Norway all have big employment gaps between native- and foreign-born workers. But the gap is widest in the Netherlands and Sweden—and these figures do not yet include the 163,000 asylum-seekers who arrived in Sweden last year (see chart).

In part, Sweden is a victim of its own generosity and success. No European country has a larger proportion of refugees in its population and in 2015 none welcomed a larger flow of asylum-seekers, proportionate to its population, than Sweden did. Employment rates for refugees are no lower than in most European countries, but the difference with Swedish-born workers is striking. Partly it is because many Swedish-born women work and Swedes are highly educated. Nevertheless, fears are mounting about the social impact of the two-tier labour market that is developing. Magnus Henrekson, an academic, fears further ghettoisation and alienation.

On the surface, Sweden has one of the least troubled labour markets in the world. The economy is growing, vacancies are plentiful, only 5% of 15-74-year-old native-born workers are jobless and the unemployment rate is falling. But foreign-born workers are three times as likely to be unemployed, and the ratio is rising. For those from outside the EU it is higher still (22.5% are unemployed). Hidden discrimination, housing problems and a Swedish reliance on informal networks help explain the gap. But many refugees simply lack the skills for Sweden's job market.

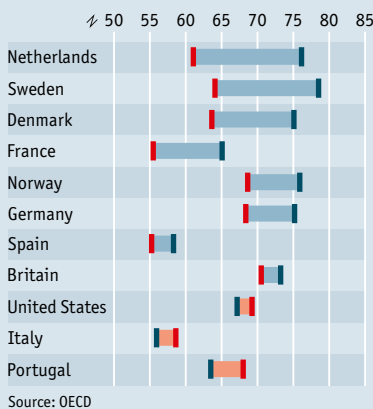
The issue is not unique to Sweden. In a report published in September, the OECD and UNHCR found that many employers do not see recruiting refugees as a business opportunity, but as a "CSR" (corporate social responsibility) issue. Large employers

Going native

Employment rates by place of birth

% of population aged 15-64, 2015

Native-born Foreign-born



made a big fuss about providing apprenticeships and mentoring schemes, but few offer jobs. The obstacles employers cite include uncertainty about refugees' qualifications and their right to work, sceptical public opinion, and worries that language barriers will mean lower productivity.

The concerns reflect changes in Sweden's employment market. Fewer than 5% of jobs are now low-skilled, requiring less than a high-school qualification, compared with 9% in Germany and 16% in Spain. Countries such as Greece and Italy have larger shadow economies, helping explain why refugees there have higher employment levels than natives. "High-school diplomas are Sweden's biggest divider," says Anna Breman, chief economist at Swedbank. Nearly all Swedes have them, yet only half of new arrivals do, according to government statistics.

The paradox, says Thomas Liebig, from the OECD, is that Sweden has among the most advanced refugee-integration policies. A two-year programme is meant to make refugees "job-ready", but is often too long for educated refugees and too short for those lacking basic literacy and numeracy. Only 22% of low-educated foreign-born men and 8% of women found work in the year after completing the programme. On average it takes seven to eight years for newcomers to find employment. According to a survey in 2014, across Europe it takes refugees and other beneficiaries of international protection 20 years to reach employment rates similar to natives. This

contrasts with America, where research has shown that refugees find work faster than other immigrants, and even do better than economic migrants over time.

Highly educated migrants also lag behind their Swedish-born peers in finding work. The biggest difficulties are posed by the large group with few qualifications. The obvious way to help is to train them better, particularly the young. Around 70,000 of last year's arrivals were minors, half of them unaccompanied. But a large proportion of 15-24 year-olds, especially women, drop out of education or training.

Ms Breman thinks the real bottleneck in Sweden is that the lowest wages are so high. But cutting wages or lowering the minimum wage is impossible: powerful unions would object. So instead, successive governments have experimented with wage subsidies for certain sectors, such as restaurants, as well as tax credits, for example for house renovation. Supporters argue that such subsidies compensate employers for taking a risk and a (temporary) fall in productivity.

Worries about unemployed refugees have been masked by the recent strong performance of Sweden's economy—ironically boosted by increased spending on refugees. (IKEA, a furniture chain, is reported to have run out of mattresses at one point.) But there is a growing realisation that Sweden—and Europe as a whole—cannot afford to delay reforms to ease the integration of refugees. The numbers now are simply too big.

Like most of Europe, Sweden's population is ageing. Educating and integrating young refugees could help plug gaps in the labour market. Failure to do so will exacerbate pressure on government spending and could lead to permanent exclusion and further polarisation. Europe is right to be worried about refugees and jobs—albeit for the wrong reasons. ■



Unskilled, unemployed and unhappy

Free exchange | Apps and downsides

“Gig-economy” work sits outside normal employment categories



DURING a recent ride with Uber, this passenger received a surprising word of thanks for talking softly. To complete the job, the driver needed to follow the route provided by Uber, read out turn-by-turn by his phone; noise from the back seat drowned out the critical instructions. The control Uber exercises over its drivers, whom it calls “independent contractors”, is increasingly a point of dispute. Two were recently judged to be entitled to some employment benefits—such as a minimum wage and holiday pay—by a tribunal in London sceptical of the degree of independence they actually enjoy. In fact, the drivers sit within a grey area in employment law; rules regarding firms’ obligations to their workers will need to adjust in response.

More than the profitability of Uber is at stake. According to a recent report by the McKinsey Global Institute, 162m people in America and Europe, or more than 20% of the working-age population, work outside normal employment. Nearly half rely on such work for their primary income. Sensible changes to work rules to take account of the rise in gig work could make life better for millions of workers; bad ones could mean fewer new jobs will be provided by gig-economy apps.

The way employment relationships are classified is commonly based on who is empowered to take which decisions. In a contract relationship, for example, the hiring party might choose what is to be supplied, but not how, while in an employment relationship the firm can specify the worker’s equipment and how and when to use it. Economic logic often pushes partners towards one arrangement rather than the other. Self-employment works best when the value of the service provided is easier to assess than the effort a worker expends on providing it. A firm which retains a graphic designer on contract knows whether or not it likes the resulting logo, but cannot easily say which of the sketches that went into it was time well spent (nor does it care).

Over the past 150 years, regular employment has been the norm. Worker protections have evolved accordingly. Most rich countries accord particular privileges to those considered to be employees, including the right to earn a minimum wage, a minimum of paid holiday and sick leave, and (in some cases) the right to severance payments or pension and health benefits. Some economists grouse about such rules, which can interfere with the

smooth functioning of competitive labour markets and impose some efficiency costs. Societies have nonetheless chosen to adopt such rules in order to reduce the risk borne by employees and make labour markets more equitable. Yet such benefits are not usually extended to the self-employed. The difficulty in monitoring the time and effort spent at a task and other factors that often make independent work an economically sensible arrangement also make it hard to know when a self-employed worker should be able to collect unemployment benefits or how minimum-wage payments should be determined.

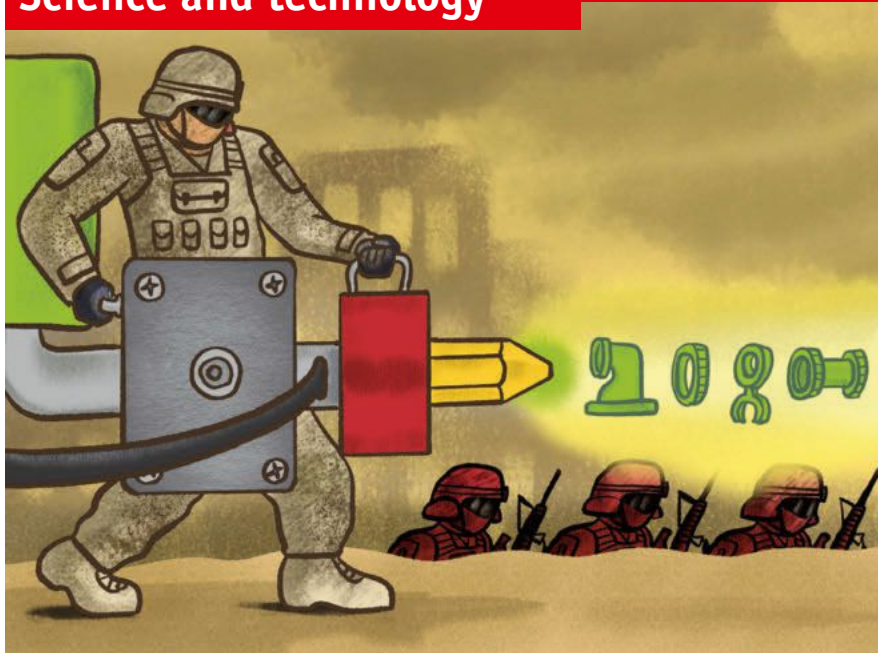
The threadbare safety net available to the self-employed can be a problem. Independent work is not always the result of a willing free agent taking greater control over production. It can instead reflect a dearth of attractive employment options for struggling workers. When good jobs are scarce and the search for new or better employment is costly, firms have the opportunity to cut costs by using more contract workers. Outsourcing tasks to independent workers frees firms from the expense of mandated benefits and shifts risk onto workers which might otherwise be shouldered by the firm. A shortfall in work, for example, falls directly on independent workers in the form of lost pay rather than on the firm, which might otherwise face the choice to pay the worker to stay idle or to accept the cost of severance pay.

Whether Uber drivers are empowered to be their own bosses or are the victims of a powerful corporation is debatable. Those who reckon drivers are employees point to the extensive control Uber exercises over its workers. It sets guidelines for behaviour and vehicle choice, and its app governs which passengers can be picked up, what the fare will be and what route the driver ought to take. On the other hand, drivers can choose to operate whenever they please, for as long or as short a period as they like. They are also able to select where they will operate, and can accept or decline potential fares as they see fit. Resolving whether the workers who provide services on platforms like Uber’s are employees or contractors is difficult, because they are not obviously either.

