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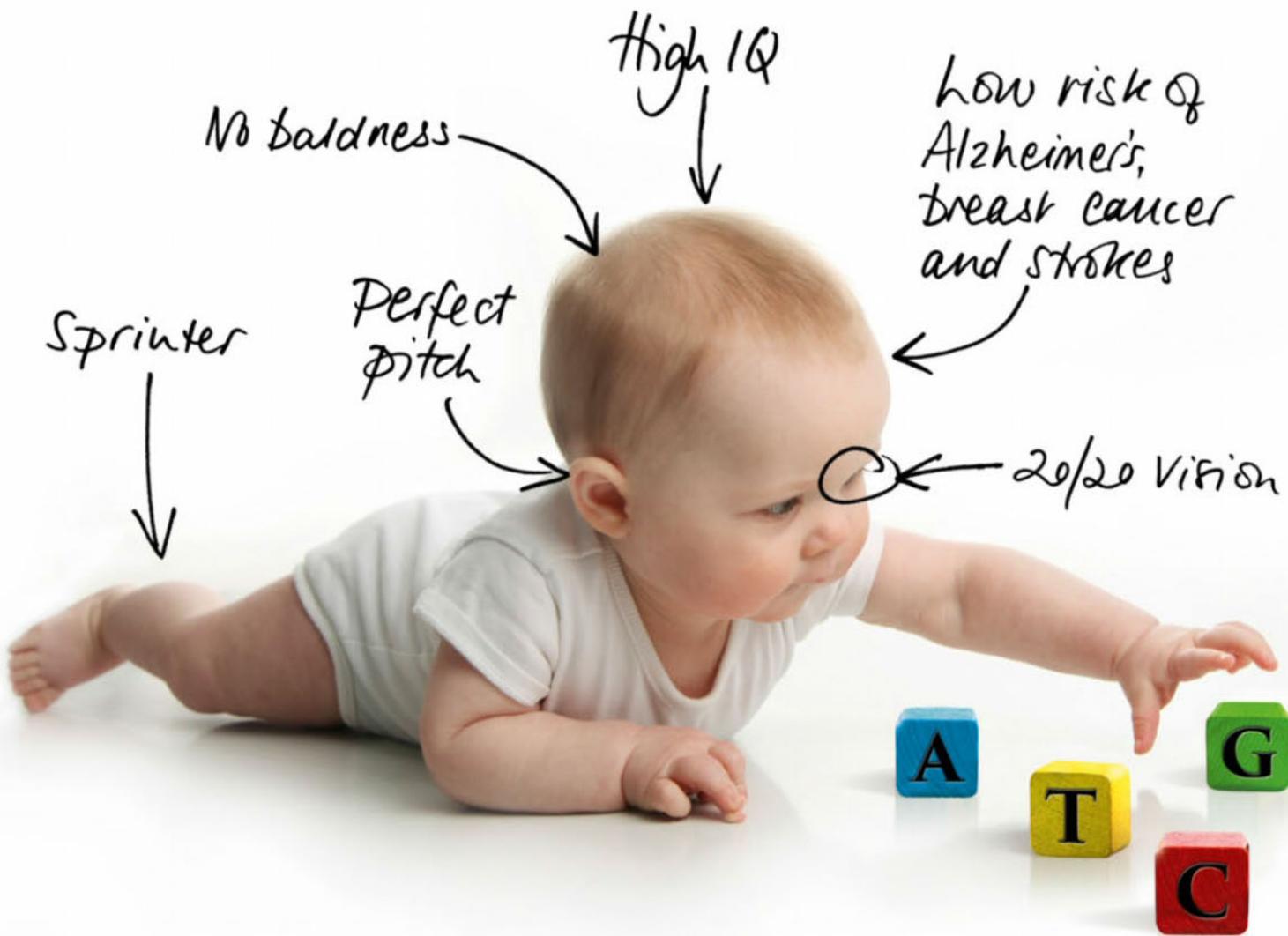
Islamic State's taste for slavery

Commodities: the binge, the hangover

India's poet-politicians

# Editing humanity

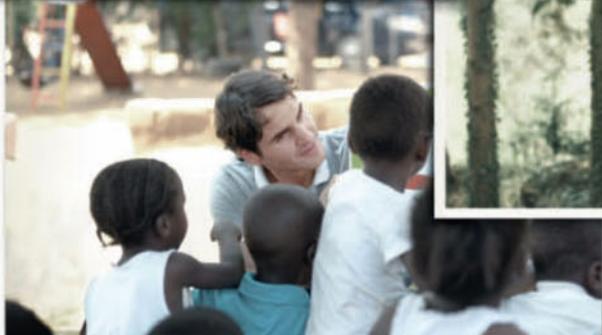
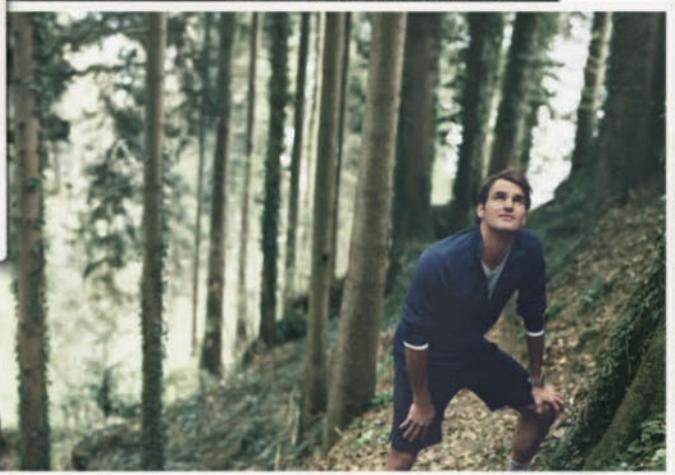
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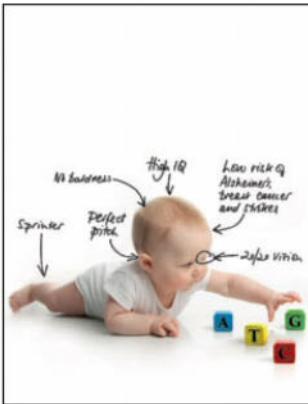


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**The Economist**

Volume 416 Number 8952

Published since September 1843  
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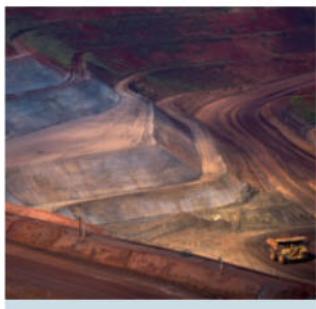
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## Politics



A bomb which went off at a popular shrine in central Bangkok, the capital of **Thailand**, killed 20 people and injured more than 100. It was unclear who had detonated the device. Thailand's military junta, which seized power last year and which called the attack the worst-ever such incident in the country, blamed a "network" but said it was "unlikely" it was the work of international terrorists.

In **Sri Lanka** the ruling United National Party won a majority of seats in a general election, blocking the attempt by a former authoritarian president, Mahinda Rajapaksa, to regain power via Parliament.

Shuja Khanzada, a minister who led anti-terrorism efforts in Punjab, **Pakistan's** most populous province, was killed by a suicide-bombing in which at least 19 other people died. Lashkar-e-Jhangvi, a group affiliated to the Taliban, claimed responsibility in revenge for the death of its leader, Malik Ishaq, in police custody last month.

Search teams located the black boxes of a commercial aircraft that went down in the remote province of Papua in eastern **Indonesia**. All 54 people on board were killed.

### Dog days of August

The **Republican** race for president trundled on. The candidates attended the state fair in Iowa, the first state to vote in the nominating process, to devour deep-fried Snickers bars and deliver homilies on their policies. Donald Trump

maintained his poll lead in the party and called for illegal immigrants to be deported. Among the grown-ups John Kasich, the moderate governor of Ohio, was endorsed by Robert Bentley, the governor of conservative Alabama.

On the **Democratic** side Hillary Clinton sustained a healthy lead in the race, though her main challenger, Bernie Sanders, closed the gap a bit. Speculation turned to whether Joe Biden, the vice-president, would enter the fray. Meanwhile Bob Woodward, a journalist famed for breaking the Watergate story in the 1970s, compared Mrs Clinton's travails over her use of a private e-mail account while secretary of state to the Nixon tapes. Mrs Clinton's favourability rating has wilted over the summer.

**America's National Labour Relations Board** decided not to issue a ruling as to whether the American-football team at Northwestern University should be reclassified as employees, rather than students. A former captain of the team had championed the closely watched case, which would have allowed the players to organise as a union.

### Not quite friends



John Kerry became the first American secretary of state to visit **Cuba** in 70 years. He attended the raising of the American flag at the embassy in Havana, which had reopened after a 54-year interruption. Mr Kerry said the United States would not end its trade embargo until Cuba improved its human-rights record. Cuba's foreign minister, Bruno Rodríguez, in turn

criticised the United States for allowing racial discrimination and police brutality.

Nearly a million people across **Brazil** demonstrated against the government of Dilma Rousseff in the third big wave of protests since March. The protesters are angry about a multibillion-dollar bribery scandal at Petrobras, a state-controlled energy firm, and about the floundering economy, which is in recession. Most want Ms Rousseff to be impeached, although she has not been directly implicated in the Petrobras scandal.

### Brutality without bounds

**Islamic State** beheaded Khaled Asaad, the 81-year-old former director of antiquities at Palmyra, a UN heritage site in Syria. It is thought he was tortured to reveal the location of unexcavated tombs in the city, as fighters have ransacked other cultural sites, arguing that they encourage idolatry. They have also sold stolen works of art to finance their campaign of terror.

The Supreme Court in **Israel** ruled that the government should release from "administrative detention" Muhammad Allan, a Palestinian lawyer and member of the militant Islamic Jihad group, who had been on a hunger strike for more than nine weeks. Mr Allan's health has deteriorated. An MRI scan shows he suffered brain damage as a result of his fast.

**South Africa's** government reversed a decision by a parole board that would have seen the release on August 21st of Oscar Pistorius, a disabled athlete who had been jailed last year for killing his girlfriend. Michael Masutha, the justice minister, said the decision to release Mr Pistorius after he had served less than a year of his five-year sentence had been made prematurely.

**South Sudan's** government refused to sign a peace deal with rebels it has been fighting for 18 months after talks in Addis Ababa, Ethiopia's capital. Mediators have said they

would call for international sanctions if the warring parties did not end their conflict.

### The unpopularity contest

The German parliament approved the latest European bail-out of **Greece**, thereby clearing the biggest hurdle to paying out up to €86 billion (\$95 billion) over the next three years. The government in the Netherlands thwarted a vote of no confidence after Dutch MPs were recalled from their summer break to debate the bail-out. In Greece itself Alexis Tsipras, the prime minister, faced a rebellion in his party after pushing through the deal.

The German government warned that up to 800,000 **migrants** will seek asylum in the country this year. The number of refugees has already doubled compared with the whole of last year. Meanwhile EU officials reported that the number of migrants detected at Europe's borders had reached 107,500 in July, well above June's figure of 70,000.

**Turkey** is heading towards new elections. Talks broke down ahead of a deadline to form a coalition government among the four parties in parliament following an inconclusive election earlier this summer. In the south-east of the country Kurdish militants killed eight Turkish soldiers in a bomb attack.



Vladimir Putin, the **Russian** president, spent three days in Crimea, the peninsula annexed from Ukraine last year, apparently to promote tourism. Meanwhile, fighting between Russian-backed rebels and Ukrainian troops in the east of Ukraine flared up again. ►

## Business

**China's stockmarkets** had another turbulent week, including a 6% plunge in the Shanghai Composite Index on August 18th. There was no obvious explanation for the price swings, though a few days earlier the securities regulator announced that China Securities Finance Corporation, a state-backed lender that co-ordinated an injection of liquidity when markets tumbled last month, would no longer intervene on a daily basis. The rout this week eased after it transpired that government holding companies had been directed to increase their stakes in China's big banks.

Worries about the Chinese economy and other emerging markets continued to take their toll on **commodity prices**, pushing the price of copper to under \$5,000 a tonne on the London Metal Exchange for the first time in six years. Brent crude fell to under \$47 a barrel. **Glencore** admitted that it had misjudged the effect that the slowdown in China would have on its business, as the mining and commodity-trading company reported dismal earnings for the first half of the year. Its share price has fallen by 47% so far this year.

The Obama administration proposed another tweak to America's ban on exporting **crude oil**, which has been in place since the Arab embargo of the 1970s. The administration is to allow Mexico to swap barrels of the heavy crude that it produces for the light, sweet stuff that American producers frack from shale. Although technically this counts as an exchange of oil, it chips away at an oil-export ban that is ostensibly designed to keep fuel prices low in the United States, but which distorts global markets and harms consumers.

A \$2 billion settlement between private investors and several big banks in New York over the **currency-rigging**

**scandal** was seen as an omen for financial institutions in London, which has a vastly larger foreign-exchange market. Lawyers were said to be rushing to open offices in the City to represent clients in what may be an even costlier legal battle.

### Brewer's droop



**Carlsberg's** share price fell sharply after it reported disappointing quarterly earnings. The Danish brewer's business in Russia, which once accounted for half its sales, has been hammered by a state crackdown on street drinking as well as the economy's descent into recession: operating profit in eastern Europe fell by 35%. The new chief executive, Cees 't Hart, the first non-Dane to lead Carlsberg, cut the company's profit forecast for the year and promised to report the findings of a strategy review in early 2016.

Britain's annual **inflation rate** rose in July to 0.1% from zero in June. But the core rate, which excludes energy and food prices, jumped to 1.2%, a figure that the Bank of England will take on board as it ponders when to time an increase in interest rates.

### Limp performances

In a setback for the government's programme of economic reforms, **Japan's GDP** shrank by an annualised rate of 1.6% in the second quarter, the first contraction since a steep rise in the sales tax in mid-2014 deterred spending. Private consumption, the main driver of the economy, remains weak, but business investment and net exports also fell.

The **euro zone's** economy grew by 0.3% from April to June by comparison with the previous three months, slightly less than the 0.4% that it registered in the first quarter. The surprisingly feeble showing comes despite the European Central Bank launching a big bond-buying programme in March and a depreciated euro, which should boost exports. Germany's GDP expanded by just 0.4% in the quarter and France recorded zero growth. Still, Greece grew by 0.8% and Spain by 1%. The currency bloc

remains on course for its best annual economic performance since 2011.

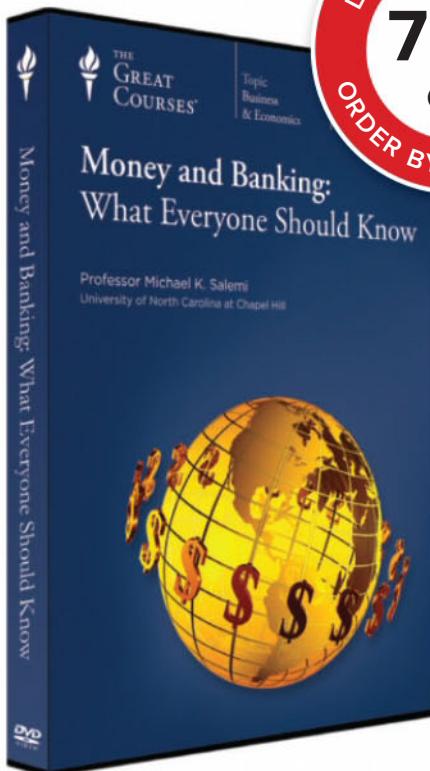
### For a flagging sex life

America's Food and Drug Administration approved the first drug, Addyi, that increases the **sexual drive** of women. The decision is controversial. Some groups had pressed the agency "to level the playing field when it comes to the treatment of women's sexual dysfunction". But Addyi comes with a big warning from the FDA that taking it with alcohol increases the risk of low blood pressure and fainting.

A group of hackers that claimed to have stolen the user database of **Ashley Madison**, a website specialising in finding partners for married people who want to have an affair, dumped the data online. The particulars of more than 30m of the site's members, many of whom register under false names, were released on parts of the web that are not easy to access, though this did not stop journalists and users of social media trawling through the information. Some sleepless nights for unfaithful spouses lie ahead.

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





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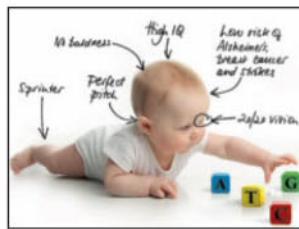
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# Editing humanity

A new technique for manipulating genes holds great promise—but rules are needed to govern its use



information quickly and cheaply. This could correct terrible genetic defects that blight lives. It also heralds the distant prospect of parents building their children to order.

The technology is known as CRISPR-Cas9, or just CRISPR. It involves a piece of RNA, a chemical messenger, designed to target a section of DNA; and an enzyme, called a nuclease, that can snip unwanted genes out and paste new ones in. Other ways of editing DNA exist, but CRISPR holds the promise of doing so with unprecedented simplicity, speed and precision.

A dizzying range of applications has researchers turning to CRISPR to develop therapies for everything from Alzheimer's to cancer to HIV (see pages 19-22). By allowing doctors to put just the right cancer-hunting genes into a patient's immune system, the technology could lead to new approaches to oncology. It may also accelerate the progress of gene therapy—where doctors put normal genes into the cells of people who suffer from genetic diseases such as Tay Sachs or cystic fibrosis.

It will be years, perhaps even decades, before CRISPR is being used to make designer babies. But the issues that raises are already the subject of fierce discussion. In April scientists in China revealed they had tried using CRISPR to edit the genomes of human embryos. Although these embryos could not develop to term, viable embryos could one day be engineered for therapeutic reasons or non-medical enhancement.

That is a Rubicon some will not want to cross. Many scientists, including one of CRISPR's inventors, want a moratorium on editing "germ line" cells—those that give rise to subsequent generations. America's National Academy of Sciences plans a conference to delve into CRISPR's ethics. The debate is sorely needed. CRISPR is a boon, but it raises profound questions.

## The only way is ethics

These fall into two categories: practical and philosophical. The immediate barrier is practical. As well as cutting the intended DNA, CRISPR often finds targets elsewhere, too. In the laboratory that may not matter; in people it could cause grave harm. In someone with a terrible disease, the risk of collateral damage might be worth running. But for germ-line applications, where the side-effects would be felt in every cell, the bar should be high. It may take a generation to ensure that the technology is safe. Until then, couples with some genetic diseases can conceive using in-vitro fertilisation and select healthy embryos.

Moreover, awash though it is with gene-sequence data, biology still has a tenuous grip on the origins of almost all the interesting and complex traits in humanity. Very few are likely to be easily enhanced with a quick cut-and-paste. There will often be trade-offs between some capabilities and others. An à la carte menu of attributes seems a long way off. Yet science

makes progress—indeed, as gene sequencing shows, it sometimes does so remarkably quickly. So scientists are right to be thinking now about how best to regulate CRISPR.

That means answering the philosophical questions. There are those who will oppose CRISPR because it lets humans play God. But medicine routinely intervenes in the natural order of things—saving people from infections and parasites, say. The opportunities to treat cancer, save children from genetic disease and understand diabetes offer justification to push ahead.

A harder question is whether it is ever right to edit human germ-line cells, to make changes that are inherited. This is banned in 40 countries and restricted in many others. There is no reason for a ban on research or therapeutic use: some countries, rightly, allow research on human embryos, as long as they are left over from in-vitro fertilisation and are not grown beyond 14 days; and Britain has allowed a donor to supply mitochondrial DNA at conception to spare children needless suffering, even though the change will be passed on. And CRISPR deals with the objection that germ-line changes are irrevocable: if genes can be edited out, they can also be edited back in.

A deeper quandary concerns the use of CRISPR to make discretionary tweaks to a person's genome. There comes a point where therapy (removing genes that make breast cancer or early-onset Alzheimer's more likely, say) shades into genetic enhancement. Some might see being short or myopic as problems that need fixing. But here, too, the right approach is to be cautiously liberal: the burden is on society to justify when and why it is wrong to edit the genome.

## CRISPR, happier, more productive

It is not too soon to draw on these principles to come up with rules. Some countries may have gaps in their legislation or poor enforcement, letting privately funded scientists or fertility clinics carry out unregulated CRISPR research. The conservative, painstaking approach taken by Britain's Human Fertilisation and Embryology Authority in its decision on mitochondrial DNA is a model. Regulators must also monitor CRISPR's use in non-human species. Changing animals' genomes to spread desirable traits—mosquitoes that cannot transmit malaria, for example—could bring huge benefits. But the risk of unanticipated consequences means that such "gene drives" should be banned unless they can be reversed with proven countermeasures.

If CRISPR can be shown to be safe in humans, mechanisms will also be needed to grapple with consent and equality. Gene editing raises the spectre of parents making choices that are not obviously in the best interests of their children. Deaf parents may prefer their offspring to be deaf too, say; pushy parents might want to boost their children's intelligence at all costs, even if doing so affects their personalities in other ways. And if it becomes possible to tweak genes to make children smarter, should that option really be limited to the rich?

Thinking through such issues is right. But these dilemmas should not obscure CRISPR's benefits or obstruct its progress. The world has within its reach a tool to give people healthier, longer and better-quality lives. It should be embraced. ■

## Britain's Labour Party

# The irresistible rise of Jeremy Corbyn

A victory for the hard-left candidate would be bad for Labour—but also for the Tories



**T**HE opposition Labour Party is about to inflict grave damage on Britain. If it picks Jeremy Corbyn, a veteran far-left MP, as leader on September 12th, Labour will consign itself to the wilderness. Worse, by wrecking opposition to the governing Tories, Mr Corbyn will leave Britain open to bad government.

The sudden vogue for populist leftists like Mr Corbyn echoes the earlier rise of parties such as Syriza in Greece and Podemos in Spain. Similar enthused crowds have been greeting another grizzled old socialist, Bernie Sanders, in America (see Lexington). All of them have energised new, mainly young supporters who fret about globalisation and inequality.

Yet even in such dubious company Mr Corbyn stands out as a throwback. For him no policy is too dog-eared, no intellectual dead-end too futile. Public spending? Yes, please. Higher taxes? Soak the capitalists and the landlords. State ownership? Nationalise the railways and utilities, get the private sector out of public services and reopen the coal mines. If that were the secret of prosperity, Britain would never have fallen apart in the 1970s and Tony Blair would not have won three elections at the head of a modernised centre-left Labour Party.

No prizes for concluding that Mr Corbyn would not get *The Economist's* vote. He is stridently anti-American and anti-Israel—though he is a “friend” of Hamas and Venezuela. To him, Britain's nuclear weapons are evil and always were. NATO is a warmongers' plot to enrich the military-industrial complex. The European Union risks being a Trojan horse for liberalism.

Our worry is not that Mr Corbyn would win power. Labour grandes—including Mr Blair and Gordon Brown, the party's most recent prime minister—have lined up to declare, rightly, that he is unelectable. Even under its former leader, Ed Miliband,

band, voters found Labour too left wing. Our worry is that Mr Corbyn will do immense damage even as opposition leader.

First to Labour itself. He does not have the loyalty of Labour MPs, who know him best (see page 48). He barely scraped together the 35 MP nominations he needed to stand—some backed him only because they thought he would broaden the debate (they got what they wished). As leader, he will control the levers of party power; the hard left and the unions will help him use these for their own ends. Even if Mr Corbyn does not last, his successor will struggle to clean up the mess.

Second, he will harm the Conservatives. Many Tories are cheered by the prospect of Mr Corbyn as Labour leader. Just as in the 1980s, they say, his loony-left policies would win them elections. In this they are undoubtedly right. But they are still wrong to welcome his prospective leadership.

## Truth and fact

Good government needs a coherent opposition to scrutinise it and hold it to account. Under Mr Corbyn, hard-left policies, his lack of support among MPs and his own record as a serial party rebel will make this impossible. A shambolic Labour Party, and a rump Liberal Democrat Party that has also drifted left, will leave the Scottish nationalists as the most potent opposition to David Cameron's government.

The Conservative Party is itself a coalition—of English nationalists, libertarians and “one-nation” Tories. Without the discipline of strong opposition, these factions tend to fight each other—and Mr Cameron. Having only a slender majority, the government is vulnerable in difficult forthcoming votes, such as those on air strikes in Syria or airport expansion in London. The referendum on Britain's EU membership will become more unpredictable. Britain needs an opposition that lives in the real world and a united, focused government. With Mr Corbyn as Labour leader, it risks having neither. ■

## NGOs in China

## Pummelling the little platoons

The Communist Party wants to squeeze civil society. That would be unwise as well as unjust



**E**ARLIER this year the Chinese government arrested five women who were campaigning against sexual harassment on buses. This was not because China's leaders believe that groping is a good thing, or that it is acceptable if perpetrated on public transport. It was because the Communist Party is wary of any organisation it does not control. The five feminists were entirely peaceful, and they were not advocating anything subversive like democracy. But they were organised and demonstrating in public, and that made them seem dangerous. After a

month in detention they were released on bail, but they remain under police surveillance and could still be hauled back to face elastic charges such as “picking quarrels and provoking trouble”. Such are the hazards of working for a non-governmental organisation (NGO) in China.

Now the party proposes to squeeze NGOs even harder, particularly those with foreign connections. A new draft law bars any Chinese NGO from receiving foreign funding (see page 37). It also sets out strict rules for foreign NGOs operating in China. These rules, according to the minister for public security, are intended to “protect the legitimate rights and interests of foreign NGOs” in the country. Really?

Under the new law, all foreign NGOs would have to find an ►

► official sponsor and register with the ministry of public security (rather than the less fearsome ministry of civil affairs, which previously dealt with such matters). Those that cannot find a sponsor will have to leave. Charities that look after sick children and steer clear of politics will doubtless be all right—and may even find the red tape a little easier. Those that venture onto controversial turf—agitating for human rights, for example, or pushing for legal reform—may have to close.

### Vague laws empower bullies

The draft law's wording is so broad and vague that it could apply even to foreign trade associations (the American Chamber of Commerce in China has expressed alarm). Any non-profit group that wants to visit China would also require a sponsor. In theory, a student exchange or a tour by an American college orchestra could be cancelled because a pro-Tibet group once spoke on their campus back home. The law allows the police to burst into the offices of a foreign NGO at any time and go through their papers to make sure they are not doing anything that undermines national security, public order or "morality". This is a licence to intimidate anyone the party—or a local official—does not like.

The new draft law would be more oppressive than the legal uncertainty that preceded it. Previously, although overtly political NGOs were banned, many groups operated in a grey area, pushing for such things as the rule of law or greater transparency without being shut down. Currently about 1,000 for-

eign NGOs have offices and staff in China, and many domestic ones receive funding from abroad. The work that such groups do is now at risk.

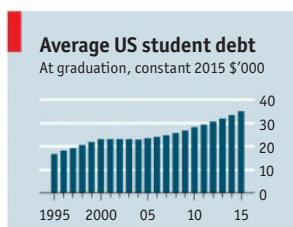
Cracking down on NGOs is fashionable just now. Vladimir Putin, Russia's president, has signed a law banning "undesirable" organisations, which allows those who work for such groups to be jailed for six years and even threatens those who are "involved" with them. Russian human-rights groups that receive money from the West have been labelled "foreign agents" and face closure. Meanwhile in Uganda, an oversight body whose members are appointed by the interior minister may soon be able to refuse to register an NGO for any reason it deems relevant. The idea that foreign-funded NGOs are a fifth column is one that autocrats find wonderfully convenient.

Yet it is not merely outrageous to suppress NGOs like this; it is also a mistake. Although some NGOs are wrong-headed and many are tiresome for a busy bureaucrat to deal with, collectively they make society better off. They see gaps in public services and fill them, whether that means visiting lonely old folk or counselling drug addicts. They draw attention to problems that the government may not have noticed—and as the explosion at a chemicals warehouse in Tianjin last week tragically showed, there are plenty of problems the Chinese government overlooks (see page 38). The growth of civil society makes a nation more stable, and fosters the social harmony the Communist Party says it wants. Xi Jinping, China's president, messes with the little platoons at his own peril. ■

### Higher education in America

## Better ways to pay for college

Hillary Clinton and, especially, Marco Rubio have promising ideas for how to finance a university degree



**H**ARD as it may be to believe with Donald Trump hogging the headlines, America's presidential primary campaigns are proposing serious ideas for how to deal with real economic problems. High among them is how to fix the country's broken system of university finance. Hillary Clinton has come up with intriguing plans, but the ideas of Marco Rubio are the more radical. And radicalism is what the system badly needs.

America is home to the world's best universities. But taken as a whole, its higher-education system is marred by soaring costs, stratospheric student debt and patchy performance. Tuition fees have doubled in real terms in the past 20 years. Student debt has trebled in the past decade, to \$1.2 trillion. A recent study of academic achievement at college found that 45% of America's students made no discernible academic progress in their first two years. Sorting out this mess demands three things: reforms that bear down on costs, that encourage students to make more informed choices about their future and that match repayments to borrowers' ability to pay.