Over and above

Uber’s self-employed contractors are good for its bottom line. They cost the company less and improve the function of the service. If it had to pay all drivers a minimum wage, more of them would stay on the road when demand is low; either revenue would have to fall or fares rise. At the same time, the elements of control Uber exercises—like management of ride matches and payment, and the routes it provides to drivers—make it easier for inexperienced drivers to start working. The ability to earn income driving for Uber increases workers’ flexibility and, therefore, their ability to drive harder bargains with other employers.

Not without cost. Uber asks its drivers to accept all the financial cost when weak demand or a bout of illness keeps them from working; a hardship for those who depend on income from driving to make ends meet. Though Uber and its gig-economy peers are right that their workers are not traditional employees, regulators are justified in concluding that they owe workers more than wages alone. As work arrangements grow more flexible, work categories and benefits should too: paid leave could be allocated to workers in proportion to hours worked, for example. To get there, technology firms and workers must each show a willingness to bend in response to the concerns of the other. ■



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Military supply lines

Having no truck with it

Instead of shipping parts to battlefields, why not print them there?

AMATEURS talk strategy, but professionals talk logistics.” That military maxim’s latest consequence is the adoption by the world’s armed forces of three-dimensional (3D) printing on the front line. It will be a while before weapons robust enough for military use can be printed on demand (though civilian ones can be, see page 73). But if it is a question of replacing a small but crucial component that has broken—the modern equivalent of reshoeing a horse—then making what is needed to order in this way has huge potential. Moving replacement parts through a long supply chain to a far-flung ship or base can take weeks. And, if a war is on, such convoys make tempting targets. Yet it is unrealistic to keep a full range of spares near the front line. Far better to produce what is needed, when it is needed.

Having access to a printer can even encourage innovation. For example, the *USS Harry S. Truman*, an American aircraft-carrier, took two 3D printers on her most recent tour of duty in the eastern Mediterranean and the Persian Gulf, which began in November 2015. During the eight months she was at sea her crew devised and printed such items as better funnels for oil cans (to reduce spillage), protective covers for light switches (to stop people bumping into them and inadvertently plunging, say, the flight deck into darkness) and also a cleverly shaped widget they dubbed the

TruClip. This snaps onto walkie-talkies, reinforcing a connection that is otherwise prone to break in the rough-and-tumble of naval usage. According to Commander Al Palmer, one of the *Truman*’s maintenance officers, TruClips alone have saved more than \$40,000 in replacement parts. The printers themselves, by contrast, cost about \$2,000 each. On the basis of his experience using it, Commander Palmer reckons 3D printing will become an important part of the American navy’s supply chains.

Keep your powder dry

At the moment, only plastic items can be printed at sea. Landlubbing printers can make things out of metal by building up layers of metallic powder that are then melted with a laser or electron beam and allowed to cool into a solid. But printers, like people, get seasick. A ship’s constant yawing, pitching and rolling disturbs the powder before the beam can do its work. This is why a printer of metal ship parts operated by Canada’s navy sits safely on dry land, at the Cape Scott fleet-maintenance facility in Halifax, Nova Scotia.

In time, however, metal parts may also be printed at sea. The head of engineering at the American navy’s supply command, Captain Armen Kurdian, says his organisation is looking for ways to overcome the problem of instability. Mounting printers on damping platforms that hold them

steadily by compensating for a ship’s motion could be one answer. Another might be to form the metal “ink” into wires instead of powders, for wire is more easily held in place than a layer of dust is. In this arrangement the laser or electron beams would melt the tips of the wires.

Nor are sailors the only servicemen who will benefit from 3D printing. China’s army prints both basic items, such as ratchets, and more sophisticated ones, including physical relief maps of local terrain that help soldiers plan operations more effectively than a paper map or screen display could. Israel’s air force prints plastic parts that are as strong as aluminium, in order to keep planes that date from the 1980s flying. And America is advising the governments of Australia, Britain and France on 3D printing, in order to speed up these allies’ supply chains, says Chris Wood, a captain of marines who works at the Pentagon and is in charge of this joint enterprise.

Captain Wood will also, within the next three months, be supervising the distribution of 3D printers to American marines in Europe, the Middle East and the Pacific. In October marines at Camp Pendleton in California finished converting a shipping container into a rugged “expeditionary-manufacturing facility” movable by lorry, ship, train or aircraft. In addition to a 3D printer, this contains conventional machining equipment. Another such mobile workshop is under construction in North Carolina. And the army, too, is involved. It has already sent some 3D printers to bases in Afghanistan.

For now, like those on board ship, “forward deployed” printers of this sort make items out of plastic only. In their case the problem with printing in metal is not constant movement but grit—for this is a much more sensitive process than printing in

▶ plastic. Even that limitation will be overcome, though, according to the United States' Army Research Laboratory (ARL). The ARL is paying two firms to develop technologies which can turn blocks of metal into printable powder within the confines of a shipping container. The purpose of this is to recycle battlefield scrap into new equipment.

At the moment this "atomisation" process works like an old-fashioned shot tower. Molten metal poured in at the top of a chamber breaks into droplets that cool and solidify on their way down. But this requires a chamber at least six metres high, which is too tall to fit upright inside a stan-

dard shipping container. One of the firms the ARL has contracted, MolyWorks Materials of Los Gatos, California, has managed to shrink the process so that it does fit inside such a container. It does so by orienting the chamber diagonally, and employing jets of inert gas to stop the droplets touching the sides before they have cooled. If printers that make use of these solidified droplets can also be made rugged enough to withstand the battlefield, then broken parts themselves will become recyclable, supply chains may no longer need to deliver even raw materials and, the logistics taken care of, more thought can be given to the little matter of strategy. ■

How to store electricity underwater

Depths of imagination

Pumped storage gets a makeover

WIND farms and solar-energy plants have the advantage that their fuel is free, but the disadvantage that the availability of that fuel may change from minute to minute. If they are to become the large-scale contributors to power generation that their boosters suggest, then cheap and reliable means of smoothing their output, by storing surpluses for use during times of scarcity, need to be developed.

At the moment, there is only one good way of saving surplus grid electricity, regardless of how it is generated. This is pumped storage. It requires two reservoirs at different elevations, linked by tunnels and pumps in order to create a head of water whose pressure, when released, can drive the pumps backward, to act as generating turbines.

Pumped storage is cheap to run, but needs convenient geography to build in the first place. Or, rather, it did. For a pair of alternatives to the two-reservoir model, both of which still exploit the power-generating potential of a head of water by pumping fluids around, are now being investigated. One is a year old this month. The other is about to start trials.

The one-year-old project is in Toronto, Canada—or, rather, just offshore, at the bottom of Lake Ontario. It was designed and built by Hydrostor, a company founded by Cameron Lewis, who developed the technology after working in the oil industry. The plant is operated by Toronto Hydro, a local power utility.

In this case the working fluid is air rather than water. The air is compressed on land and pumped through 2.5km of pipes to a station on the lake bed 55 metres below the surface, a head of water that generates

Balls of fire

a pressure five atmospheres above normal atmospheric pressure. Here, the air is stored in six spherical bags, known as accumulators, made of a proprietary material. Each accumulator has a capacity of 100 cubic metres.

Compressing air heats it, and the heat thus generated is also stored for later use. This is done by melting a material with a high heat capacity (exactly which, remains a trade secret—though paraffin wax is often used in similar, commercially available heat-storage devices). Then, when the time comes to generate electricity from the ener-

gy stored in the compressed gas, the process is simply put into reverse. The air is released into the pipes, travels back to the onshore plant, and its expansion there as it returns to normal pressure drives a turbine. Just as compressing air heats it, so expansion cools it. To stop the machinery freezing, therefore, the compressed air entering it is first warmed up using the stored heat from the original compression.

According to Hydrostor, the Ontario plant can regenerate 60-70% of the electricity put into it, and produces around 400kw of power. The firm now plans, in partnership with AECOM, an American engineering company, to build a 1.75Mw plant in Goderich, Ontario, on the shores of Lake Huron. It has also signed an agreement with Aruba's electricity provider, WEB Aruba, to build a plant to be connected to wind farms there.

The newcomer, which will begin operating on November 11th, is a system called StEnSea ("Storing Energy at Sea"). This is being developed by the Fraunhofer Institute for Wind Energy and Energy System Technology in Kassel, Germany. In its case the working fluid is water itself, but, like Hydrostor's system, the pressure head is created by putting the storage vessels underwater—in this case, 100 metres down in Lake Constance, a depth that creates an excess pressure of ten atmospheres.

Unlike Hydrostor's system, StEnSea uses rigid pressure vessels, made of concrete, that have a volume of 12 cubic metres (see diagram). This gives them an energy-storage capacity at this depth of 3kwh each. When the system is charging up, the water in these vessels is pumped out of them into the surrounding lake. When it is generating, the water is let back in, turning turbines as it travels. StEnSea's advantage over Hydrostor's system is that no pipework is needed to connect the storage vessels to the land (though it does need cables, to carry generated power). Its disadvantage is that all the machinery is underwater, and thus harder to inspect and service.

The plant in Lake Constance is a pilot. If it works, the plan is to build a commercial version at sea. Jochen Bard, the project's boss, has his eye on the Norwegian trench, which is over 600 metres deep. Combining that depth with spheres 1,000 times the volume of the pilot's would create a system that stored 20Mwh per sphere, and supplied 5Mw of power.

Whether this could compete with conventional pumped storage remains to be seen. The Cruachan pumped-storage station in Scotland, for example, has a capacity of 7Gwh. StEnSea would need 350 spheres in the Norwegian trench to match that. But both StEnSea and the Hydrostor system have the advantage over plants like Cruachan that you can start small and add extra units as needed—rather like wind and solar energy themselves. ■



Scrutinising science

The watchers on the Web

A court case may define the limits of anonymous scientific criticism

MANY scientific studies are flawed. Often, the reason is poor methodology. Sometimes, it is outright fraud. The conventional means of correction—a letter to the journal concerned—can take months. But there is now an alternative. PubPeer is a website that lets people comment anonymously on research papers and so, in theory, helps purge the scientific literature of erroneous findings more speedily.

Since its launch in 2012, PubPeer has alerted scientists to mistakes and image manipulation in papers, and exposed cases of misconduct. But it has also attracted criticism, not least from journal editors, some of whom argue anonymity's cloak lets vendettas flourish unchecked. Now the site is embroiled in a court case that tests the limits of free speech under America's First Amendment, and may define what is permissible for researchers to say online and anonymously about science.

The proceedings centre on discussions that began on the site in November 2013. These highlighted apparent similarities between images showing the results of different experiments in papers by Fazlul Sarkar, a cancer researcher who was then based at Wayne State University in Detroit. Dr Sarkar alleges that certain commenters insinuated he was guilty of scientific fraud. The comments, he says, together with anonymous e-mails sent to the University of Mississippi, cost him the offer of a professorship there. In October 2014 he sued the commenters for defamation and subpoe-

naed PubPeer to disclose their identities. A court is now expected to decide whether the site will be forced to do so.

The American Civil Liberties Union has taken on the case on PubPeer's behalf. Its lawyer, Alex Abdo, says that the anonymity of PubPeer's commenters is protected by American law unless Dr Sarkar can provide evidence that their statements are false and have damaged his reputation. Evidence filed by PubPeer from John Krueger, an image-analysis expert, states the images in question "did not depict different experiments as they purported to" or contained other "irregularities", and may have been manipulated. Mr Abdo asserts that the comments identified by Dr Sarkar are not defamatory. Therefore PubPeer should not be forced to disclose the commenters' identities.

Who blows the whistle?

By contrast, Dr Sarkar's lawyer, Nick Roumel, argues the law should not provide anonymous commenters with more protection than it gives those who post under their real names. It is impossible to contact PubPeer's commenters to establish what they know about the allegations without knowing their identities, he says.

In March 2015 a judge at the Wayne County Circuit Court agreed that PubPeer need not disclose the identities of any of its commenters except for one. That commenter had confirmed on the site that he or she had notified Wayne State University of

problems with Dr Sarkar's papers. A prolific pseudonymous whistle-blower named Clare Francis is known to have e-mailed Wayne State in November 2013, to notify it of concerns with Dr Sarkar's work aired on PubPeer, adding in her e-mail (if, indeed, "Clare Francis" is a woman) that, in some cases, they amounted to "what many think of as scientific misconduct." Whether Clare Francis and the subject of the judge's order are the same is not clear.

Both sides lodged appeals against the ruling. PubPeer objects to revealing the identity of the last commenter. Mr Roumel wants to know the identities of them all.

Two goliaths of information technology, Google and Twitter, lodged a brief in support of PubPeer in January 2016. So did two giants of science: Harold Varmus, a Nobel prize-winning cancer researcher, and Bruce Alberts, a former president of the National Academy of Sciences. They argued that the First Amendment protects "unfettered scientific discourse".

On October 19th the *Scientist*, a magazine, published some findings of a misconduct investigation carried out by Wayne State University in 2015. The report of this investigation, which the magazine obtained under America's Freedom of Information Act, states that Dr Sarkar "engaged in and permitted (and tacitly encouraged) intentional and knowing fabrication, falsification, and/or plagiarism of data". Furthermore, 18 papers from Dr Sarkar's laboratory have been retracted from five different journals.

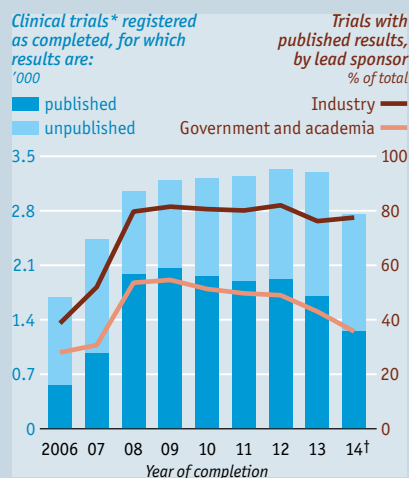
Dr Sarkar rejects all the investigation's findings. He states that he provided the correct images to the university but his explanations of how the errors occurred were dismissed out of hand. Despite his having more than 500 peer-reviewed papers to his name, his reputation has been destroyed because of "minor errors in a few articles," he says. Philip Cunningham, who convened the Wayne State panel that investigated Dr Sarkar, says all evidence was carefully considered and the university stands by the integrity and accuracy of the report.

Normally, neither Dr Sarkar's retractions nor Wayne State University's report would have any bearing on the case because appeals can only consider evidence presented during an earlier trial. But on October 28th, in what may be a decisive ruling, the court allowed PubPeer to enter the *Scientist's* story about the report into the official record of the case. The results of the appeal hearing itself, which took place on October 4th, are expected imminently.

Whichever way that decision goes, at least one side is likely to appeal against it. But however the case eventually ends, its outcome will affect the process of "open peer review" that PubPeer is pioneering by determining whether or not anonymous critics of scientific papers can, in the last analysis, retain their anonymity. ■

Tracking down missing clinical trials

HALF of clinical trials do not have their results published. Those behind the TrialsTracker, a web tool created by the Evidence-Based Medicine Data Lab, at Oxford University, hope to change this. Using clinicaltrials.gov, an American database that covers 193 countries, Ben Goldacre and Anna Powell-Smith can track automatically whether results have been put into the public domain. Proportionally, the worst culprits are government and academia. In absolute terms, the biggest offenders are two drug giants, Sanofi and Novartis, and the National Cancer Institute, an American government body. Companies that do well include Shire, Bristol-Myers Squibb and Eli Lilly.



Source: trialstracker.ebmdatalab.net

*On ClinicalTrials.gov
†To November 1st

Oenology

The war on terroir

How to get the wine you really want

IT'S enough to make sommeliers splutter into their spittoons: a wine-blending machine that lets drinkers craft a glass specifically to their personal palate, rather than having to pick a tippie, possibly as a result of guesswork, from the range a restaurant or bar chooses to stock in its cellar.

Vinfusion, as the machine in question is called, was launched this week by Cambridge Consultants, a British technology company. In designing it the firm's researchers first undertook a study of the wines people buy in pubs, bars and restaurants. They found that most customers are stick-in-the-muds. Instead of sampling different regions, grape varieties and vintages, they tend to order the same plonk every time they go out.

Many of the survey's participants admitted reluctance to ask for advice—often because of the snobbery and mystique that (at least in Britain) surround wine drinking. This conservatism does not, however, lead to satisfaction. The survey, which polled 138 drinkers, found that 70% were frequently disappointed by the wines they ordered. But it also found that the idea of having wines customised on

the fly to individual tastes was appealing.

To design a machine to do this Sajith Wimalaratne and his colleagues at the firm had first to get past the arch language of connoisseurs: “raspberry notes”, “elder-flower aftertastes”, “prune flourishes” and so on. They therefore asked survey-participants which adjectives they would use. The most popular were “light”, “full-bodied”, “dry”, “mellow”, “sweet”, “sharp” and “fiery”.

Armed with that information, and concentrating at first on reds, Mr Wimalaratne and the team analysed 20 wines to see which, both individually and in combination, best produced the flavours and aromas people wanted. They also matched these results to the popular descriptions. From their original 20 wines they picked four that act like the primary colours of a spectrum of viniferous flavours. Different combinations of this quartet yield something approaching the full range of gustatory hues. The wines in question are a pinot noir and a merlot from Chile, a shiraz from Australia, and, despite its whiteness, a French muscat. This latter they picked because it adds sweetness to a blend.

To create a new wine the customer manipulates three sliders on a touch screen attached to the machine. One moves between the extremes of “light” and “full-bodied”. A second runs from “soft”, via “mellow” to “fiery”. The third goes from “sweet” to “dry”. No confusing descriptions like “strawberry notes with a nutty aftertaste” are needed.

The desired glass is then mixed from tanks of each of the four primaries, hidden inside the machine's plinth. The requisite quantities are pumped into a transparent cone-shaped mixing vessel on top of the plinth. Added air bubbles ensure a good, swirling mix and flashing light-emitting diodes give a suitably theatrical display.

Traditionalists may be appalled by all this, but they should not be. In Mr Wimalaratne's mind, the function of the Vinfusion system is in principle little different from the blending of grape varieties that goes on in many vineyards, to produce wines more interesting than those based on a single variety. Moreover, if Vinfusion works as intended, it will let people experiment with oenological flavours in a way that is currently impossible and which lets them discover what appeals. A decent sommelier ought then to be able to recommend wines vinified in the conventional way that will taste similar.

In the longer run, recording and collating the requests made to a group of Vinfusion machines might even help restaurants and bars stock bottles that people will like, rather than merely tolerate. And if all this happens, the snobbery and mystique surrounding wine—whether blended in the vineyard or the restaurant—may disappear for good. ■

Cancer treatment

Missile tracking

How to use a body scanner to follow drugs around

MANY anti-cancer drugs are packaged for delivery into tiny fatty envelopes called liposomes. Because tumour cells are bound more loosely than healthy cells, liposomes squeeze between them more easily. They thus tend to accumulate in cancerous tissue and so, when they degrade, release their payloads there rather than in healthy tissue—to which many of the drugs concerned are equally dangerous.