Mrs Clinton's plan meets the third of those aims, and nods at the first. She proposes capping the repayment of college loans at a maximum of 10% of income over 20 years. If a loan is not paid off by then the government will pick up the tab. The estimated bill for her scheme, which would push America fur-

ther towards a model used in Britain and Australia, comes to \$350 billion over ten years. Income-based loan repayments make sense. But if government still picks up the tab for defaults, there is little pressure on colleges to curb costs and students to choose wisely. Mrs Clinton's answer is to make subsidies to colleges contingent on reducing costs.

Mr Rubio deals with the three reform priorities more comprehensively. He wants to encourage the take-up of online education platforms to curb costs and has good ideas for how to spread information on the earnings associated with particular degrees. But his boldest proposal is to link repayment of university funding to income by using equity financing, an idea floated by Milton Friedman in 1955.

Under Mr Rubio's plan, private investors would pay for a student's education in return for a claim on a chunk of his future earnings (see page 62). Just as dividends accruing to a shareholder depend on a firm's profits, so a student's subsequent payments to the investor would rise and fall with his income. Equity financing would lead to more informed choices because investors would be less willing to fund courses and colleges that offer low returns. And it would squeeze costs because unpopular courses would have to trim their spending.

The logic is impeccable. Nonetheless, the idea of equity financing for college is controversial. There are silly criticisms, for instance that any equity contract on human capital is tantamount to indentured servitude. In fact, these contracts would be less constraining than a student loan that imposes fixed ►

► payment obligations and cannot be discharged in America's bankruptcy courts. It is possible—and sensible—to set caps on the period in which income is shared, the percentage of earnings that can be given away and the total amount paid out.

### Marco to market

The more substantive problems involve information asymmetries and moral hazard. Prospective students know better than any investor what they plan to do with their lives. A lawyer who financed his study by issuing equity could, on graduating, afford to choose whether to join a well-paying law firm or to become a public defender without having that decision influenced by the need to repay a mound of debt. From society's point of view, that freedom to choose has benefits: a debt-laden graduate is less likely to take a risk on setting up a new company and more likely to head for Wall Street instead. But from

the investor's perspective, the risk that students might offer low returns would need to be compensated for by other students pursuing more remunerative paths.

People who think they will do well in later life also have an incentive to opt for the certainty of fixed debt repayments rather than face the possibility of handing over big chunks of future income. Again, there are potential solutions: some fintech startups have experimented with models of future income that enable students with better earnings potential to give up a smaller share of income in return for the same amount of funding as those with dimmer prospects.

Resolving these difficulties will take time and ingenuity. And whatever happens, it makes sense to have a combination of debt and equity, and of private and public money, in the mix. That's why Mrs Clinton's proposals are a sensible start, but Mr Rubio's ideas are worth serious debate. ■

### The Ashley Madison hack

## An affair to remember

**The theft of data from a website that facilitates infidelity is a wake-up call**



THE slogan of Ashley Madison, a website that arranges extramarital liaisons, is "Life is short. Have an affair." Its home page shows a woman holding a finger to her lips. So much for promising to keep secrets. Last month a group of hackers called Impact Team stole the site's user database and transaction history going back to 2007, and this week they released it online: more than 30m users' names, addresses and personal details, along with GPS co-ordinates and sexual preferences. This trove of data is fiddly to download and search, but already users of the site are being outed, as journalists and activists comb through the records looking for celebrities, business leaders and politicians. A deluge of revelations seems likely in the coming days, as websites pop up that allow easy searching.

The hackers' motives are unclear. In their statements they denounce the "fraud, deceit and stupidity" of both Ashley Madison's parent company, Avid Life Media, and the site's users. Their complaint against Avid Life is supposedly that the site is a scam, because the vast majority of its users are men, who have to buy credits to access its services. But Impact Team's supposed sympathy for these dupes is hard to square with the hackers' decision to release all the data, and their moralising exhortation to the people thus exposed: "learn your lesson and make amends". It seems most likely that Impact Team, like other hacker groups before it, is simply doing this for fun.

Some think Ashley Madison's users have got what they deserve. But this data breach could have far more public and visible consequences than previous heists, such as the theft of customer data from retailers, tax records from America's Internal Revenue Service, or even security-clearance data from the Office of Personnel Management. Marriages will be destroyed, reputations shredded and hypocrisies revealed. People may lose their jobs. Celebrity magazines and gossip columnists will have a field day. There will be much discussion of modern attitudes to marriage and fidelity. But perhaps the greatest signifi-

cance of this episode is that it illustrates, more vividly than ever before, the woeful state of internet security.

It would be wrong to blame technology for human failings, but by removing friction from existing activities—order a cab with Uber, buy a book from Amazon, summon a song via Spotify, find a date on Tinder—it can subtly steer people's behaviour. Ashley Madison's sales pitch, emblazoned on huge billboards, was that the anonymity of the web could make having an affair easy and risk-free. Its website ("Over 38,920,000 anonymous members!") offers a three-month money-back guarantee and is festooned with logos and icons emphasising trustworthiness, security and discretion. Such promises were evidently irresistible to the site's millions of registered users—and to the hackers who have revealed just how hollow these claims really were. No doubt some people signed up on a whim, while going through a rough patch in a relationship, or while drunk. In the past, the mere contemplation of infidelity left no physical traces. But now millions of people's thoughts and deeds are open to public scrutiny.

### Put not your trust in websites

The truth is that the internet is bad at keeping secrets. The theft of personal information from large companies and government agencies has become so routine that most such breaches are quickly forgotten. For most people, it is merely an occasional inconvenience. If your credit-card number is stolen, you can get another one; if your password is compromised, you can change it. Identity theft and fraud are more troublesome. But every time another data breach is greeted with no more than a collective shrug, companies' decision not to devote more attention to data security is vindicated. The Ashley Madison breach is different, because it threatens to destroy families and end careers. Avid Life's security seems to have been no worse than that of many other companies, but its database contains information far more sensitive than mere financial details. If its theft proves to be the wake-up call that encourages companies to start taking security more seriously, then at least some good will have come from this sorry affair. ■

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Run Simple

### Lessons from private schools

Your briefing on low-cost private schools in poor countries presented a rose-tinted view of their benefits ("Learning unleashed", August 1st). There are good state schools and bad private schools in these countries. Any approach that claims to put children first has to take a hard look at how the entire system meets the challenge of ensuring equal access to a quality education for all.

Consider the effects of privatising schools on the education of girls. Already more boys than girls are enrolled in schools worldwide. Adding even the lowest fees to the costs of sending a girl to school means more girls will be kept at home, and a family's meagre income will be spent on the education of sons.

The private sector has the same obligation as the state to uphold the right to education, particularly when it receives public money. The same studies that you cherry-picked your facts from will show that even where low-fee private schools outperform a local state school, the quality of education they provide is only marginally better. This is no policy solution for poor children.

HUGH MCLEAN  
Director  
Open Society Foundations  
Education Support Programme  
London

Private schools are thriving in developing countries not because public schools are not doing well, but because of parents' lack of information. Many parents are led to believe that private schools do wonders, providing high quality education and teachers and good infrastructure such as libraries and playgrounds. Often teaching in English and with a uniform code of ties and coats, even in the sweltering summer, private schools confer an artificial higher social standing. Aggressive marketing plays a role in this.

But apart from a few high-fee schools, how many private outfits actually have a sufficient number of teachers with

the minimum qualifications? There is a lack of reliable data on outcomes partly because of the reluctance of private schools to allow researchers to probe such questions. The studies of public versus private schooling are not conclusive. When adjusted for the socio-economic background of the students, the results are mixed.

PROFESSOR JANDHYALA B.G. TILAK  
National University of Educational Planning and Administration  
Delhi

I agreed with a lot of what you said. Any school is better than no school and private schools usually get similar learning results at far lower cost. However, schools making a profit sometimes achieve those results by gaming the outcomes and concentrating on the perceived rather than the real quality of education.

In Uganda, for example, private, for-profit schools have been known to register two exam centres: one for brighter pupils and one for less able students. Such schools only publicise the results of the brighter students and so miraculously outperform year after year. More commonly, schools will kick out academically weak students or encourage cheating in exams.

JOHN RENDEL  
Chief executive  
Promoting Equality in African Schools  
London

Using a teachers' guide does not equate to "robo-teaching". Any person who has visited one of Bridge International's 412 academies can see this. Teacher guides give teachers the materials and resources for greater analysis in the classroom. USAID's global flagship literacy project is a scripted instruction programme, as are the Global Partnership for Education's programmes for mathematics in Kenya's public schools. Research has shown that by giving teachers a script for the lesson, children receive a proven, radically better education.

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heavily in training and monitoring. We run a free, mandatory, 235-hour training course for our teachers, and provide more than 70 hours of training every year with every teacher. We video our classes for review. Our system is designed on the basis of constant monitoring and improvement.

LUCY BRADLOW  
Director of public relations  
Bridge International Academies  
Washington, DC

### Worthy of a prize

I read your review of Matthew Cobb's book on the race to crack the genetic code ("Breaking the code", August 8th). Rosalind Franklin, one of the four scientists who discovered the structure of DNA, was not included in the Nobel prize given jointly to the three others, Francis Crick, James Watson and Maurice Wilkins. Of the four, she was the only one with a chemistry degree. It was her x-ray work, said to be obtained by Crick and Watson without her permission, that was pivotal to the whole investigation. She died of cancer in 1958 at the age of 37.

She was vilified and demeaned by Watson in his book "The Double Helix". Although the Nobel's rules allow no posthumous awards, an exception is warranted in the case of Rosalind Franklin. I think the very least the Nobel committee can and should do is to acknowledge and honour her, and make an appropriate donation to cancer research, in memory of this great woman.

GEORGE HALABI  
Baiersdorf, Germany

### What if...

Your article imagined a scenario in which companies manage fleets of cars when self-driving vehicles become a reality ("If autonomous vehicles rule the world", August 1st). Although this is an entirely possible future, it is also possible that car ownership will remain very similar to how it is today, but with a community of people using the sharing economy to match supply and demand.

Car owners who hadn't previously seen their vehicle as a possible revenue stream could maximise the 96% of the time that cars, on average, sit idle. The incredible new technology will enable owners of autonomous cars to generate revenue without even being present, thus making participation in the sharing economy seamless and natural.

ROMAN UGARTE  
Austin, Texas

I enjoyed your article on a pain-free future for urban travel. As an ageing and increasingly reluctant driver in Jakarta, one of Asia's most congested cities, it would be a miracle if technology could mitigate the undiluted stress and time-wasting that travellers endure here. This is not only because the behaviour of drivers is semi-random, but also because 80% of the vehicles are motorbikes, mostly ridden regardless of traffic laws and barely cognisant of safety.

JEREMY DYER  
Jakarta



"The World If" supplement (August 1st) was very interesting and some parts were very amusing. But while reading it I recalled one of Woody Allen's sayings:

"What if everything is an illusion and nothing exists? In that case, I definitely overpaid for my carpet."

ANTONIOS KOUROUTAKIS  
Berlin ■

## Executive Focus



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We are looking for a dynamic and visionary individual to provide leadership and strategic direction and be a key member of the Senior Management Team of the Organisation. He/She will support the strategic orientations of the Secretary-General in DAF's areas of work, contributing towards the Organisation's major initiatives, promoting horizontal work and fostering co-ordination and joint activities with other areas of the Organisation. They will lead a team of highly qualified staff to deliver a complex programme of work and maintain a wide professional network, representing the OECD in international meetings and high level missions to member and partner countries.

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## Deputy Director

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This position requires fluency in one of the two OECD official languages (English and French) and a knowledge of the other, with a commitment to reach a good working level.

Full details of the position are available at [www.oecd.org/careers/vacancies](http://www.oecd.org/careers/vacancies) (ref. 10054). Applications from OECD member country nationals should be submitted online by midnight 18 September 2015.

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### Chief Executive Officer

Lagos, Nigeria



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EFInA has retained Russell Reynolds Associates to assist with this appointment. For further information on the position and additional details on qualifications, requirements, terms and conditions of service and how to apply, please visit: [www.rreresponses.com](http://www.rreresponses.com)

*Please do not contact EFInA directly. Previous applicants need not apply.*

The closing date for applications is Monday, 14th September, 2015.



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# The age of the red pen

**It is now easy to edit the genomes of plants, animals and humans**

IN THE summer of 2005 Karen Aiach and her husband received heartbreak news about their four-month-old daughter, Ornella: she had a rare disorder known as Sanfilippo syndrome. The prognosis was that, from about the age of three, the disorder would gradually rob her of most of her cognitive abilities. She would probably develop a severe sleep disorder and become hyperactive and aggressive. She was unlikely to live into her teens; she certainly would not survive them.

The problem was that Ornella lacked a working copy of a specific gene. It is a gene that tells the body how to make a particular protein which is involved in clearing up cellular debris. Without that protein the cells of her body were unable to break down a complex sugar molecule, heparan sulphate. It is the build-up of that molecule in brain cells that lies behind the symptoms of the syndrome. If her cells could make that protein, the situation might, in principle, be reversed. Learning this, Ms Aiach embarked on a ten-year search for a way to correct the error in her daughter's genome.

In almost every cell in Ornella's body, as in every human body, there are two copies of the human genome, one from her mother, one from her father. In each of those genomes there are about 20,000 genes, each of which contains the recipe for a specific protein in the form of a sequence of chemical "letters". To date, medicine has recognised about 6,000 diseases that can be traced to a problem with one or another of those genes—a disorder in which a missing or garbled sequence of DNA leaves the body unable to make a particular protein, or causes it to be made in an abnormal form. Some of these single-gene disorders are well known: Tay Sachs; sickle-cell anaemia; haemophilia. Others, such as Sanfilippo syndrome, are the sort of thing you learn of only when a child you care about turns out to be the one in 70,000 that it afflicts.

Since genetic engineers assembled their first tool kits in the 1970s

heart-broken parents and medical researchers have longed to use such technologies to fix these faulty genes. The first clinical attempts at such "gene therapy" began in the 1990s, with viruses used to add needed genes to cells that lacked them. But this was crude stuff. The new genes could not be guaranteed to slot into the right place in the genome; this often meant they did not in practice produce much protein; it also meant there was a risk that, by disrupting other genes, they could cause cancer. There were indeed cancers in some early

trials; there was also a case in which a patient died of a lethal immune reaction to the virus used to carry the gene.

Powered by the desire to do something for children like Ornella, the gene therapists have soldiered on. And in the past few years they have found themselves helped by the most impressive piece of kit yet—a system called CRISPR-Cas9.

Some years ago, biologists discovered an odd feature in the genomes of some bacteria that they described as "clustered, regularly interspaced short palindromic repeats"—CRISPR for short. Bacteria

use them to make little bits of RNA, a molecule that can store sequences of letters like those that make up genes in DNA. A CRISPR RNA will bind to a piece of DNA that has a complementary sequence. A protein called Cas9, which is a sort of pair of molecular scissors, recognises the structure made when a CRISPR RNA binds to a piece of DNA and responds by cutting through the DNA at precisely that point (see diagram on next page).