Such medical missiles can, however, go astray. Even when the same drug in the same sort of packaging is used against the same sort of cancer, the degree to which it strikes its target differs markedly from patient to patient. A way of discovering where the liposomes are going in a particular individual might permit treatments to be tailored to that patient's needs. And, as they write in *ACS Nano*, Rafael de Rosales of King's College, London, and Alberto Gabizon of the Shaare Zedek Medical Centre in Jerusalem, think they have found one.

Many anti-cancer drugs bind readily to metal ions, including those of copper, manganese and zirconium. That interested Dr de Rosales and Dr Gabizon, because these three elements all have radioactive isotopes that release a particle called a positron as part of their decay. Positrons, which are antimatter versions of electrons, are the agents of a body-scanning technique called positron-emission tomography, or PET. This fact, the two researchers hoped, might let them track where the liposomes are going.

It did—in mice, at least. They injected mice that had metastatic breast cancer with their doped liposomes and were able, using a PET scanner, to follow what happened to the drugs therein over the course of a week. As they had hoped, the radioactive metal ions (and therefore, presumably, the drugs) concentrated themselves in the animals' tumours. At least, they did so most of the time. But there was one genetic strain of mouse in which they also ended up in the uterus, even though that organ was free from cancer cells.

If this were to happen to a woman undergoing chemotherapy for breast cancer, it might damage her fertility. But the technique Dr de Rosales and Dr Gabizon have invented may be able to stop that—either by letting doctors work out in advance which people are most susceptible to a drug going off-piste, or by tracking what is happening in individual patients, and taking evasive action. ■



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Contemporary America

Death by the barrelful

Why Americans love guns

ONE of the peculiar things about America is the extraordinary frequency with which people who live there are shot to death. There are well over 30,000 gun deaths in America each year, roughly two-thirds of them suicides and one-third murders. This firearm homicide rate, 3.4 per 100,000 inhabitants in 2014, is more than five times that of any other developed country. Yet America's political system steadfastly rejects every attempt to do anything about it. Massacres in schools have become regular occurrences, yet Congress has consistently voted down even weak gun-control measures. The Supreme Court decided in 2008 that the constitution's Second Amendment, which begins with a clause about militias, gives individuals the right to own guns. Many Americans have come to embrace a novel political ideology, concocted by pro-gun lobbying groups, which holds that firearms are the cornerstone of political liberty and that restricting them would cause more crime.

Other Americans find such reasoning absurd. But the country already has over 300m firearms in private hands. For those who see America's high rates of gun murder as largely caused by its high rates of gun ownership, this leads to a sense of acute despair. Faced with a situation they find morally unacceptable and practically unsolvable, many prefer not to think about it.

The approach adopted by Gary Younge, a journalist on the *Guardian*, is to immerse

Another Day in the Death of America: A Chronicle of Ten Short Lives. By Gary Younge. *Nation Books*; 267 pages; \$25.99. *Guardian Faber*; £16.99

Rampage Nation: Securing America from Mass Shootings. By Louis Klarevas. *Prometheus*; 397 pages; \$25

Come and Take It: The Gun Printer's Guide to Thinking Free. By Cody Wilson. *Gallery Books*; 320 pages; \$26

himself in the misery. In "Another Day in the Death of America", Mr Younge examines the most excruciating gun casualties of all: children and teenagers. The book recounts the stories of the ten young people, aged 19 or under, who were shot and killed on the arbitrarily selected date of Saturday November 23rd 2013.

The result is a sharp portrait of America, painted in blood. The victims are white, black and Latino (though mainly the latter two), from all over the country. Nine-year-old Jaiden Dixon was shot at his home in a small-town Ohio subdivision by his mother's vengeful ex-boyfriend. Tyler Dunn, 11, was shot in the head by a friend as they played with a rifle in rural Michigan. In an apartment complex in Houston, a friend killed Edwin Rajo, 16, while goofing around with a pistol they had bought.

Mr Younge's determination to give a

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chapter to every victim, in chronological order, inevitably strains the narrative a bit. Some of the chapters are thin: when the deceased had a criminal record or ties to gangs, relatives were often unwilling to talk. But the random tragedy of the stories he encounters underlines the intractability of the problem. As Mr Younge writes, his book is not so much a plea for gun control as a "long, doleful, piercing cry" in a country so overwhelmed by gun violence that it has almost given up trying to stop it.

Those who still hope to make progress must break off a piece small enough to chew. In "Rampage Nation", Louis Klarevas, a security expert, looks at what could be done to stop just one type of gun violence: mass shootings, such as the school massacres at Virginia Tech and Sandy Hook. These attacks account for a tiny fraction of firearm homicides (904 deaths in 111 incidents since 1966, by Mr Klarevas's count), but they spread fear out of all proportion to their numbers.

All violent crimes, Mr Klarevas notes, are composed of a perpetrator, a target and a weapon. Preventing them involves removing at least one of those elements. But the perpetrators of gun massacres cannot be deterred (most already plan to die); anyone can be a target, and protecting everyone all the time is impossible. Thus the only plausible strategy is to restrict the weapons that let shooters rapidly fire large numbers of bullets. Mr Klarevas debunks the claims of John Lott, a conservative gun researcher, that laws allowing citizens to carry guns openly reduce the number of massacres. His own statistics are more convincing: in the four years after the American government passed a ban on so-called assault weapons in 1994, there was not a single mass shooting.

That ban expired in 2004, and mass shootings are on the rise again. Politics will ►►

▶ probably doom Mr Klarevas's recommendations, including banning the extended-capacity magazines that allow shooters to fire dozens of bullets without reloading, and barring those convicted of domestic violence from owning guns. Such reforms require Americans to trust their government and public institutions. Unfortunately, many people in America revile them. And this hatred is bound up with their desire to own guns—as becomes clear in Cody Wilson's strange memoir, "Come and Take It".

Mr Wilson is famous for one reason: in 2013 he dropped out of law school at the University of Texas having designed a gun that could be made with a 3D printer, with code that could be leaked on the internet. It was a clever idea, fusing libertarian pro-gun ideology with libertarian tech-world

Utopianism, and it gained him attention from media outlets like *Wired* and *Vice*. He used this to raise money for his project, and managed to print a prototype handgun soon after.

In "Come and Take It" Mr Wilson tries to extend his moment of fame by recounting, in tedious detail, the process of creating his gun. This entails a great deal of over-written diary material punctuated by resentful libertarian screeds. Mr Wilson's slacker gun-enthusiast friends, all male, are described reverently ("a practising Buddhist and an urban guerrilla"). Women, when they appear, are a collection of physical attributes (blonde hair, nose rings, "she wore fur boots for me"). Corporations, schools and, above all, government organisations are invoked with contempt throughout. (Amusingly, agents from the

Bureau of Alcohol, Tobacco, Firearms and Explosives turn out to be quite friendly.)

There is an unbridgeable gap between the ways Mr Younge and Mr Klarevas think about guns, and the way Mr Wilson does. For the first two, guns are public-health threats or devices of pointless tragedy. For Mr Wilson, they are agents of masculine power and violent freedom. Addressing a campus libertarian group, Mr Wilson claims that the Second Amendment, the text of which extols "a well regulated Militia, being necessary to the security of a free State", in fact enshrines "a citizen's right to violently abolish the law". True revolutionary thought, he continues, requires "a passion for a real and virtuous terror". This is a horrifying passage. In the season of Trump, it feels like a warning of madness and violence to come. ■

Fiction from Israel

To laugh, to weep

A Horse Walks into a Bar. By David Grossman. Translated by Jessica Cohen. *Jonathan Cape*; 197 pages; £14.99. To be published in America by Knopf in February 2017

IN A shabby club in the Israeli city of Netanya, a diminutive, rake-thin, 57-year-old comedian takes the stage. Illness, death, war: all is fair game for a motor-mouthed provocateur whose onslaught of outrage draws his audience—aghast but spellbound—into an "alluring abyss". Soon, though, the reader grasps that the masochistic Dovaleh is turning his whiplash tongue not so much on taboo topics as on himself—and on a retired judge, an old classmate summoned by the stand-up to the show, who recounts this story. Justice Lazar now fears that a shameful tale of teenage betrayals will come to light. Will Dovaleh put the judge himself in the dock?

In drama, film and fiction, comic turns usually bomb. But in his new novel, a monologue intercut with the judge's memories, David Grossman, a fine Israeli writer, dares to turn the spotlight on a real, if ruinous, talent. Although an embittered, multiply divorced cancer survivor from a family blighted by the Holocaust, Dovaleh can elicit a "laugh of wonder at his precision, his subtlety, his theatrical wisdom". The crowd, even the hecklers, become "partners in some sort of evasive, fluid transgression".

It takes an author of Mr Grossman's stature to channel not a failed stand-up but a shockingly effective one, and to give him salty, scabrous gags that—in Jessica Cohen's savoury translation—raise a

guilty laugh. Dovaleh's edgy, "tightrope-walking" shtick narrows into a lacerating narrative of the cadet camp where, at 14, he learned of a parent's death. The tortured judge's own misery is compounded by the recent death of his wife. As the punters drift away, Mr Grossman unearths the twisted roots of both men's self-disgust.

This book feels far removed from "Falling Out of Time", the eerie elegy with which Mr Grossman in 2011 broke the silence of bereavement that had afflicted him when his soldier son Uri was killed in the war with Lebanon. Both works, however, circle around dramatic acts of mourning: the first as lyric tragedy, the second as pitch-black comedy. The lights dim, the club clears, but the pain and grief—which Dovaleh dubs "my own private Chernobyl"—still glow, still burn.