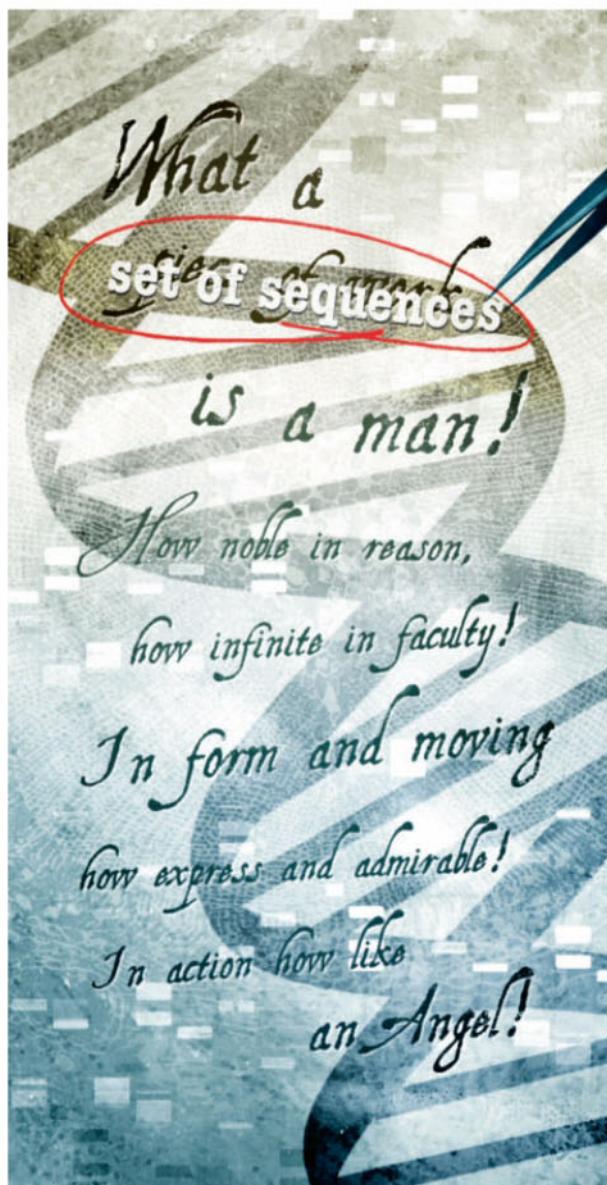
## Beating bugs into scalps

Bacteria make CRISPR RNAs that recognise the DNA of viruses which prey on them, marking that DNA for destruction by Cas9 and thus protecting the bacteria from infection. Scientists can make RNAs that target any sequence they want. And because of the way that cells repair broken DNA, if they put a new gene into a cell along with the CRISPR-Cas9 system, they can get that new gene to replace an old one. The effect is to give scientists something that works like the find-and-replace function on a word processor.

Because it is so simple and easy to use, CRISPR has generated huge excitement in the worlds of molecular biology, medical research, commercial biotechnology—and gene therapy, where it may make it possible to make changes with profound consequences. To date gene therapies have been designed to fix everyday sorts of cells, such as those of the blood, or the retina, or the pancreas. CRISPR makes it possible to think about ►

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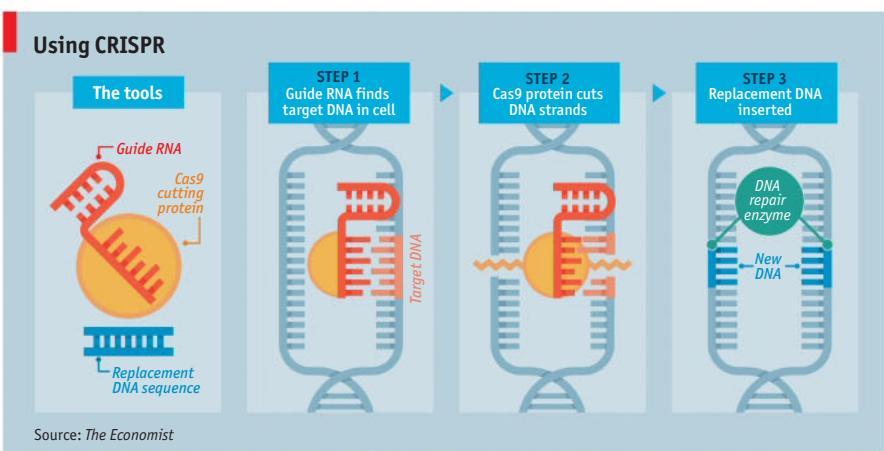
► aiming at the special cells that make sperm and eggs, or the genome of a fertilised embryo awaiting implantation in the womb. In either case the changes made would pass from one generation to the next, and the one after that, in perpetuity.

This sort of "germ-line" editing is widely seen as a bourn no ethical traveller should cross. Some scientists and research organisations want a moratorium on any work aimed at engineering the germ line; others say basic research on such things should continue, but any moves to use it in the clinic should at the very least be widely debated by society as a whole. America's National Academies of Science are convening a gathering in December to look at the options. Genetics is a peculiarly personal science, but it is also one very prone to politics. The power of CRISPR looks sure to exacerbate that propensity.

When Jennifer Doudna of the University of California, Berkeley, Emmanuelle Charpentier, who is now at the Helmholtz Centre for Infection Research in Germany, and colleagues worked out how to turn the bacterial CRISPR system into a genome editor three years ago there were already two other techniques for making specific and precise changes to genomes. But the other techniques were time-consuming and often finicky. The new technique was as good if not better, and far quicker and easier to use. Matthew Porteus, a pioneer in gene editing at Stanford University, says research that required a sophisticated molecular biology lab three years ago can now be done by a high-school student.

### All of the species, all the time

By the beginning of 2015 the regular analysis of "hot" research in biology put out by Thomson Reuters, which looks at what papers are being cited most by other scientists, had three CRISPR papers in its top ten. The technique has been applied to dozens of species, including zebrafish (much favoured by developmental biologists), yeast, fruit flies, rabbits, pigs, rats, mice and macaques—the first primates to be genetically engineered with the technique. It has been used to cure mouse versions of mus-



Source: *The Economist*

cular dystrophy and a rare liver disease. Ways have been found to make the technique more reliable, more versatile and less likely to make cuts where it is not supposed to; further improvements are on the way, not least at the startup companies built around the technology.

One of CRISPR's great attractions is that it can be used to introduce, or remove, a number of different genes at a time. Most disorders are not caused by just one gene going wrong; being able to manipulate many different genes in a cell line, plant or animal opens new avenues for the study of conditions such as diabetes, heart disease and autism where a number of genes are involved, along with the environment. In the past a mouse with as few as three genes knocked out would have taken as many years to create; now it can be done in three weeks.

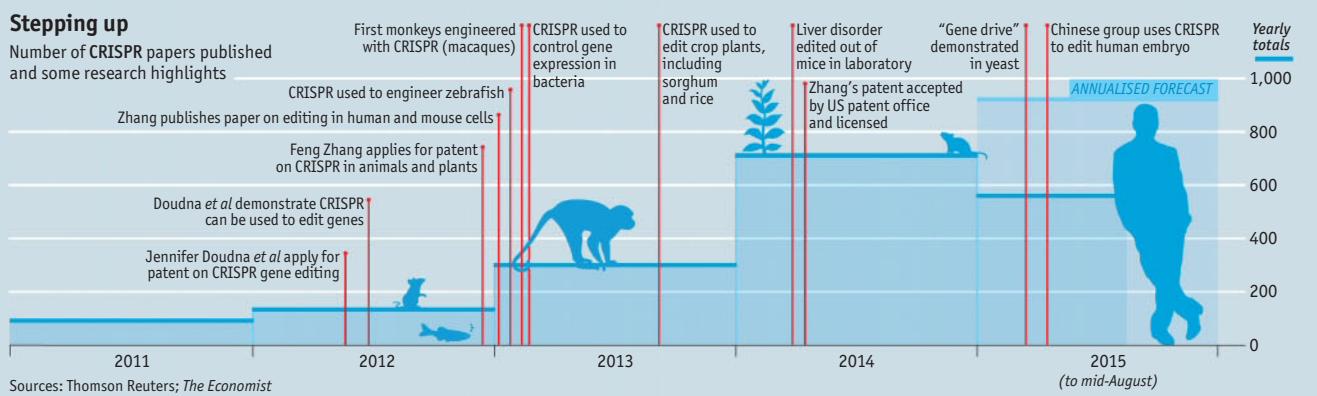
CRISPR is also letting researchers get more out of other technological breakthroughs—notably the ability to make stem cells which can then be turned into the cells typical of any sort of tissue. George Church at Harvard is using CRISPR to edit the genomes of stem cells before turning them into nerve cells, so as to find the mechanisms behind a range of neurological disorders. Feng Zhang, a scientist at the nearby Broad Institute, has been using CRISPR to model Angelman syndrome, a neurological disorder.

Previous genetic-engineering technologies have tended to be species-specific; there have been lots of tools for manipulating *E. coli* and yeast, but they have often not been broadly applicable. This is another area where CRISPR excels; it can be used in organisms that have resisted previous attempts at engineering. This could be a big help in agriculture, spreading modification techniques to new grains, roots and fruits—Monsanto has already begun working with CRISPR to design plants with useful traits. Another biotech application is the use of CRISPR to build a "kill switch" which allows any genetic modifications made to bacteria to be removed after they have been used, either for safety or to protect intellectual property.

One particularly impressive—and potentially worrying—application is in the creation of genes that can spread themselves quickly through a population with blithe disregard for the constraints of natural selection. Engineering the CRISPR-Cas9 system itself into a creature's genome makes it possible for an organism to edit its own genes, and there are ways that this ability can be used to "drive" a gene through a population (see box on next page). Such a technology might, proponents say, be used to make the mosquitoes that carry malaria, or dengue fever, unable to spread the organisms responsible for causing the disease.

### Stepping up

Number of CRISPR papers published and some research highlights



The applications seem limited only by the imagination. Dr Zhang says CRISPR has enormous potential for treating previously intractable diseases. For example, genome editing may make it possible to eliminate viral infections within the body, creating entirely new antiviral treatments. He also speculates that it might be possible to make red meat that is less harmful, or to engineer pig organs so that they could be transplanted into humans with much less risk of rejection. Dr Church, for his part, has speculated about using gene editing to turn elephants into mammoths—or to recreate Neanderthals.

There has been a flurry of commercial activity and investment. Large pharmaceutical companies are eyeing the technology for research. AstraZeneca has plans to use it in cell cultures to explore the function of every gene in the human genome. Among the startups, Caribou, which was founded by Dr Doudna in 2011, has raised \$11m in funding and will focus on cell engineering for drug screening, agricultural and industrial biotechnology. Caribou has also formed, with pharma company Novartis and a venture-capital firm, a startup called Intellia. With \$15m raised in 2014 Intellia will focus its work on gene therapies in which cells are taken from patients, edited and put back.

Crispr Therapeutics, co-founded by Dr Charpentier in Switzerland, which has raised \$25m, is aiming at a similar market, as is Editas Medicine, co-founded by Dr Zhang. In early August, Editas raised \$120m from a group of investors that includes Bill Gates. This comes on top of \$43m the company raised in 2013. Although Dr Doudna and Dr Charpentier filed the first patent for CRISPR's use in gene editing, Dr Zhang was granted a patent on its use in plants and animals after his institution paid for an accelerated review. This would seem to give him and the Broad Institute control over the key commercial uses of CRISPR in humans and research animals. The applicants for the other patent are challenging the ruling.

The easiest sorts of gene therapy will be those that can be done outside the body—*ex vivo*, in lab speak. The appeal of *ex vivo* work is the level of control; cells can be extracted, have their genes manipulated, and have their new genes tested before being put back. To see the sort of things that this makes possible take a look at the work being done by Sangamo Biosciences, based in Richmond, California, which has been working for a decade on an earlier, more cumbersome gene-editing technology that makes use of what are known as “zinc fingers”. It is trying to apply that technology to beta-thalassaemia, sickle-cell disease, haemophilia and HIV infection.

In clinical trials of its HIV treatment, Sangamo takes the immune cells that the virus infects out of the patient's blood-

### Gene drives

## The most selfish genes

Giving bits of DNA the power to edit themselves is an intriguing, and worrying, possibility

**A**NIMALS typically have two versions of any given gene stored on two different chromosomes—basically large DNA molecules—and the two versions can have important differences. Offspring normally inherit only one of each pair of chromosomes from each parent, and thus each version of the gene typically gets into only half of them. Technologies like CRISPR make it possible to break this rule with something called a gene drive—a gene that uses gene-editing techniques to copy itself from one chromosome to the other, so that whichever chromosome the offspring inherit they get the same version. The same will then apply to their offspring, too (see diagram).

Normally genes can only spread through a population if they confer an advantage. The sneakiness of gene drives is that they can spread genes faster than this process of natural selection—and, indeed, against its wishes. A gene drive should be able to spread through a population even if it is bad for its possessors.

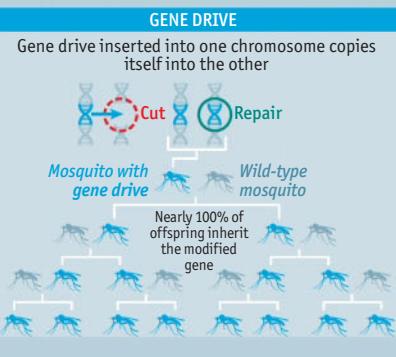
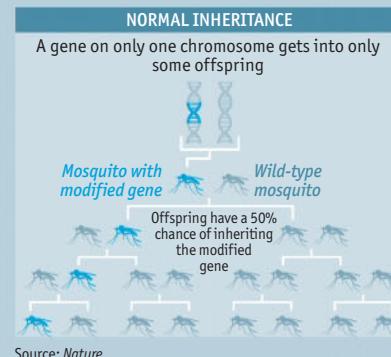
In 2003 Austin Burt of Imperial College, London, suggested that this might be

a way of altering wild animals so that they stop doing things people do not like, such as spreading disease. If mosquitoes were given a gene drive that made them unable to transmit malaria and then released, the new trait's quick spread through the population at large would lower the burden of disease.

Gene drives remained theoretical until earlier this year, when researchers tested CRISPR-based implementations of the idea in yeast and fruit flies. The work raises a number of concerns. One is that if an animal escaped from such experiments its gene drive could spread far and wide even if no one wanted it to. Another is that well-intentioned use of such technology could wreak environmental chaos if poorly thought through. This has led to calls for all workers in the field to develop “reverse drives”—systems which could undo the changes brought about by the drives they are working on. Another suggestion is that all drives be designed so as to require the presence of some exotic chemical that would not typically be available outside the lab.

### Bye bye, brother Mendel

How gene-drives can quickly change whole populations



stream and edits in a mutation that makes them highly resistant to infection. It then grows up a large number of the edited cells and infuses them back into the patient, where it is hoped they will flourish. A similar sort of approach can also be used in blood disorders such as beta-thalassaemia and sickle-cell disease which are caused by mutations in the globin gene. The idea is to extract blood stem cells from bone marrow, edit them so as to switch on the production of fetal haemoglobin (which the body stops producing shortly after birth, even if it cannot make the adult stuff) and return the stem cells to the body. It would be like a bone-marrow transplant—except

that since the new genetically improved cells come from the patient's own body there is no danger of rejection.

Similar *ex vivo* approaches could make gene editing a powerful tool for fighting cancer. A currently promising approach to the disease is to retrofit the immune system's T cells with what is called a chimeric antigen receptor (CAR)—a protein that recognises tumours. This CAR-T approach is likely to evolve as CRISPR makes it possible to add more, or subtler, genetic changes to the T cells. Given the ease and speed with which RNA guides can be designed and tested, it seems only a matter of time until T cells are tailored to mutations specific to a

► particular patient's cancer.

With blood cells *ex vivo* approaches work fine, and they may have applications in other diseases, too. But when it comes, say, to a brain disease there is no way to take the cells out, fiddle about and put them back. Instead you have to deliver your molecular editing suites to the cells where they live—to do the editing *in vivo*. So far attempts at therapeutic *in vivo* gene editing have been limited in scope. Sangamo has done a little work in mouse brains, where it has been able to repress the expression of the gene that causes Huntington's disease. Intellia has plans to look at *in vivo* applications that include diseases of the eyes and nerves, as well as haemophilia and some infectious diseases.

The easiest *in vivo* applications of gene editing will be diseases where the damaged cells are easy to get at—for example diseases of the eye. But gene-therapy companies also have strategies for getting at harder-to-reach cells, with years of work that could now be applied to the delivery of gene-editing packages. Take Lysogene, the company Karen Aiach founded after her daughter's diagnosis with Sanfilippo syndrome. It has a viral vector which, injected directly into the central nervous system, puts copies of the gene that children like Ornella lack directly into brain cells.

And then there is the most controversial form of editing—editing the genome of a newly created embryo, or of the cells that produce sperm and eggs. If this could be done safely it would offer the possibility of acting once and for all. By changing a gene in an early-stage embryo, or in the cell that makes an egg, you could ensure that the change is found in every cell in the adult body—including its own eggs or sperm, which would pass it to the next generation and thus on down through the ages. No one is pursuing such avenues in the clinic as yet. But the announcement in April that a Chinese group had engineered changes into non-viable human embryos as part of their research into beta-thalassaemia set alarm bells ringing.

Even before that a group of scientists, which included the boss of Sangamo, had published an article in *Nature* calling for a voluntary moratorium on all experiments involving germ-line modification. The Centre for Genetics and Society, a non-profit in Berkeley, California, that supports responsible use of genetic technologies, opposes using CRISPR to conduct even basic research on embryos. It says that the prospect of people modified in ways that would be transmitted to their children raises grave safety, social and ethical concerns, running the risk not just of producing children with unforeseen difficulties because of side-effects but of opening the door to new forms of social inequality, discrimination and conflict.

Dr Doudna and a number of other emi-

nent molecular biologists, such as David Baltimore of Caltech, have called for scientists to avoid any attempts at human germ-line modification, even if they are in countries where regulation might allow it, before there has been a much fuller discussion of the implications. This would not preclude using the technology for research purposes on embryos created as part of an *in-vitro* fertilisation programme and not intended for implantation (in Britain and a number of other countries such research is allowed on embryos up to 14 days old). Dr Baltimore was part of a group that called, in 1975, for scientists to refrain from using some of the earliest tools of genetic engineering until rules had been established; that moratorium is often touted as a worthy example of scientists thinking a new technology's implications through before running into a thicket of practical and philosophical issues.

### Crossing a line, again

Francis Collins, who runs the National Institutes of Health, America's main government funder of biomedical research, said in April that altering the human germ-line for clinical purposes is viewed "almost universally as a line that should not be crossed". However this may not be strictly true. Mitochondrial DNA donation, an *in-vitro* fertilisation technique that replaces a specific form of defective DNA from the mother with equivalent DNA from another woman, recently became legal in Britain. Like changes produced by editing the genome of an egg or early embryo, the effects of this donation will be passed on to future generations.

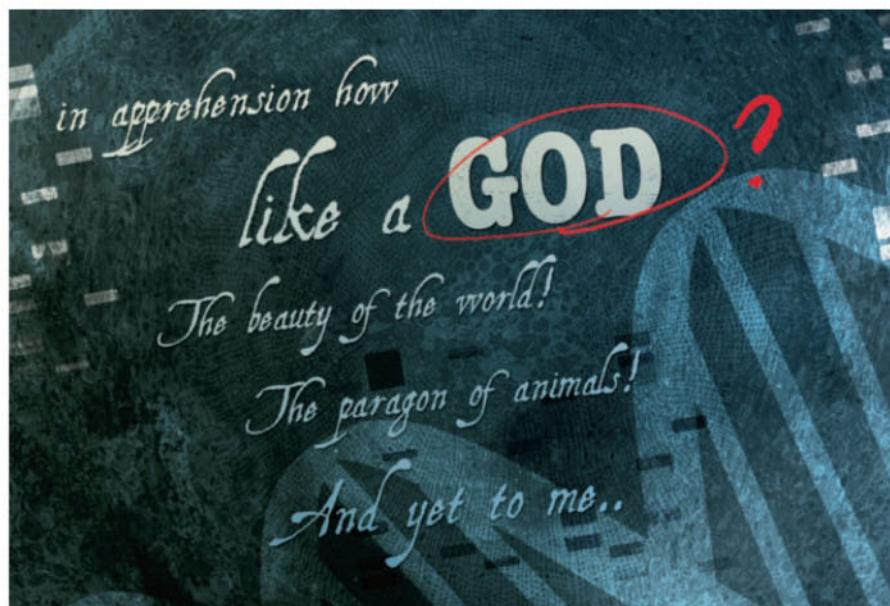
The issues surrounding mitochondrial DNA donation were widely discussed in Britain, and the procedure voted on in parliament. The conclusion was that the risks were small and that helping people carry-

ing certain diseases to have healthy children mattered more than rather formless worries about "playing God". A debate on the merits of using CRISPR for germ-line engineering in cases where there was no alternative might reach a similarly permissive conclusion. But that would depend on a number of factors.

On the technical front, CRISPR, though good, is not perfect—it can make cuts that are not desired as well as the ones that are. In research it is fine just to work with the cells and animals that came out perfectly; in the clinic you need a lower error rate. In germ-line editing, when any errors will end up in every cell in the body, the problem is particularly worrying. What is more, in most cases where there is a risk of genetic disease it will be safer, when using *in-vitro* fertilisation, to choose an embryo that does not have the defect than edit one that does. Only when there are a number of genes to worry about would editing seem a plausible option.

Worries about germ-line editing are fascinating, and the discussion they produce may prove important, divisive or both. But they are far from the realities of today, where genetic disorders that CRISPR might make amenable to uncontroversial forms of gene therapy are destroying lives and parents are fighting to save their children.

The gene therapy Ornella eventually received from Lysogene came too late to prevent her cognitive decline. But she smiles and she is gentle, and her nights are almost normal—an improvement over her earlier years that Ms Aiach puts down to the therapy. In decades to come, the prognosis for others like her will almost certainly improve. However much the well worry about the nefarious applications of gene editing, the needs of the sick will continue to drive science and medicine forward—as they should. ■





Ten years after Hurricane Katrina

## Some people got away alright

NEW ORLEANS

**The Big Easy's recovery is a parable of America's strength, flaws—and future**

**M**ICKEY LANDRY was the principal of a private school in Colorado Springs when Katrina struck. After some of his evacuated relatives washed up there, Mr Landry decided he "just had to come back." He had been away from New Orleans for 25 years; after the inadequate levees gave way on August 29th 2005, most of his hometown was under water. But he "was aching for the city." He told his wife. She thought he was crazy.

They went back to New Orleans. Since 2007 Mr Landry has overseen the Choice Foundation, which now runs three charter schools in the city; one of them, Esperanza Charter School, was a chronically failing institution that has received an influx of Hispanic children, many of whose fathers came to work in post-hurricane reconstruction. These days around 65% of its pupils are Hispanic. The threat of deportation has been added to the litany of woes children in New Orleans often face: overcrowding (13% of pupils in the Choice Foundation's schools are homeless), dead and imprisoned parents, gunshots in the night. Mr Landry says that "if 50 Martians turned up, we would create a programme for them." Esperanza became one of the fastest improving schools in Louisiana.

Esperanza is a better emblem of the city's improbable revival than the French Quarter's latticed ironwork and fleshpot neon. Hurricane Katrina took around 1,800 lives and wrecked many thousands more,

suffering that still wells up in stories of hardship and miraculous survival, and in barely sublimated ire towards obtuse bureaucrats and unfeeling politicians. Yet, indecent as it seems to acknowledge, ten years later New Orleans is, on many measures, more successful than it was before. Mitch Landrieu, the mayor since 2010, is frank: "New Orleans is a stronger and better city than before the storm". Its revival demonstrates what grit and ingenuity—alleged with the jolt of near-fatal calamity—can accomplish, and what they can't.

### Louisiana, Louisiana

People like Mr Landry—native professionals who repatriated, evidence of New Orleans' magnetic pull—plus young graduates who arrived for the first time, have contributed to the resurrection. Their influence is visible in two big improvements that might never otherwise have happened. One is in the city's schools. Before Katrina, 62% of children attended failing schools. Now, after almost all of them were handed over to autonomous providers such as the Choice Foundation—the kind of instant, total reform only possible in an emergency—only 6% do. High-school graduation and college-enrolment rates are up (see chart on next page).

The incomers have revamped the economy, too. As Michael Hecht of Greater New Orleans, Inc., an economic-development agency, says, previously the city suffered

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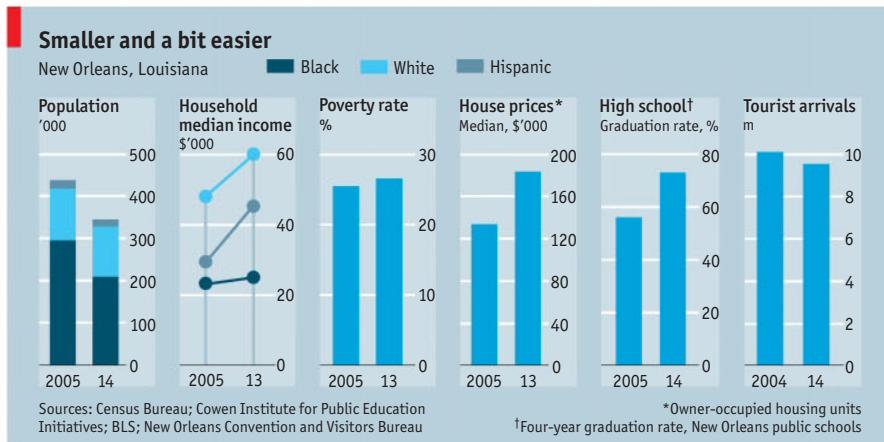
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from a local variant of the "resource curse", living complacently from its Gulf-coast transit and oil revenues and the storied, hybrid culture that is its main natural asset. Tourism, with its low-paying jobs, is still a mainstay. But a mix of year-zero astringency and a regional infusion of around \$140 billion (including federal funds, philanthropy and insurance pay-outs) has created a more diversified, less clannish economy. Mayor Landrieu says that after "the whole world came to our aid", New Orleans became a much more open place.

And a more entrepreneurial one. In Katrina's aftermath, "everyone became an entrepreneur" says Tim Williamson of Idea Village, a business-incubator that helped local firms rebound; "everyone had to start over". The exigencies of the disaster seem to have reinforced the improvisational skills honed in Mardi Gras preparations. The region's startup rate has more than doubled. Many of the new companies are tech firms, enticed partly by generous state tax-breaks: thus the boosterish moniker, "Silicon Bayou". But many of the entrepreneurs are newcomers, who came to join the relief effort and stayed, or came later for the music, weather and cheap rents. The cost of office space is half New York's, reckons Steven Kashishian, who went to university in New Orleans and, after he co-founded First Mile Geo, a geospatial software firm, and was able to work anywhere, came back.

This inflow has seen shock battalions of tattooed graphic artists overrun once-dicey neighbourhoods, as well as lots of new restaurant openings. But, as Esperanza suggests, another kind of immigrant has helped to rebuild the city. The region's Hispanic population, mostly from Honduras and elsewhere in Central America, almost doubled between 2000 and 2013, according to the Data Centre in New Orleans (at ►)



► 384,000 last summer, the total population of the city itself remained around 100,000 lower than in 2000). Many, such as Santos, a Honduran, came soon after the storm. "I had never lived here," he says in the office of the Congress of Day Labourers, a support group; "but when I looked around and saw the destruction everywhere, I felt like crying." "I am forever grateful to them," says Georgette Ioup of the immigrants who renovated her home in the Gentilly neighbourhood—though the police, and unscrupulous contractors who sometimes filch workers' wages, have been less hospitable. Alfredo, a Mexican who spent months stripping down contaminated houses and fishing out dead pets, says New Orleans reminds him of Mexico City: the craziness in the streets, the architecture, ubiquitous music, the gunshots.

### What has happened down here

Unlike the residents of other cities, Katrina forced every New Orleanian to make a conscious choice to live in theirs. Many have a proprietorial pride in the survival of a place some outsiders thought should be abandoned, and in their roles in salvaging it. The pride is especially justified because of the grave problems that once seemed to doom New Orleans to gradual, perpetual decline, and which might have been expected to nubble its recovery. They didn't, but nor were they cleansed. New Orleans, insists Mr Landrieu (its first white mayor since his father left office in 1978), is "essentially the beautiful city that it was before the storm." And it bears the same scars.

First, crime. Michael Harrison, the city's police chief, points out that this year's spike in murders follows a 40-year low in 2014. Yet both the violent-crime and incarceration rates are over double the national average. Police numbers remain lower than before the hurricane; the force's reputation is still bruised by the gothic abuses exposed after it. Alongside the crime is deep, widespread poverty—more grinding than ever as rents now rise—and a cavernous racial income divide. The median income of black households is less than half

that of white ones, a bigger gap than in the country overall; black families in New Orleans are poorer than the American average. On one count fewer than half of working-age black men are employed.