Football writing

A game of two halves

Home and Away: Writing the Beautiful Game. By Karl Ove Knausgaard and Fredrik Ekelund. *Harvill Secker*; 412 pages; £18.99. To be published in America by Farrar, Straus and Giroux in January 2017

"MY STRUGGLE", the six-volume, 3,600-page series of autobiographical books by Karl Ove Knausgaard, is a daunting work. In it he ruminates on his life and his thoughts, often in excruciating detail. Readers looking for a gentle introduction to Mr Knausgaard's work could do worse than pick up a copy of "Home and Away", a new book co-written with Fredrik Ekelund, a Swedish author.

The book is an exchange of letters between the two men, around the time of the 2014 World Cup, which was held in Brazil. With Mr Ekelund in Rio de Janeiro for the championship and Mr Knausgaard at home in Sweden, they write about the experience of watching the tournament from start to finish.

In common with Mr Knausgaard's other works, the book has its weak points. Both men have a habit of long, winding sentences with plenty of commas, which some readers may find tricky to follow. At various points, one of the authors raises an idea, but then the other fails to develop it, making it seem as though they are talking past each other. And in a book about football (where a certain amount of banality is inevitable), the writers repeatedly swap predictions about who will reach the final, which gets a little trying.

The trick is to let the writing wash over you, rather than fighting it, and even to skip certain passages. Happily, readers will find themselves needing to do this less and less ▶▶

▶ in the second half of the book, as the final nears and both authors get into their stride.

Mr Knausgaard offers incisive observations on football in his typically understated tone, which can often be hilarious. “When do you see such elation in real life?” he wonders, describing a player who has just scored a goal: “Not even when a child is born do you see such comprehensive and systematic unalloyed joy.” He (a middle-aged man) also perceives that “footballers on TV are always older than me,” because “viewers watch in exactly the same way they did when they were 12.” He may only be describing his feelings while watching a football match from his sofa, but as in his autobiographical “My Struggle” there is a sense that something bigger lurks beneath.

The best part of the book focuses on Brazil’s 7-1 thrashing in the semi-final at the hands of Germany. Mr Knausgaard’s description of David Luiz, a defender whose mistakes cost Brazil the game, captures the sense of panic at the Mineirão stadium. And Mr Ekelund’s portrait of Rio after the match is haunting. He sees “a restaurant that’s open but empty of customers, hundreds of vacant seats, and the rain pours.” The morning after, the impersonal sounds of a city reluctantly back at work—“a jackhammer...a street cleaner sweeping up a pile of leaves, a taxi moving at full speed, a bus thundering inexorably on”—signify definitively that Brazil has been knocked out. For a book which, at heart, is no more than two friends chatting about football, there is a lot to like. ■

Philip Roth

America across the river

NEWARK

A great novelist bequeaths his books to a hard-pressed public library

ONE of the reading rooms of the public library in Newark, New Jersey, where the teenage Philip Roth fired his imagination, is an events room now, empty of books. Another is a dusty storeroom for the library’s collection of art-history volumes. Hardly anyone reads them.

Erected by public demand in the 1890s as one of the first civic buildings in what was then a swelling industrial town near the mouth of the Hudson river, the library is now as much an information service for the poor as a books repository. Half the 10,000 people who pass through the main library and its seven branches each week are looking for help getting access to social services, or to type out a job application, or to learn English. This is important work, but not what its ambitious architects—who



Hometown hero

modelled the library on a 15th-century Florentine palazzo—had in mind. Paying for the library is a constant worry; its main benefactor, the city, is one of America’s poorest. During the recession in 2008, the library had its annual funding of \$11m slashed by a third.

To this pathetic tale of urban decline, Mr Roth has added an interesting twist. The 83-year-old novelist, who used the library as a student and later researched his monumental “American Trilogy” in one of its reference rooms, plans to bequeath his personal library to it. Mr Roth has annotated many of the 4,000 books; they are a record of how, as well as what, the novelist spent a lifetime reading. It should be compelling to scholars and thrilling to his fans.

Timothy Crist, president of the library’s board, is naturally cock-a-hoop. He talks of the library becoming a global “literary destination”. “There are probably as many Roth fans in France as there are in America,” he says gleefully. The unloved art-history tomes will be shifted and their high-ceilinged storeroom lavishly renovated to accommodate Mr Roth’s gift.

To evoke the author’s Connecticut house, the redesign of the library will have a modernist twist. Mr Roth is also donating a couple of his writing desks, reading chairs and a long refectory table, at which people will be able to peruse his books pretty much as he did. The books will be available to all. Tentative fundraising for the project has been “very encouraging” says Mr Crist; so much so, that he hopes to make this part of a much grander, \$20m refurbishment of the entire library. Architects’ plans have already been approved.

It is a splendid, quietly subversive, gesture by Mr Roth; a rich university would have paid handsomely for his books. It is also a reminder of how touchingly respectful of Newark, transformed though it has been by immigration, deindustrialisation

and riots, he always is. Not for him or any of his fictional alter-egos the traditional contempt of the homeward-looking literary exile—of James Joyce for Ireland, the “old sow that eats her farrow”. Before entering the library, you pass through the straggly inner-city park outside it, where Neil Klugman, the librarian protagonist of Mr Roth’s “Goodbye, Columbus”, acknowledges his “deep knowledge of Newark, an attachment so rooted that it could not help but branch out into affection”. The real Mr Roth has explained his bequest as motivated by a “long-standing sense of gratitude to the city where I was born”. ■

Christianity and history

The search goes on

The Evolution of the West: How Christianity Has Shaped Our Values. By Nick Spencer. SPCK; 190 pages; £9.99

IN THE early years of the Enlightenment, a few brave philosophers challenged the Christian order—an apparently hopeless task. But their efforts paid off, and tomes have since been written, by authors from Diderot to Richard Dawkins, about the triumph of secular man. What, after all, has Christianity ever done for us?

Rather a lot, argues Nick Spencer in an excellent new book, “The Evolution of the West”. Mr Spencer, who is research director at Theos, a religious think-tank in London, picks up from Larry Siedentop’s epic work from 2014, “Inventing the Individual”—a reassertion of how much the Western world owes to Christianity. It is not a popular thesis but, like a prophet crying in the post-modern wilderness, Mr Spencer ▶

► provokes reflection that goes far beyond the shallow ding-dongs of the modern culture wars. He wants to make sure Westerners know where they came from as a way to illuminate where they are going.

Starting with the ancient world, he takes the reader on an extravagant journey to meet, among many others, Augustine of Hippo and John Locke as well as Thomas Piketty. The author believes that the fact that Christianity became the religion of the European establishment has blinded people to what a revolutionary doctrine it was (and is). And he clearly believes it can still play a role. The Christianisation of Europe, he says, was not a bunch of reactionary clerics trying to shut down a noble, free, secular ancient world, but a new idea of “a voluntary basis for human association in which people joined together through will and love rather than blood or shared material objectives”. Christianity declared that humans “have access to the deepest reality as individuals rather than merely as members of a group”.

Out of this, with a reinjection at the Reformation, came the origins of the modern world: a belief in equality of status as the proper basis for a legal system and the assertion of natural rights leading to individual liberty, as well as the notion that a society built on the assumption of moral equality should have a representative form of government.

The book is not a tragic lament for lost Christendom. Mr Spencer is frank about the sins of the church. But too often, he says, they blind people to the communal, psychological, educational and creative benefits that have flowed from Christian belief. And he worries about how the absence of deep cultural norms will play out in the West. Can secular creeds bind people together now that there is plenty of *pluribus* but not much *unum*?

Shorn of its establishment baggage, Mr Spencer argues, Christianity still has much to say to an amnesiac world about human dignity, political freedom and economic inequality. And, quoting William Wilberforce, he warns that Christian values are inseparable from Christianity itself.

After the aggression of the God v science debates, Mr Spencer's book is a gentler, though no less provocative, contribution to the discussion. It is beautifully written, too. The author believes that not everyone in the West is disenchanted with religious faith, and that the end of religion is no nearer than Francis Fukuyama's end of history. Lurking everywhere in the secularised West is what he calls a “disenchantment with disenchantment”. People still want more than just freedom and choice. They want to belong, they want community rooted in something shared and they want to find meaning beyond themselves. “Having arrived at the secular self,” says Mr Spencer, “we kept on searching.” ■

Maps

X marks the spot

A new exhibition in London looks at the 20th century through its maps

MODERN cartography began to emerge in the 16th century as an instrument of power for rulers. But it was in the 20th century, with all its wars, revolutions, upheavals and helter-skelter technological change, that maps became truly democratised. In rich countries, near-universal education and the teaching of geography in schools ensured that most people could make sense of them. World wars required maps to be produced by the million. Meanwhile in civilian life the spread of the motor car, along with growing affluence that allowed more people to travel, expanded the private market. Mapmaking technology developed by leaps and bounds, progressing from land-based surveys to aerial photography to the Global Positioning System (GPS).

A new exhibition, “Maps and the 20th Century: Drawing the Line”, at the British Library (BL) in London until next March, examines the history of the past 100 years through maps. It considers their role in war and peace as well as in everyday life, their economic impact and, particularly towards the end of the period covered, their increasingly dynamic quality. Many of the 200 on show are drawn from the BL's own remarkable collection of 4m maps.

The exhibits are strikingly varied: detailed first-world-war trench maps (with annotations like “badly shelled” and “full of dead”); second-world-war silk escape maps made into a dress; an early sketch for

Harry Beck's famous map of the London underground that was eventually published in 1933; a fascinating map of the Atlantic Ocean floor (pictured), based on research commissioned by the American navy to identify hiding places for its nuclear submarines; and the awe-inspiring photograph of Earth taken during the Apollo Moon mission in 1968.

Maps have always had to be useful, and most people think of them as objective representations of reality. But “maps are not innocent bystanders,” says Tom Harper, lead curator of the exhibition. “They help shape people's perceptions.”

That starts with technical points such as the projections that turn a three-dimensional world into a two-dimensional map. Most world maps (including Google's) use a variant of a projection invented in 1569 by a Flemish mapmaker, Gerardus Mercator, which was handy for navigation but exaggerates the apparent size of the temperate zone where most rich countries are concentrated. An alternative projection now called Gall-Peters, which properly reflects the relative size of continents, was promoted in the 1970s but did not catch on widely.

Maps are also used as propaganda tools, distorting certain features or pushing particular messages. The exhibition offers many examples, including motivational second-world-war maps, Vietnam-war-era protest maps and depictions of environmental pollution and tax havens.

In the past few decades the digital revolution has utterly transformed mapmaking. Instead of being frozen in time, maps can now capture and reflect the constant change taking place in the real world. Thanks to Google Earth, every smartphone owner has the world at his fingertips, and will automatically find himself at the centre of it. The GPS system will make sure he never (well, hardly ever) gets lost. Mr Harper thinks the next big thing in maps will be virtual reality. But despite all this extraordinary technological change, he reckons there will always be a space for traditional mapmaking techniques. ■



Spot the submarines

Apology: It has come to our attention that several sentences in our reporting piece in last week's edition on the award of the Man Booker prize for fiction to Paul Beatty (“Dope and the doppelganger”, October 29th) contained strong similarities to a review of Mr Beatty's winning novel, “The Sellout”, that appeared in the *New York Times* on February 26th 2015, and also to a BBC report on the prize on October 26th. This falls far short of proper reporting standards. It is not what readers expect from *The Economist*. We apologise unreservedly.



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Contact Persons:
Yetunde Demuren: +234 805 729 0674
Suru Daniels: +234 815 099 0945
Olayinka Sanusi: +234 905 388 7758

Please note that only shortlisted bidders will be contacted.

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INVITATION TO TENDER FOR THE PROVISION OF REAL ESTATE SALES SERVICES THE SALE OF DIPLOMATIC REAL ESTATE IN NEW YORK (UNITED STATES OF AMERICA), TOKYO (JAPAN), BONN (GERMANY), AND BERNE (SWITZERLAND).

Bosnia and Herzegovina, the Republic of Croatia, the Republic of Macedonia, the Republic of Slovenia, and the Republic of Serbia – as the sole Successor States to the former Socialist Federal Republic of Yugoslavia (hereinafter “the SFRY”) – and the co-owners of diplomatic and consular property of the SFRY, as the previous title owner, hereby issue an invitation to tender for the provision of the service of brokering the sale of the following immovable property⁽¹⁾:

- a) Permanent Mission of the SFRY to the UN, New York, USA (854 Fifth Avenue, N.Y. 10065); additional indicative data: block 1391, Lot 6, site area 3,600 sq. ft./30 x 120, gross living area 16,125 sq. ft. est. 1910;
- b) Residence of the Permanent Representative of the SFRY to the UN, New York, USA (730 Park Avenue, N.Y. 10021); additional indicative data: Apt. 16/17B, cooperative interest, 718/30.000 shares, block 1385, Lot 37, project name: Park 71st St. Corp., gross living area above grade 4,294 sq. ft., Act. Age: 1929;
- c) Embassy and residence of the SFRY in Tokyo, Japan (7-24, 4-chome, Kitashinagawa Shinagawa-ku, Tokyo); additional indicative data: land 316-37 Kita Shinagawa 4-Chome, Shinagawa Ward, Tokyo, registered total area 995.27 m² (app. 28 m x 30 m), building 316-37 Kita Shinagawa 4-Chome, Shinagawa Ward, Tokyo, total floor area 1,725.70 m² (size in building design document), time of completion 1965;
- d) Embassy of the SFRY in Bonn, Germany (Schlossallee 5, 5300 Bonn 2), additional indicative data: land register Mehlem, entry no. 2,865, building and garden/courtyard area 5,441 m², Schlossallee 1 and 5, floor area 1,565 m² (ground floor, cellar, attic, underground garage with 14 parking spaces);
- e) Embassy and residence of the SFRY in Berne, Switzerland (Seminarstrasse 5, 3006 Bern), additional indicative data: estate: nr. 199 Bern 4, land area: total 1,760 m², building gross area 540 m², garden area/courtyard 1,220 m², construction year: 1978.

The Successor States underline the following:

- The service of brokering the sale of all the immovable property listed above will be awarded to a single real estate agency, which will be awarded the contract by the Successor States;
- The deadline for submitting tenders is 30 days from the day following the issuing of this invitation to tender, while the Successor States will notify tenderers of their decision within 50 days from the deadline for submitting tenders;
- Among the references qualifying them to successfully broker the sale of the listed property, interested tenderers will submit the following documents, and define their conditions for providing brokerage services. In their offer, the interested tenderers will include:
 - a) Documents certifying that the tenderer is a registered company;
 - b) Documents proving that the tenderer has offices, branches, or partner organisations in the countries where the property on sale is located, operating in the listed cities (New York, USA; Tokyo, Japan; Bonn, Germany; Bern, Switzerland);
 - c) Documents showing the tenderer's turnover amounted to at least US\$ 100 million⁽²⁾ in the last three years;
 - d) Guarantee for the offer in the amount of US\$ 50,000.00 (the guarantee will be returned to the tenderer upon the signing of the brokerage contract);
 - e) Performance guarantee in the amount of US\$ 100,000.00 (the performance guarantee will be returned to the tenderer upon the completion of the contract);
 - f) Evidence of financial and business solvency;
 - g) Evidence of technical and professional capacities and references proving the successful provision of brokerage services;
 - h) Certificate of no conviction of the tenderer/legal entity and its CEO, in accordance with the legal provisions of the country of the registered seat of the tenderer and permanent residence of its CEO;
 - The period of validity of the tender shall be at least 90 days from the date of submission;
 - Interested tenderers will specify their tenders as a brokerage fee, which is a percentage of the total gross sales price of the property listed above;
 - The lowest brokerage fee shall be the decisive criterion in selecting the successful tenderer, provided that the tenderer meets all the above conditions;
 - Interested tenderers will submit their tenders (in a sealed envelope, marked with the designation ‘Do not open’) by registered mail addressed to: Stanislav Vidovič, Ministry of Foreign Affairs of the Republic of Slovenia, SI-1001 Ljubljana, Prešernova cesta 25.
 - The Successor States will provide appraisals of the market value of all the listed immovable property to the successful tenderer; the property's appraised market value will represent the minimum asking price for the property concerned, unless otherwise decided by the Successor States;
 - The sale of the immovable property will be conducted preferably by way of public auction or by any other method in accordance with the local real estate market practice for each immovable property concerned, as advised by interested tenderers in their tenders;
 - The Successor States reserve the right not to select any tenderer, even if all conditions are met;
 - The immovable property listed in this invitation to tender may be sold separately or not. Each Successor State must confirm the sale of each immovable property under the terms to be negotiated with the best offer/potential buyer prior to concluding the sale if the purchase price offered is below the appraised market value or the minimum asking price.

⁽¹⁾ The information on property in this invitation to tender are only indicative. The Successor States accept no responsibility for their accuracy. Precise information may be obtained by consulting public databases of the countries where the immovable property is located. The Successor States will submit relevant data in their possession regarding the immovable property listed in this invitation to tender to the successful tenderer after the completion of the selection process.

⁽²⁾ Or the equivalent in €, CHF, or ¥.

Contact details for additional information: gp.mzz@gov.si or sekretariat.mzz@gov.si.