The poverty of black New Orleanians partly explains why there are around 100,000 fewer of them now than before the storm (though the city still has a black majority). For many the path home was blocked by recalcitrant insurers, lenders who called in mortgages and crooked contractors for whom the disaster was a chance for fraud—as it proved for the previous mayor, Ray Nagin, now serving a ten-year prison term. ("We don't need the mafia," comments one world-weary local, "we have our politicians.") But perhaps the biggest obstacle was the original formula used in the federally funded homeowner-compensation programme, which relied on the pre-Katrina market value of homes—which tended to be lower in predominantly black areas.

Theodore Watson, for example, is still trying to rebuild the house his 85-year-old father bought 50 years ago in the Lower Ninth Ward, a neighbourhood isolated by canals that, since its schools were desegregated, has been overwhelmingly black. In 2005 it became the epitome of post-Katrina devastation and the focus of onlookers' outrage. The mortgage had to be paid off, and the family has bled money in rent: the Lower 9th Ward Homeownership Association, a group that tries to match residual public funds with people still trying to return, is lobbying for a rule-change that would compensate such costs. What is left of the family's pay-out is insufficient, Mr Watson says. He is "hoping for somebody to show some compassion...the last thing I want is for [my father] to die without being back in his home."

Even in the Lower Ninth Ward, some things have improved. Make it Right, an outfit founded by Brad Pitt, has built over 100 zany, subsidised eco-homes, designed by architects including Frank Gehry, an enlightened project that has attracted needless, star-knocking criticism. There is a new

school and a community centre. But bitterness persists. "We down here living like dogs," alleges one resident. The neighbourhood has only 37% of the households it contained before the storm, far fewer than the city overall. Parts of it are eerie, in-town wastelands, where "For Sale" signs stand among overgrown reeds on vacant lots.

### The winds have changed

New Orleans, like other port cities, has always felt enticingly semi-detached from America, cultivating its own rhythms and calendar. Hurricane Katrina, a near-death trauma of a kind few cities ever suffer, lent this exceptionalism a macabre new dimension. Ten years ago, though, bedraggled New Orleans became, for many, a symbol of wider pathologies in American society: the rancour of politics and the enduring rift of race, plus the fragility of civilisation, and of life itself, in the world's richest country.

Its comeback has been starkly symbolic too, above all of the resourcefulness, resilience and civic-mindedness that Americans can muster, even or especially when their government goes missing. But it also exemplifies some of the new fissures in 21st-century America—a country in which many cities are reviving, albeit less dramatically, but where lopsided gentrification renders some unaffordable to the people who work or grew up in them; a nation in which immigrants and footloose companies flourish, but so does inequality. The tragedy of Katrina has an unpredictably upbeat ending, just not for everyone. ■

### Iowa's state fair

## Of chops and choppers

DES MOINES

A dozen candidates, some giant vegetables and a sculpture in butter

BY THE time Hillary Clinton got to the John Deere Agriculture Building at the Iowa State Fairgrounds, the Best Tasting Tomato competition was well in the books. Skip Hitchcock of Muscatine had walked off with \$75 cash for a ripe Jersey Boy that struck "a balance between acidity and sweetness", according to a judge from Better Homes and Gardens. Dance 2 Xtreme, a company of youngsters from Lake City, was by then recovering from an energetic performance at the MidAmerican Energy Stage. Steve and Becky Gursky of Oskaloosa, having demonstrated the rudiments of gourd art in the Cultural Centre, could kick up their heels for the day.

Mrs Clinton, who leads the pack for the Democratic presidential nomination, inched along the crowded exhibition floor, gladhanding with royal composure from ►



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► inside an unstable, shuffling bubble of photographers, reporters and Secret Service agents, drawing fairgoers into her orbit, away from the half-ton prize pumpkins and the Agriculture Building's main attraction, a life-size cow sculpted from butter. Bernie Sanders, a left-leaning senator from Vermont, was also in attendance at the fair, and set to speak later in the day. He had been drawing huge crowds, biting into Mrs Clinton's commanding lead (see Lexington). Half an hour of handshakes, waves and solicitous attention might prove that she, too, had the popular touch.

As Mrs Clinton's phalanx crept out into the light of the warm morning, a dark helicopter with "TRUMP" emblazoned in white along the side passed overhead.

"Donald!" someone yelled, "Save us!"

On February 1st, the Iowa caucuses will mark the start of a season of state primary elections, running until June, which will decide the Republican and Democratic nominees for president. Victory in Iowa doesn't guarantee anything, but it is a testing ground and a bellwether. Barack Obama's 2008 victory in Iowa turned an anticipated cakewalk for Hillary Clinton into a heated primary battle and a bitter loss for the former New York senator. Ignoring Iowa is considered risky and a poor performance there can spell trouble. So every four years, presidential hopefuls barnstorm the state and converge in August at the sprawling fairgrounds in Des Moines where, over the course of 11 days, a million people, including more than a dozen would-be presidents, will visit.

Donald Trump alighted from his chopper in a field near the fairgrounds wearing a bright red baseball cap embroidered with his campaign slogan, "Make America Great Again". A group of children awaited free helicopter rides. "I love children", said the billionaire real-estate developer and Republican front-runner. "I love Iowa. Great place." Would he be willing to spend as much as a billion dollars running for president, a reporter wanted to know. "I make \$400m a year," Mr Trump replied. "So what difference does it make?"

"He's the outsider," said Greg Beckett of Des Moines when asked what he likes about Donald Trump. Mr Beckett and his wife, Sandy, waited for Mr Trump to enter the fairgrounds at a back gate between the sheep and swine barns. Over at the Hy-Vee Fun Forest stage, Dale Jones, "the one-handed comedy juggler", was gearing up to perform. "My two choices right now are Sanders and Trump," Mr Beckett said. "They're both outsiders". "They're not for sale", Mrs Beckett added.

Mr Trump soon arrived at the fairgrounds proper riding in a golf cart, a private security detail striding alongside. A swarm of cameramen and reporters hustled to keep pace. Dismounting right where the Becketts were expecting him, Mr

## Pet waste

# A crap-shoot

NEW YORK

**The city ponders a plan to make power from puppy poop**

DOGS, unlike people, are capable of pure love—at least according to Freud. As ever more Americans live alone, unconditional affection is in demand. Pet ownership has risen for decades. More than a third of homes have at least one dog, according to the American Veterinary Medical Association. But the popularity of four-legged friends has an icky cost: dogs squeeze out more than twice the waste of the average person, or around 275 pounds a year. With over 83m pooches roaming the country, that is a lot of poop. Around 60% of the stuff gets scooped and trucked to landfills, where it releases methane, a greenhouse gas. The rest delivers surprises to pedestrians and can contaminate waterways, as carnivorous diets create pathogen-rich waste.

The problem is particularly bad in cities, where green spaces are few and lonely souls seeking puppy love plentiful. New York boasts over 600,000 hounds—one for every 14 people—generating over 100,000 tons of turd a year. Some of it smudges unlucky stilettos, but most is dutifully tossed into rubbish bins and hauled to landfills, at a cost of over \$100 per ton. This is a missed opportunity, says Ron Gonan, the city's former recycling tsar. Now in the private sector,

he is trying to launch "Sparky Power", a programme to transform dog waste into clean energy in the city's dog parks.

The idea is to fit parks with small anaerobic digesters. Dog owners would place their mongrels' mounds into the machine, which then converts poo to gas for powering lamps and other park equipment. A year-long pilot would introduce digesters in three parks at a cost of around \$100m. The parks department is pondering the proposal. Similar schemes in other cities have proved short-lived. An underground Energy Transformation Using Reactive Digestion (E-TURD) device created by Arizona State University students for a dog park in Gilbert, Arizona, in 2012 ultimately failed.

"It's great to turn it into a biofuel, but first you gotta pick it up," says Tom Boyd, an entrepreneur in Tennessee. His company, Poo Prints, shames the owners of dogs who fail to clean up their messes by testing DNA in uncollected coils. There are enough offenders to secure a new customer every two hours, he says. Most are landlords of smart apartment complexes, but in September the company launches its first district-wide programme—in the London borough of Barking and Dagenham, naturally.

Trump set out on foot toward the centre of the fairgrounds, immediately drawing a huge and thronging crowd.

"Go get 'em Donald" and "We need you!" and "Make America great!" shouted passersby. More than once the crowd broke into chants of "Trump! Trump!"



**The people's Donald**

Trump!" Mr Trump, both annoyed and gratified to be mobbed by admirers, waved resolutely and yelled out gruff replies. "I'm your man" or "You know I will". Teenage girls caught behind the press scrum lamented the impossibility of breaking through to score a selfie with the Donald.

"He's not a politician," said a man wearing a vividly airbrushed "Trump 2016" t-shirt and riding a stand-up electric scooter out in front of the advancing horde surrounding Mr Trump. "He's a real human being like the rest of us."

With his private security, navy jacket, and elegant white loafers, Mr Trump made no effort to appear like the rest us. He submitted to handshakes and selfies, but did not pretend to like it. Nor did he feign interest in the sights of the fair beyond the spectacle of his own presence. After a perfunctory bite of a pork-chop on a stick, Mr Trump handed it glumly to an aid, as if annoyed to have taken part in such a senseless bit of traditional political theatre. Still, he was buoyed by the enthusiastic crowds. Back in the golf cart, zipping toward the exits, a gratified Mr Trump turned to a staffer seated behind him and said, "Couldn't have gone better than that." ■

## Companies and employment

## Who's the boss?

NEW YORK

An obscure dispute about rubbish could reshape agency working

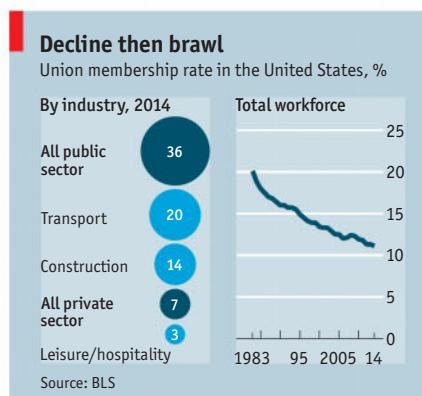
**C**OMPANY A hires company B to hire employees for a project. These employees work for company B, but do they also work for company A? If they are upset with the terms of their employment can they go after company A with pickets, boycotts and protests? Does A have any direct obligations to these employees?

The correct answer, in general, is that it depends. In a more specific sense it depends on the outcome of a fraught battle between a California branch of the Teamsters Union and Republic Services, one of America's two giant rubbish-collection companies. The union is attempting to organise employees of Leadpoint Business Services, which employs sorters and other workers at a recycling plant in the Golden State. The union, however, has gone a step further and petitioned to have Republic treated as an employer as well since, it argues, Leadpoint's supervisors act in a chain of authority controlled by Republic.

The National Labour Relations Board (NLRB), a body set up in the Depression to rule on disputes between workers and management that is liked by Democrats and loathed by Republicans, is expected to issue a ruling on the matter in the final days of August. Its rulings are binding but can be appealed against. At least three of the five members of the board, which is appointed by the president, are expected to take the union's side. That is unlikely to put an end to the matter, if only because the implications are so large.

The case has echoes of those wending their way through California's courts, which will produce rulings on whether Uber drivers are employees, self-employed or something in between. Uber is appealing against a judgment that found it liable for \$4,152 of a driver's expenses—a small sum for a company with a valuation close to \$50 billion but one with a potentially catastrophic effect on the company's business model. Uber is not the only company facing such a case: a lawsuit in Virginia brought by ten former employees at a McDonald's franchise restaurant, who say they were sacked on racial grounds, will test whether or not McDonald's itself was their employer.

If the decision goes against Republic it would affect contracting, outsourcing and franchising, which is to say a vast segment of America's economy. Republic would then probably appeal to a federal court, creating something else to fight over during



elections to the White House and Congress, and fundamental questions for companies both large and small about their structure, risks and opportunities.

Given the stakes, one of the surprising aspects of the case is why it has received so little attention. This is partly because the defendants are barely known. Leadpoint is private and the name on the case is Brown-Ferris, a company that was absorbed into Republic years ago.

## Trash talk

Interested parties were invited to submit "amicus" briefs (extensive legal arguments) to the NLRB and 17 were quickly received. The current standard for determin-

ing "joint employment" states that each company must be involved in hiring, firing, discipline, supervision and direction. Responsibility must be "direct and immediate". Under this standard, Republic was found not to be a joint employer by a regional office of the NLRB in 2013. That decision went to an appeal court.

This dispute turns on whether that is the right definition of employment. Among the most striking briefs was a submission by lawyers for the NLRB's own general counsel. It begins by flatly stating the current rule should be abandoned. In its place, it "urges the Board to adopt a new standard that takes account of the totality of the circumstances, including how the putative joint employers structured their commercial dealing with each other." The way the standards currently treat subcontracting and the operation of business franchises, it says, undermines the ability of workers to bargain for better wages, hours and working conditions.

If this change were to be adopted, businesses could find themselves responsible for people who provide them with services but whom they do not manage, such as janitors, argues Aloysius Hogan, of the Competitive Enterprise Institute, a libertarian think-tank. They would be exposed to strikes and other labour strife prompted by the actions of companies other than their own. They would lose the ability to choose from competing service providers. Mr Hogan thinks large businesses would then be under pressure to integrate vertically, with all the inefficiency that may entail for their own operations, and lost opportunities for others. Whatever happens, the very different ideas on view in the Republic case about who is, and is not, an employee are not easily reconciled. ■



# Lexington | The Sandernista revolution

Vast crowds turning out for Bernie Sanders are not all they seem



SOMETIMES a single word can capture a moment in politics. In 2008 it was Hope that carried Barack Obama to the White House. A bleaker noun seems to hold voters in its power just now: Fight. The country's combative mood helps to explain the huge crowds, some exceeding 28,000 people, that have been turning out to cheer Senator Bernie Sanders of Vermont, a pugnacious underdog in the contest for the next Democratic presidential nomination. Mr Sanders has risen in the polls all summer, closing fast on the front-runner, Hillary Clinton and even overtaking her in one August survey of New Hampshire voters.

It is not sunny optimism that explains this surge. A typical Sanders speech resembles a 90-minute sermon on modern America's ills, delivered in the growling tones of his native Brooklyn. Hunched over a lectern, snowy hair quiver with emotion, the 73-year-old's usual targets include the "greed, recklessness and dishonesty" of Wall Street bankers, the malign influence of billionaire political donors, and the "abysmally low" wages that blight the lives of working families. Change will be hard, Mr Sanders warns audiences, and will require a "political revolution". He is not joking (the senator rarely jokes). His proposals include moving towards a Canadian-style health system with publicly funded care for all, free tuition at public universities and a trillion-dollar infrastructure plan intended to create 13m jobs.