Economic data

% change on year ago

	Gross domestic product			Industrial production	Consumer prices		Unemployment	Current-account balance		Budget balance	Interest rates, %	Currency units, per \$	
	latest	qtr*	2016 ⁱ	latest	latest	2016 ⁱ	rate, %	latest 12 months, \$bn	% of GDP 2016 ⁱ	% of GDP 2016 ⁱ	10-year gov't bonds, latest	Nov 2nd	year ago
United States	+1.5 Q3	+2.9	+1.5	-1.0 Sep	+1.5 Sep	+1.3	5.0 Sep	-488.2 Q2	-2.6	-3.2	1.86	-	-
China	+6.7 Q3	+7.4	+6.6	+6.1 Sep	+1.9 Sep	+2.0	4.0 Q3 [§]	+260.9 Q2	+2.6	-3.8	2.49 ^{§§}	6.76	6.34
Japan	+0.8 Q2	+0.7	+0.6	+0.9 Sep	-0.5 Sep	-0.2	3.0 Sep	+173.6 Aug	+3.6	-5.1	-0.05	103	121
Britain	+2.3 Q3	+2.0	+1.8	+0.8 Aug	+1.0 Sep	+0.7	4.9 Jul ^{††}	-161.2 Q2	-5.6	-3.9	1.27	0.81	0.65
Canada	+0.9 Q2	-1.6	+1.3	-0.1 Aug	+1.3 Sep	+1.6	7.0 Sep	-51.1 Q2	-3.3	-2.6	1.19	1.34	1.31
Euro area	+1.6 Q3	+1.4	+1.5	+1.8 Aug	+0.5 Oct	+0.2	10.1 Aug	+383.9 Aug	+3.2	-1.7	0.14	0.90	0.91
Austria	+1.2 Q2	-0.9	+1.3	+2.3 Aug	+0.9 Sep	+1.0	6.2 Aug	+8.2 Q2	+2.4	-1.3	0.37	0.90	0.91
Belgium	+1.3 Q3	+0.8	+1.3	+1.0 Aug	+1.8 Oct	+1.8	8.2 Aug	+4.8 Jun	+1.2	-2.8	0.44	0.90	0.91
France	+1.1 Q3	+0.9	+1.3	+0.5 Aug	+0.4 Oct	+0.3	10.5 Aug	-27.3 Aug [†]	-0.4	-3.3	0.51	0.90	0.91
Germany	+1.7 Q2	+1.7	+1.7	+2.0 Aug	+0.8 Oct	+0.4	6.0 Oct	+305.6 Aug	+8.4	+0.9	0.14	0.90	0.91
Greece	-0.4 Q2	+0.7	-0.6	-0.3 Aug	-1.0 Sep	-0.1	23.2 Jul	-0.3 Aug	-1.0	-5.8	7.90	0.90	0.91
Italy	+0.7 Q2	+0.1	+0.8	+4.1 Aug	-0.1 Oct	nil	11.4 Aug	+46.3 Aug	+2.5	-2.6	1.67	0.90	0.91
Netherlands	+2.3 Q2	+2.6	+1.6	+2.2 Aug	+0.1 Sep	+0.3	7.0 Sep	+59.7 Q2	+9.2	-1.2	0.31	0.90	0.91
Spain	+3.2 Q3	+2.8	+3.0	+6.8 Aug	+0.6 Oct	-0.4	19.5 Aug	+23.4 Aug	+1.4	-4.3	1.29	0.90	0.91
Czech Republic	+3.6 Q2	+3.7	+2.4	+13.1 Aug	+0.5 Sep	+0.6	5.2 Sep [§]	+3.7 Q2	+1.5	nil	0.45	24.3	24.6
Denmark	+0.8 Q2	+1.5	+1.0	+2.1 Aug	nil Sep	+0.4	4.2 Sep	+25.8 Aug	+6.4	-1.0	0.25	6.69	6.76
Norway	+2.5 Q2	+0.1	+1.0	-5.6 Aug	+3.6 Sep	+3.5	4.9 Aug ^{††}	+23.6 Q2	+5.3	+3.0	1.44	8.19	8.48
Poland	+3.0 Q2	+3.6	+3.1	+3.2 Sep	-0.2 Oct	-0.8	8.3 Sep [§]	-2.7 Aug	-1.0	-2.9	3.10	3.89	3.86
Russia	-0.6 Q2	na	-0.7	-0.8 Sep	+6.4 Sep	+7.3	5.2 Sep [§]	+30.2 Q3	+3.1	-3.7	8.66	63.8	64.0
Sweden	+3.4 Q2	+2.0	+3.1	-4.8 Aug	+0.9 Sep	+1.0	6.1 Sep [§]	+25.4 Q2	+5.1	-0.3	0.30	8.90	8.51
Switzerland	+2.0 Q2	+2.5	+1.4	-1.2 Q2	-0.2 Sep	-0.5	3.3 Sep	+66.1 Q2	+9.3	+0.2	-0.33	0.97	0.98
Turkey	+3.1 Q2	na	+3.2	+2.8 Aug	+7.3 Sep	+7.8	10.7 Jul [§]	-31.0 Aug	-4.7	-1.8	10.22	3.12	2.82
Australia	+3.3 Q2	+2.1	+2.8	+3.7 Q2	+1.3 Q3	+1.2	5.6 Sep	-52.8 Q2	-4.2	-2.1	2.30	1.30	1.40
Hong Kong	+1.7 Q2	+6.5	+1.6	-0.4 Q2	+2.6 Sep	+2.7	3.4 Sep ^{††}	+13.6 Q2	+3.0	+0.1	1.04	7.76	7.75
India	+7.1 Q2	+5.5	+7.6	-0.7 Aug	+4.3 Sep	+5.2	5.0 2015	-16.2 Q2	-1.0	-3.8	6.90	66.8	65.6
Indonesia	+5.2 Q2	na	+5.0	+4.8 Aug	+3.3 Oct	+3.6	5.5 Q1 [§]	-18.7 Q2	-2.2	-2.6	7.23	13,056	13,668
Malaysia	+4.0 Q2	na	+4.3	+4.9 Aug	+1.5 Sep	+1.9	3.5 Aug [§]	+5.3 Q2	+1.0	-3.4	3.63	4.19	4.30
Pakistan	+5.7 2016**	na	+5.7	+1.5 Aug	+4.2 Oct	+3.9	5.9 2015	-4.1 Q3	-0.8	-4.6	8.03 ^{†††}	105	105
Philippines	+7.0 Q2	+7.4	+6.4	+13.6 Aug	+2.3 Sep	+1.7	5.4 Q3 [§]	+3.2 Jun	+1.1	-1.0	4.04	48.4	46.8
Singapore	+2.0 Q2	-4.1	+1.0	+6.7 Sep	-0.2 Sep	-0.7	2.1 Q3	+58.4 Q2	+19.4	+0.7	1.92	1.38	1.40
South Korea	+2.7 Q3	+2.8	+2.6	-2.0 Sep	+1.3 Oct	+0.9	3.6 Sep [§]	+98.5 Sep	+7.2	-1.4	1.69	1,150	1,137
Taiwan	+2.1 Q3	+4.5	+0.7	+5.0 Sep	+0.3 Sep	+1.1	3.9 Sep	+75.7 Q2	+13.3	-0.5	0.92	31.6	32.4
Thailand	+3.5 Q2	+3.2	+3.0	+0.6 Sep	+0.3 Oct	+0.2	0.9 Sep [§]	+42.4 Q2	+5.9	-2.5	2.29	35.0	35.6
Argentina	-3.4 Q2	-8.0	-1.5	-2.5 Oct	— ***	—	9.3 Q2 [§]	-15.4 Q2	-2.4	-5.0	na	15.1	9.52
Brazil	-3.8 Q2	-2.3	-3.2	-4.9 Sep	+8.5 Sep	+8.3	11.8 Sep [§]	-23.3 Sep	-1.1	-6.4	11.42	3.23	3.84
Chile	+1.5 Q2	-1.4	+1.7	-0.2 Sep	+3.1 Sep	+3.9	6.8 Sep ^{§††}	-5.1 Q2	-1.9	-2.5	4.27	652	692
Colombia	+2.0 Q2	+0.8	+2.0	+9.4 Aug	+7.3 Sep	+7.6	8.5 Sep [§]	-15.7 Q2	-5.1	-3.7	7.41	3,074	2,897
Mexico	+2.5 Q2	-0.7	+2.1	+0.3 Aug	+3.0 Sep	+2.9	3.9 Sep	-30.9 Q2	-2.9	-3.0	6.35	19.4	16.5
Venezuela	-8.8 Q4~	-6.2	-14.2	na	na	+485	7.3 Apr [§]	-17.8 Q3~	-3.0	-24.3	10.57	9.99	6.31
Egypt	+6.7 Q1	na	+4.4	-13.1 Aug	+14.1 Sep	+12.8	12.5 Q2 [§]	-18.7 Q2	-6.8	-11.5	na	8.87	8.03
Israel	+2.8 Q2	+4.3	+3.0	+5.4 Aug	-0.4 Sep	-0.5	4.9 Sep	+12.1 Q2	+3.3	-2.4	1.81	3.81	3.88
Saudi Arabia	+3.5 2015	na	+1.1	na	+3.0 Sep	+4.2	5.6 2015	-61.5 Q2	-5.6	-11.6	na	3.75	3.75
South Africa	+0.6 Q2	+3.3	+0.4	+0.1 Aug	+6.1 Sep	+6.4	26.6 Q2 [§]	-12.9 Q2	-4.1	-3.4	8.70	13.5	13.8

Source: Haver Analytics. **% change on previous quarter, annual rate. [†]The Economist poll or Economist Intelligence Unit estimate/forecast. [§]Not seasonally adjusted. ^{††}New series. ~2014 **Year ending June. ^{†††}Latest 3 months. ^{††††}3-month moving average. ^{§§§}5-year yield. ***Official number not yet proved to be reliable; The State Street PriceStats Inflation Index, Sept 35.92%; year ago 26.47% ^{†††††}Dollar-denominated bonds.

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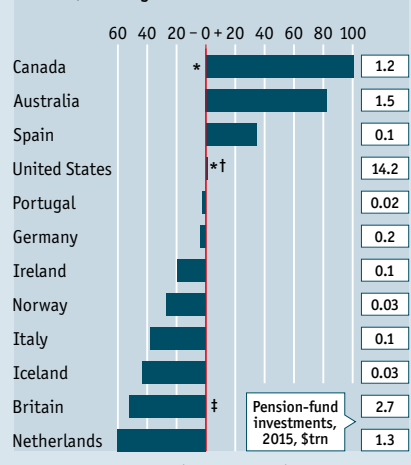
Markets