Mr Sanders's supporters have been disappointed before. As one told the senator in Boone, Iowa on August 15th, in a sharp rebuke of Mr Obama: "I voted eight years ago for hope and change and I am still waiting." By way of reassurance, Mr Sanders tells left-wing Democrats that he and they share a common loathing of the establishment, and a common willingness to engage it in combat. Though Mr Sanders has served in Washington since 1991, he sees himself as an outsider: a self-described democratic socialist from an ornery mountain state, who sits in Congress as an independent. His only executive experience was as mayor of Burlington in the 1980s, a city whose modest size did not preclude him from engaging in foreign policy—highlights included visits to the Soviet Union and a mayoral apology to Nicaragua for the policies of Ronald Reagan. Now Mr Sanders detects a chance in 2016 to lead a national uprising, drawing strength from the millions of working Americans who loathe mainstream politicians,

news outlets and the economic status quo. Paraphrasing Franklin D. Roosevelt, he told the rally in Boone: "If the Koch brothers and the billionaire class hate my guts, I welcome their hatred."

Sanders fans know that others struggle to see their hero in the White House, given the radical nature of his policies. But they point to new forces surging through American politics, and to the rise of non-traditional candidates, notably the property magnate Donald Trump, who leads the Republican presidential field.

Cornelia Flora, a retired sociology professor and one of the first Sanders activists in Iowa, senses a discontent that transcends left-right labels. She says the senator is "kind of like Trump, but he makes sense." She calls Trump fans "silver-bullet thinkers", looking for magical solutions like border walls to fix an American job crisis. In contrast, the professor suggests, organising for Mr Sanders will be a more "discursive" process, by which unhappy voters will be led to contemplate why the country is in its current state.

At Sanders headquarters, tucked away in a dowdy shopping centre on the edge of Des Moines, his Iowa campaign co-ordinator, Pete D'Alessandro, hails his boss as a "collective" populist looking to unite the oppressed, in contrast with those (the name Trump hovers, unspoken) who tell the poor to blame rival groups for their plight. Bernie-fans dream of awakening the more than one third of voting-age Americans who seldom cast ballots (even the presidential election of 2008, which set many records, saw just 64% turnout). Mr Sanders agrees, predicting that if he wins the Democratic nomination, he will inspire young and working Americans in a way that establishment politicians cannot.

## Sanders Claus

But something old and problematic lurks beneath this vision of a new populism of the left. A central argument of the senator and his fans is that the poor have been voting against their own economic interests. They blame wicked billionaires and the corporate media for lulling the masses into this confusion. As the senator told supporters in Boone, they can help him by making working-class Republicans see that it is not in their interests to give tax breaks to the super-rich. "Our job is to educate and organise and when we do that, profound change will come," Mr Sanders said. That mission to explain inspires Sandernistas, who are disproportionately white, well-educated and politically engaged.

Alas, there is nothing new about affluent lefties nagging angry voters to see that they are cross about the wrong things. And there is nothing new about these efforts causing offence. This is already happening. Activists from the Black Lives Matter movement have twice interrupted speeches by Mr Sanders to complain that he talks more about economic injustice than about racism, which they call the country's most urgent crisis. Some Bernie-fans chided black activists to see that Mr Sanders is their ally: in return they found themselves dubbed "white supremacist liberals".

Deep down, most people in Bernie-world are more pragmatic than might be supposed. At the rally in Boone and at a gathering for Democratic presidential candidates in Clear Lake, most Sanders supporters conceded, after much prodding, that their hero might not win the presidential nomination. As a result, they are glad that Mr Sanders has not launched explicit attacks on Mrs Clinton and her own armies of wealthy donors. She might not be their favoured champion—indeed a general lack of grassroots excitement towards Mrs Clinton is another reason why Sanders rallies are packed. But if she is their candidate in 2016, they want her fighting fit. ■



## Sex and society in Latin America

## Wonder women and macho men

BUENOS AIRES

**Latin American women are making great strides. The culture is not keeping up**

“CRISTINA’S pleasure” blared the cover of a 2012 edition of *Noticias*, a tabloid news magazine in Argentina. A caricature of the country’s president, Cristina Fernández de Kirchner, seemed to show her in mid-orgasm, her head thrown back, her mouth open. “Every day she seems more confident, sensual and even shameless,” the story went on. For further enlightenment, readers were invited to watch an animated video online of the president masturbating.

Good taste is not how tabloids sell copies in any country, but it is hard to imagine a British red top describing a female politician quite so crudely. The treatment of Ms Fernández in *Noticias* points to a Latin American paradox. Women have made great progress towards equality with men, especially in schools, workplaces and politics. But social attitudes have changed more slowly. Women’s ambitions are often belittled; hostility towards them is common. Raw statistics tell a story of female advancement; machista culture has yet to catch up.

In the past quarter-century, the proportion of women in the workforce has risen more in Latin America than in any other region (see chart 1). True, they typically hold jobs that require little skill and pay low salaries: domestic work is the largest source of female employment. But women now spend more years in school than men, which suggests that their prospects will improve. A handful have climbed to the top of the corporate ladder. Women lead Rede Energia, one of Brazil’s biggest electricity companies, and B2W, its biggest online retailer. Isela Costantini runs General Motors’ operations in Argentina, Uruguay and Paraguay.

Women are still scarce in Latin American boardrooms (see chart 2). Not in politics, however. A quarter of legislators in the region are women, compared with one in seven in 2003. Several countries, including

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Argentina, Brazil and Mexico, have adopted quotas for women on parties’ lists of candidates. In the past decade, voters have elected women to the presidencies of Brazil, Chile and Costa Rica as well as Argentina, where Ms Fernández succeeded her husband, Néstor Kirchner, who later died.

Yet Latin Americans are less likely than people in any other region to say that women are treated with dignity. Only a third say women are respected, around half the share who think so in the Middle East and Africa, according to a Gallup poll. In Peru and Colombia (where corporate bosses are more likely to be female than in any other Latin American country), just a fifth of people say women are appreciated.

The higher expectations of Latin American women may explain part of the difference with other regions. They are more educated than African and Middle Eastern women, and so are probably angrier about inequality. But it may also be that their success is provoking a backlash. Men have a “misconception that the pie is only so big”, says Louise Goeser, chief executive of Siemens Mesoamérica, a big engineering firm. They think that if they “give pieces away, there’ll be less for them.”

In 2009 48% of Latin Americans thought that women who earn higher sala-



## One in 50

Women CEOs of publicly listed companies

2014\*, %



ries than men "would have problems", according to Latinobarómetro, a polling group. That was up from 36% five years before. The share of people saying "men make better political leaders" and "a woman's place is in the home" also rose slightly. The survey was conducted while Ms Fernández and Michelle Bachelet, Chile's president, were serving their first terms. Electing women to high office is apparently no cure for sexism.

### Mucho machismo

It can be found anywhere. In Latin America it feeds off a culture of machismo, a chest-thumping sort of masculinity that can either smother women in domesticity

or degrade them. Successful women brim with tales of the insensitivity and cluelessness they encounter. Ms Góeser says that for years invitations to conferences came addressed to "Señor Góeser". The boss of a Brazilian multinational recalls that earlier in her career higher-ups would ignore her at meetings until conversation turned to the cosmetics industry. Alil Álvarez Alcalá, a Mexican lawyer, worked at a firm for ten years before she plucked up the nerve to ask to be made a partner. Her boss looked befuddled and asked, "Is your husband's job not going well?" She quit soon after and formed her own firm.

Working women bear the "double burden" of housework: on average, they do

two to five times as much of it as their lazier mates. Even the most assertive women find themselves going along with convention. Hinde Pomeraniec, an Argentine journalist who co-founded Ni Una Menos (Not One Less Girl), an anti-violence movement, catches herself asking her daughter to help clear the table and clean the house before asking her sons.

Institutions reinforce such habits. Boys play football in after-school programmes; most girls go home. That matters. Girls who play sports get better grades and hold better jobs as adults than those who do not, according to a study by Barbara Kotschwar of the Peterson Institute for International Economics.

Machismo can terrify as well as discourage. "It's hot here, but wearing a skirt or dress is asking for trouble," says Nelly Gutierrez, a middle-school teacher in El Salvador. Young women who venture out in cities on foot can expect a chorus of lip-smacking and shouts of "ay—how delicious" from motorists and construction workers. The problem is so widespread that legislatures in Argentina, Chile, Panama and Peru have passed or at least debated laws to ban catcalling.

The unriliest men kill and injure women as well as each other. Three-quarters of countries with "very high" murder rates for women are in Latin America and the Caribbean, according to the Small Arms Survey carried out by the Graduate Institute of International and Development Studies in Geneva. El Salvador has the world's highest "femicide" rate, of 14 per 100,000 women. In Bolivia 52% of married or formerly married women say they have been physically or sexually abused by their partners. In Colombia and Peru that rate was a hardly comforting 39%.

### Few feminists

The flip side of machismo is a traditional notion of femininity, which many Latin women embrace. At 15 girls are swathed in silk for lavish quinceañera parties. Of the past ten women who have been crowned Miss Universe, six have come from Latin America (including Puerto Rico). Even politicians play up their girlishness. Ms Fernández talks often of her love of clothes. "I was born made up," she once said.

Many women think femininity is at odds with a belief in women's equality, though it need not be. Feminism is thus a marginal creed in Latin America. Even female leaders less coquettish than Ms Fernández are reluctant to declare themselves to be feminists, for fear of being branded man-haters. That may be one reason why they have done less for women than many feminists had hoped.

Ms Bachelet, who was head of UN Women after her first term as president, has tried harder than the others. Her government recently created a women's min-

### The costs of sexism

## Girl power

SÃO PAULO

### Gender equality is good for economic growth

**S**EXISM is not just wrong. It is also expensive. Latin America has made progress in bringing women into the workforce (see previous article). But their participation rate still lags far behind that of men. If the gap were closed, the region's GDP per person would be 16% higher, estimate David Cuberes of Clark University in Massachusetts and Marc Teignier of the University of Barcelona.

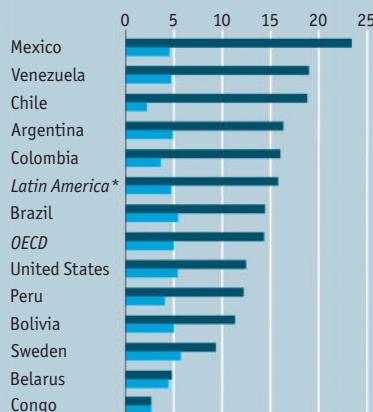
In a new paper these two economists also looked at the economic effects of gaps in the rates at which men and women run businesses. Latin American women are relatively enterprising. The effect of the difference between male and female entrepreneurship is smaller in the region than it is, for example, in the United States. Still, if the difference were eliminated Latin America would be 4.7% richer per person, they claim (see chart).

Labour-force participation rates vary widely. In Mexico, the second-largest economy in Latin America, and in Chile, one of the most advanced, it is much lower for women than for men. Although both belong to the OECD, a club of rich countries, they are sacrificing much more output than Bolivia, which is poorer.

Equality isn't everything. The smallest gaps in participation rates are in some poor African countries, where men and women are almost equally likely to work outside the home (growing food laboriously by hand, typically). Belarus looks good, probably because it used to be part of a communist state that encouraged female employment. The United States' relatively wide gap may reflect women's preferences rather than sexual discrimination. A better model for Latin America might be Scandinavia, where both sexes have roughly equal participation rates.

### What a waste

Lost GDP per person due to lower female than male rates of:  
2011 or latest, %  
■ workforce participation  
■ self-employment and running firms



Messrs Cuberes and Teignier may underestimate the economic benefit to Latin America of higher female employment. They do not take into account the fact that Latin women have more schooling than their brothers, and would presumably be more productive if they were employed.

Violence against women also has high costs; in Brazil it reduces GDP per person by 1.2%, according to a study from 2007. Management consultants tout studies showing that companies with no women on their boards have lower profits than female-friendly ones, possibly because they are less meritocratic. Justice is the best reason to give equal opportunities to women and men. It makes economic sense, too.



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try and introduced a law that would de-criminalise some abortions during the first 12 weeks of pregnancy. (Abortion is illegal in most cases in 18 out of 21 Latin countries.)

By contrast Dilma Rousseff, Brazil's president, has introduced fewer pro-women laws than her (male) predecessor. Ms Fernández has been a bust, say feminists. Male politicians seem to have an easier time espousing policies they approve of. Uruguay passed one of the region's most liberal abortion laws in 2012, under the administration of José Mujica.

There are signs, though, that attitudes may at last be starting to change. In Ecu-

dor, young men who call themselves the Cascos Rosa (Pink Helmets) lead workshops in schools to encourage respect for women and girls. In Argentina, Varones Antipatriarciales (Anti-patriarchal Men) rally against violence (and for legal abortion). In June this year, hundreds of thousands of people in Argentina, Chile and Uruguay joined a day of protest against violence against women organised by Ms Pomeraniec and other Argentine journalists.

Governments are starting to do a better job of fighting violence and promoting women's equality at work. At least 13 countries have established specialised police

stations to encourage women to report assaults. This year Brazil enacted a law that stiffens punishments for men who murder their wives or girlfriends. Chile extended paid maternity leave in 2011 (under a male president) and Colombia's Congress is considering a similar measure.

Businesses are beginning to improve conditions for working women. In a survey conducted by McKinsey, a consultancy, 37% of firms said gender diversity was a top priority in 2013, up from 21% in 2010. All this is encouraging. But it may be a while before Latin America's culture catches up with the achievements of its women. ■

## Bello | The migrant nation

### Urbanisation in Peru has brought citizenship but also a host of problems

IT WAS a slim volume, just 108 pages, and its title was hardly one to quicken pulses. Nevertheless *Desborde Popular y Crisis del Estado* ("Popular Overspill and Crisis of the State") quickly became a best-seller in Peru after its publication in 1984. That was because the author, José Matos Mar, an anthropologist who died this month aged 93, had put his finger on a far-reaching social revolution which continues to reshape his country and has echoes across Latin America.

Mr Matos's argument was that migration from the Andes to Lima and the other cities of Peru's Pacific coast was no mere movement of population. Rather it amounted to an unstoppable tide of social change that smashed down or simply bypassed Peru's oligarchic political and economic structures. The migrants settled—there would be 8m of them between 1940 and 2010—in largely self-built shantytowns (though by now many have brick houses and paved streets). They forged a new culture, mestizo (mixed) but with Amerindian roots, and had their "own sense of law and morality". They created jobs for themselves in a growing "informal" (ie, unregistered) economy.

Mr Matos's enthusiasm for the migrants and their achievements stemmed in part from the fact that he was one. He was born in Coracora, a peasant community in the Ayacucho region of Peru's central Andes. His mother was a Quechua-speaking domestic servant who went barefoot; he was adopted by her employer, a judge, who married his mother and moved the family to Lima.