	Index Nov 2nd	% change on		
		one week	in local currency	in \$ terms
United States (DJIA)	17,959.6	-1.3	+3.1	+3.1
China (SSEA)	3,248.6	-0.4	-12.3	-15.8
Japan (Nikkei 225)	17,134.7	-1.5	-10.0	+4.9
Britain (FTSE 100)	6,845.4	-1.6	+9.7	-8.4
Canada (S&P TSX)	14,594.7	-1.4	+12.2	+16.4
Euro area (FTSE Euro 100)	1,016.0	-3.1	-7.2	-5.0
Euro area (EURO STOXX 50)	2,980.2	-3.3	-8.8	-6.7
Austria (ATX)	2,429.0	-3.2	+1.3	+3.7
Belgium (Bel 20)	3,457.0	-3.2	-6.6	-4.4
France (CAC 40)	4,414.7	-2.6	-4.8	-2.6
Germany (DAX)*	10,370.9	-3.2	-3.5	-1.2
Greece (Athex Comp)	581.6	-1.3	-7.9	-5.7
Italy (FTSE/MIB)	16,474.5	-4.7	-23.1	-21.3
Netherlands (AEX)	443.8	-2.6	+0.4	+2.8
Spain (Madrid SE)	895.2	-3.3	-7.2	-5.1
Czech Republic (PX)	902.9	-1.8	-5.6	-3.4
Denmark (OMXCX)	757.2	-7.4	-16.5	-14.3
Hungary (BUX)	29,499.0	-1.2	+23.3	+29.4
Norway (OSEAX)	689.4	-1.2	+6.2	+14.9
Poland (WIG)	47,899.1	-1.0	+3.1	+4.5
Russia (RTS, \$ terms)	973.1	-1.7	+12.2	+28.5
Sweden (OMXS30)	1,417.4	-2.5	-2.0	-7.2
Switzerland (SMI)	7,700.4	-2.4	-12.7	-9.9
Turkey (BIST)	77,171.6	-2.8	+7.6	+0.6
Australia (All Ord.)	5,311.0	-2.4	-0.6	+4.6
Hong Kong (Hang Seng)	22,810.5	-2.2	+4.1	+4.0
India (BSE)	27,527.2	-1.1	+5.4	+4.4
Indonesia (JSX)	5,405.5	+0.1	+17.7	+24.3
Malaysia (KLSE)	1,659.6	-0.9	-1.9	+0.5
Pakistan (KSE)	39,893.8	-1.6	+21.6	+21.5
Singapore (STI)	2,807.1	-0.8	-2.6	-0.1
South Korea (KOSPI)	1,978.9	-1.7	+0.9	+2.9
Taiwan (TWI)	9,139.0	-2.4	+9.6	+14.0
Thailand (SET)	1,498.7	+0.4	+16.4	+19.6
Argentina (MERV)	16,807.4	-7.6	+44.0	+23.5
Brazil (BVSP)	63,326.4	-0.8	+46.1	+78.6
Chile (IGPA)	21,305.4	-0.6	+17.4	+27.7
Colombia (IGBC)	10,139.2	+0.9	+18.6	+22.5
Mexico (IPC)	47,303.3	-1.1	+10.1	-2.0
Venezuela (IBC)	15,209.9	+8.2	+4.3	na
Egypt (Case 30)	8,524.7	+3.2	+21.7	+7.3
Israel (TA-100)	1,217.5	-2.9	-7.4	-5.4
Saudi Arabia (Tadawul)	5,989.6	+1.8	-13.3	-13.3
South Africa (JSE AS)	50,384.9	-2.3	-0.6	+14.0

Pension funds

Pension-fund assets in OECD countries have grown by 54% over the past ten years to \$25trn. In Australia, the number of pension schemes has soared by 83% over this period and the value of the funds by 167%. The industry's search for returns in a low-interest world has prompted consolidation in other countries, though. Britain saw the biggest decrease in funds in absolute terms: last year there were 48,000 fewer schemes than in 2005. In the same decade the size of the average British pension fund increased by 229% to \$62m. Many defined-benefit funds, still reeling from the financial crisis, are struggling to meet funding requirements: around 80% of the 6,000 British schemes are in deficit.

2005-15, % change in number of funds



Other markets

	Index Nov 2nd	% change on		
		one week	in local currency	in \$ terms
United States (S&P 500)	2,097.9	-1.9	+2.6	+2.6
United States (NAScomp)	5,105.6	-2.8	+2.0	+2.0
China (SSEB, \$ terms)	343.8	-0.9	-16.1	-19.4
Japan (Topix)	1,368.4	-1.0	-11.6	+3.0
Europe (FTSEurofirst 300)	1,308.4	-3.1	-9.0	-6.8
World, dev'd (MSCI)	1,672.8	-1.6	+0.6	+0.6
Emerging markets (MSCI)	890.2	-2.2	+12.1	+12.1
World, all (MSCI)	406.4	-1.7	+1.8	+1.8
World bonds (Citigroup)	943.4	+0.7	+8.4	+8.4
EMBI+ (JPMorgan)	795.6	-1.4	+12.9	+12.9
Hedge funds (HFRX)	1,179.7 [†]	-0.6	+0.5	+0.5
Volatility, US (VIX)	19.3	+14.2	+18.2 (levels)	
CDSs, Eur (iTRAXX) [†]	75.6	+5.9	-2.0	+0.3
CDSs, N Am (CDX) [†]	80.0	+6.1	-9.5	-9.5
Carbon trading (EU ETS) €	6.0	+1.5	-27.3	-25.6

Sources: Markit; Thomson Reuters. *Total return index.

[†]Credit-default-swap spreads, basis points. [‡]Nov 1st.

Indicators for more countries and additional series, go to: Economist.com/indicators

The Economist commodity-price index

2005=100

			% change on	
	Oct 25th	Nov 1st*	one month	one year
Dollar Index				
All Items	137.9	138.7	+1.6	+5.9
Food	157.2	156.2	+1.3	+1.8
Industrials				
All	117.9	120.5	+1.9	+12.0
Nfa¹	126.8	126.5	+1.0	+16.4
Metals	114.1	118.0	+2.3	+10.1
Sterling Index				
All items	206.8	206.4	+6.0	+33.5
Euro Index				
All items	157.9	156.2	+2.6	+5.0
Gold				
\$ per oz	1,272.6	1,288.8	+0.4	+14.7
West Texas Intermediate				
\$ per barrel	49.6	46.7	-4.1	-2.5

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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Climb every mountain

Valerie Hunter Gordon and Junko Tabei, pioneers of women's freedom from domestic drudgery, died on October 16th and 20th respectively, aged 94 and 77

IF YOU mentioned the word "mountain" to Valerie Hunter Gordon in 1947, she didn't instinctively think of the glories of the Alps or Himalayas. Instead she envisaged a giant pile of two-foot squares of terry towelling, the nappies she used for her children. Day after day—like almost all women then—she had to soak the stinking things in chlorine in a bucket, heave them heavily up with wooden tongs and plonk them in a bowl, wash them, mangle them, dry them on the line and iron them. For an army wife in suburban Surrey, it filled the hours. And she hated every moment.

The maths was shocking. Seven nappies a day, seven days in the week, 52 weeks in the year; sum total, 2,548 nappies a year for every child. She had had two babies, with a third on the way; eventually, she would have six incontinent little treasures. Why had no one, even in America, devised a disposable nappy? Undoubtedly because inventors and corporations, being mostly men, didn't do the laundry.

Far away in Japan, a decade later, Junko Tabei was wrestling with similar problems of mountains and male expectations. She wanted to be a climber: if possible, conquering the highest mountains in every country in the world. A school trip up Mount Asahi, to a strange volcanic region of bleak rocks and hot springs, had made

her determined to do nothing else. But women in Japan, much like Mrs Hunter Gordon in leafy Camberley, were expected to spend their lives looking after houses and children. Mrs Tabei rejected that. Why should the men who ruled the world smother women's dreams in domesticity? Doubtless because they wanted to keep them at their beck and call—and not standing on some distant peak with an ice-pick raised triumphant in the air.

Determined to free her sex from their "meaningless" lives, she began to join all-male climbing clubs. Many of the men objected, refusing to climb with this diminutive, sparky woman, or accusing her of joining only to find a husband. (She did find a husband that way, as it happened, on a climb on Mount Tanigawa in 1965, but love was not her motive.) In 1969 she set up a ladies' climbing club with the motto, "Let's go on an overseas expedition by ourselves!" It was expensive; to save money, they recycled car-seats into over-gloves and sewed their own sleeping bags. Eventually the team scaled both Annapurna III and, in 1975, Mrs Tabei's greatest dream, Everest. She became the first woman ever to reach the summit: finding, to her surprise, that it was "smaller than a tatami mat".

Equally determined to strike a blow for women, Mrs Hunter Gordon got out her

mother's old Singer sewing machine and began to experiment. Using parachute nylon left over from the war, and later PVC, she ran up short pants that closed with press-studs and cellulose-wadding pads to fit inside. The pads were thrown away, but were biodegradable; the pants could be wiped and re-used. At the wives-and-babies teas she attended they were such a hit that she ended up making 400 to sell for five shillings each. Eventually, in 1949, she got her patent and proper manufacturing started. By 1960 6m "Paddis" had been sold, and multitudes more Paddi pads.

Under the avalanche

Both women still found it tricky to negotiate a man's world. Their husbands were wonders: Mrs Hunter Gordon's, an army officer, cutting out pads in the attic; Mrs Tabei's looking after their two children while she climbed. But other men often patronised them. Paddis did not get going until Mrs Hunter Gordon's father had a word with the manufacturer: this "silly woman", obviously couldn't attempt mass-marketing herself. They were probably right, she thought; even in the peak-sales years, her registered office was a walk-in cupboard in the lounge. When, inevitably, Procter & Gamble roared into the disposable-nappy business with Pampers in 1961, she didn't seem too downcast. She was free now to build other labour-saving devices, such as self-drawing curtains.

Mrs Tabei, too, was not fired by any competitive spirit. She climbed for the sheer joy of being free, usually refusing corporate sponsorship; to accept funding from that male world made her feel she was "just working for the company". Nor did she need to prove how strong or daring she was; on the last knife-edge traverse just below the peak of Everest, with drops of more than 5,000 metres on either side, she proved it beyond dispute. When the Japanese press called her crazy and said she should stay at home, she laughingly ignored them; though when an avalanche buried her, 12 days from the summit, her last thought before she blacked out was of her two-year-old daughter playing.

Perhaps it was also because she was a woman, expected to keep her house spotless, that she so lamented the despoiling of Everest by climbers. She became a director of campaigns to get their rubbish and, especially, their deep-frozen sewage moved off the mountain. The urine left behind by climbers, she pointed out, could fill 3,300 bathtubs, and 11,800kg of faeces were dug out of the snow every season. That sounded like the sort of mountain Mrs Hunter Gordon knew all about. ■

Our obituary of Andrzej Wajda (October 29th) claimed that Mr Wajda was the maker of "Interrogation" (1982); it was, of course, Ryszard Bugajski. Our apologies.

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