Peru was in a bad way in the 1980s, suffering inflation, economic slump and Maoist terrorism. But the crisis of the state to which Mr Matos referred went deeper. He argued that the Peruvian state, be it that of the Incas, the Spanish viceroys or

the Europeanised elite of the independent republic, had never created an authentic nation. The campesinos (peasant farmers of Amerindian descent) had been marginalised—until, that was, they parked themselves at the urban gates of power.

A quarter of a century after *Desborde Popular* Mr Matos published an even more optimistic sequel. Urbanisation, globalisation, two decades of rapid economic growth, better communications and political decentralisation had at last forged a nation, he announced. The "Other Peru", the unofficial one of the migrants, had led to economic modernisation, democracy and the rise of a more diverse middle class.

In many ways Mr Matos was right. Hernando de Soto, a Peruvian liberal economist, gained renown for his championing of the informal economy as a capitalist insurgency, but Mr Matos got there first. As he said, the move from countryside to city turned the descendants of often illiterate campesinos into citizens who asserted their political rights. A country with a long history of military rule has had elected governments for the past 35 years. The children of the migrants are more educated

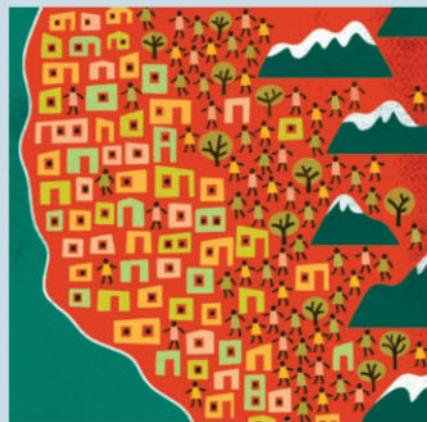
and have better health than their parents. There is less racial discrimination.

Mr Matos argued that Peru was unique in the transformative character of its urbanisation. That was because its state was weak, unlike in Argentina, Brazil or Mexico, where the state dominated society. But it is also true that across the region, urbanisation has helped to bring mass democracies into being for the first time.

Yet the "popular overspill" also has its downsides. The lack of urban planning and professional architecture has turned Peru's cities into ugly, chaotic sprawls. The country's coast is a desert, yet Greater Lima now hugs the Pacific for almost 200 kilometres (125 miles); bringing water to new settlements is a growing problem.

The informal economy is creative and dynamic but it has its limits. Too many Peruvians still work in subsistence businesses. They are not really aspiring capitalists; they yearn for formal jobs with steady wages. The emerging nation may have destroyed the old political order but it has failed to create new political parties or other institutions. The law continues to bear little relation to social realities; only the biggest businesses can afford to comply with it. Because they owe their economic progress to their own efforts rather than to the state, Peruvians stand out among Latin Americans for their especially corrosive distrust of politicians.

Mr Matos's optimistic conclusions are now about to be tested. With the end of the commodity boom, Peru's economy has slowed. Politicians are failing to push through the reforms—of labour markets, of politics and of the state itself—that the country needs. Peru is certainly a much better place than it was in the 1980s, and the migrants deserve much of the credit. But turning the emergent nation into a developed country is another matter.





## Politics in Myanmar

# Pistols and purges

NAYPYIDAW

**A former general purges the ruling party; Aung San Suu Kyi jockeys for position**

MANY foreigners believe that Myanmar is moving towards full-blown democracy, with a general election scheduled for November 8th. To the armed forces, democracy is fine so long as they can still call most of the shots. They will find this much harder if the army-backed party in parliament, the Union Solidarity and Development Party (USDP), loses its majority, as seems possible. Against this backdrop of soldiers keen to cling to power, President Thein Sein, a former general, has started to purge the ranks of the ruling party.

The iron fist came down on another former general, Shwe Mann, the rich, ambitious and well-connected speaker of the parliament's lower house. He associated himself with reform, allowing parliamentary votes (which did not pass) on constitutional amendments that would have limited the influence of the army (which currently has a quarter of parliamentary seats reserved for it, giving it a veto on constitutional change). Mr Shwe Mann had also forged relations with Aung San Suu Kyi, head of the opposition National League for Democracy (NLD) and Myanmar's most popular politician.

At some point he crossed a line, for on August 13th he was deposed as party chief. At midnight armed police surrounded the USDP headquarters in Naypyidaw, the capital. Mr Shwe Mann and his faction were replaced by a bunch of generals hurriedly

retired from active service. A government mouthpiece, the *Global New Light of Myanmar*, blandly called this all "part of a normal course of business for a registered political party". Mr Shwe Mann remains as speaker, for now.

As for Ms Suu Kyi, her party is facing ructions of its own. Its central committee, which she dominates, recently rejected many election candidates put forward by local party branches, as well as a score of "88 Generation" activists—veterans of a student uprising in 1988, most of whom spent years in prison, partly for their loyalty to Ms Suu Kyi. Some party members took to the streets in protest at the candidate list; Ms Suu Kyi expelled ten of them.

### What does the Lady want?

Ms Suu Kyi says supporters should just vote for the party, ie, herself, rather than individual candidates. Some say she fears rivals. Certainly, she has failed to groom a younger generation of leaders—Ms Suu Kyi, who is 70, has no clear successor. Her forceful personality, combined with the people's contempt for the generals, will probably be enough to make the NLD emerge as the largest party. But she has said little about policy or governance.

Even if the NLD wins more seats than any other party, Myanmar's electoral system will probably keep it from exercising power. Of 664 seats in both houses of parliament, 498 are up for grabs with the rest

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reserved for the army. The NLD would, on the most optimistic scenario, need to win 333 of the contested seats to gain a ruling majority; by contrast, the USDP would need 167 seats, given the army's quota. In fact, winning a majority will be a tall order for either party. Although the USDP and the army are deeply unpopular, anti-government votes are likely to be split among the NLD and dozens of smaller parties, particularly in constituencies dominated by ethnic minorities. Some of these think the NLD looks down on them.

Once seated, parliament will choose a president from among three candidates nominated by the upper house, the lower house and the army (the two losers become vice-presidents). The new president appoints a cabinet. Unless the NLD holds a commanding majority in both houses, Myanmar can look forward to months of horse-trading over the presidency. And even if the NLD does get its majority, the constitution bars people with foreign spouses or children from being president. The measure was designed specifically to exclude Ms Suu Kyi. Some have speculated that she was preparing to back Mr Shwe Mann for president; he would have then repealed the constitutional bar and lent Ms Suu Kyi his support the next time round. If that was so, Mr Thein Sein and the generals have blocked her path.

Mr Thein Sein's move presumably stems in part from a struggle between long-standing rivals. It would be cause for greater worry if it signalled the generals' intention to retrench. They and the USDP may be trying to ensure that the election produces a result that they can live with, while hoping that international donors in effect connive in their "disciplined democracy" by continuing to pour aid money into the country. If so, the generals may be calculating correctly. ■

## Unease in Thailand

# Game of thrones

BANGKOK

### A bomb in the capital shakes the junta's hoped-for air of calm

**R**ESIDENTS of Bangkok, which has seen more than its share of political unrest, sometimes seem hard to shock. But the bomb which exploded at the Erawan shrine in Thailand's capital on August 17th, killing more than 20 people and injuring about 100, has unnerved and bewildered in equal measure. It was timed to explode at a packed intersection during the evening rush hour. Grainy video footage just before the blast shows a young man slipping off a rucksack near the site. Some blame Muslim separatists in Thailand's deep south. Others say it is "red-shirt" supporters of the populist government driven out in a coup last year.

Nothing is clear, except for one thing: the bomb has shattered the illusion of safety which the junta that seized power in May last year wished to foster. The generals justified their coup by claiming that they alone could protect Thais from the violence that had sporadically erupted during a decade of squabbles between the country's democratically elected governments and Bangkok's conservative elites. By targeting tourists, the bombers have also undermined the generals' claims to be boosting Thailand's flagging economy. With shrinking exports, dwindling foreign investment and high household debt, the economy badly needs visitors to come to Thailand and spend.

Seeking legitimacy—and perhaps grasping for ways to paper over rifts in Thai society, which its own coup has widened—the junta has spent much of its time in power peppling up enthusiasm for a monarchy that is embodied in the 87-year-old king, Bhumibol Adulyadej. Just two days after the blast General Prayuth Chan-Ocha, the prime minister and coup leader, attended the opening in Hua Hin of a new park containing the colossal statues of seven long-dead Thai kings, built by the army at a cost of about \$20m. The bronze monarchs are not entirely out of keeping with a sprinkling of chintzy attractions that already surround Hua Hin, a resort with royal connections. But they are an oddly Soviet spectacle.

More grimly, in the past 15 months the junta has presided over a big increase in the number of people charged with insulting the sovereign, a grave offence in Thailand. Punishments have also grown more harsh. Thai academics and foreign residents are growing increasingly concerned about what they say. Thailand's usually



Thailand: the junta's giant theme park

rambunctious users of social media are also growing more cowed. On August 7th a 29-year-old mother of two was sentenced to 28 years in jail for posting supposedly anti-royal material on Facebook; the same day a travel agent was handed 30 years for the same offence.

The draconian sentences even earned a rebuke from the UN. But they were doubtless a useful warning to opponents, including many students, who had been airing grievances more openly as the junta appeared to be settling in for the long haul. Having first talked of holding fresh elections as early as this year, it now hints that no poll is likely until at least 2017. A draft new constitution, to be considered next month, will anyway see future civilian governments subjugated to a suite of appointed councils.

Few observers reckon the junta will consider ceding any control until well after the death of King Bhumibol, who has long been ailing. Indeed the desire to control

what may prove to be a turbulent succession may have been the primary motivation for last year's coup. The palace recently admitted that the sovereign, who has not been seen in public for months, is getting treatment for a build-up of water on the brain. The crown prince, Maha Vajiralongkorn, is unpopular; worse for the elites, he may still be friendly with Thaksin Shinawatra, a populist former prime minister whose parties the army has twice kicked out of power. For years rumours have persisted that after the king's death, palace insiders might aim to elevate the prince's less divisive sister, Sirindhorn, to the throne instead.

Either scenario would risk inflaming at least one side of Thailand's deep social schism. At stake also are lines of patronage which for generations have funnelled wealth and influence from the monarchy to the army and elsewhere. The junta's preference is clear: the least risky path is to bolster the public image of the crown prince in preparation for his accession. On August 16th he led thousands of cyclists on a wholesome charity ride through the capital, held in honour of his mother, the queen; in the run-up his image appeared on billboards across the country. The latest rumour is that, once king, he may be persuaded to abdicate in favour of his eldest daughter, a well-liked diplomat with more of the common touch.

But any future sovereign will find it difficult to follow King Bhumibol, now the world's longest-reigning monarch, whom a great many Thais have come to worship with religious devotion. To ensure loyalty to his successor, royal propagandists will need to restore respect for the monarchy as a long-running and ever-renewing institution rather than as the cult of one man. Next month the crown prince is expected to attend a grand ceremony at the base of his ancestors' new statues in Hua Hin. Perhaps it is not such a folly, after all. ■

### Sri Lanka's parliamentary election

# Mahinda misfires

COLOMBO

### The new government has every chance to improve Sri Lankan lives

**A**T THE height of Sri Lanka's parliamentary campaign, footage taken with a mobile phone went viral. It showed Mahinda Rajapaksa, an authoritarian former president running to become an MP, lunging at a member of the public, his fists clenched, before aides pulled him away. The short film suggested that Mr Rajapaksa already knew things were going badly for his group, the United People's Freedom Al-

liance (UPFA).

Sure enough, his hopes of forming a government and becoming prime minister were dashed in the election on August 17th. Admittedly, he won a place for himself in parliament. But his alliance got just 95 of the 225 seats in the legislature. It fell well short of the 144 he mustered in 2010, a year after he presided as president over a resounding military defeat of the Tamil Tiger ►

► rebels, ending the country's long and bloody civil war.

It is Mr Rajapaksa's second big setback. To everyone's surprise in January he lost a snap presidential election to a former colleague, Maithripala Sirisena. Now Mr Rajapaksa and several former members of his regime face prosecution for alleged corruption related to his nine-year rule.

Sri Lanka emerges from this latest election with a hung Parliament and a fiendishly complex array of allegiances (weirdly, Mr Sirisena is technically head of the UPFA). But outlines of a new government are clear. A coalition called the United National Front for Good Governance won 106 seats. It also has the backing of smaller parties that support its agenda of electoral, right-to-information and other reforms. Ranil Wickremesinghe, who leads the largest party in Parliament, the United National Party (UNP), will be sworn in again as prime minister. He has done the job since January, in a marriage of convenience with the new president, Mr Sirisena.

The marriage is supposed to prevail for the next five years, though the president and prime minister are from rival parties: the UNP is centre-right whereas Mr Sirisena's Sri Lanka Freedom Party describes itself as socialist. The new cabinet will include members of both parties and various smaller ones. The prime minister will be in charge of economic policy with Mr Sirisena probably taking on the defence and environment portfolios. Given a record of co-operation in the seven months before the election, the two men should make a fist of things. They have a common foe in Mr Rajapaksa, who says he will use his time in Parliament to "safeguard the nation and the democratic system".

Mr Rajapaksa and his loyalists might try to disrupt government business, possibly making it difficult for the coalition to deliver on promised constitutional changes, which need a two-thirds majority in Parliament. Mr Wickremesinghe talks about getting a consensus among parties



Mahinda's setback: whisper it quietly

### India's lyrical politicians

## Honeybees and souls

DELHI

### Legislators are the unacknowledged poets of the world

**A** SCANDALOUS film appeared online this spring showing Salman Khurshid, a former Indian foreign minister, dancing with the wife of Germany's ambassador to Delhi. The couple shared a picnic, flirted on a park bench and stroked each other's hair beside a moonlit pool. Rather than outrage, however, the video won roars of approval. Set to a romantic song, it was a clever pastiche of a Bollywood hit, *Kal Ho Naa Ho* (There May Or May Not Be A Tomorrow). The German embassy produced it to promote cultural ties and prove that Germans have a sense of humour. It has since been watched over 1m times.

Other politicians are as keen to show off their creative talents. Mamata Banerjee, chief minister of West Bengal, churns out acrylic paintings of flowers, horses and abstract images, which have fetched as much as 300,000 rupees (\$4,500) apiece. She has also published 53 books.

This month saw the release of a volume of Hindi poetry and prose, "Method of Witnessing", by Narendra Modi, the prime minister. It was not his first. Last year Mr Modi wrote that: "I don't consider my poetry to be an extraordinary literary creation / These are streams of thoughts, like a spring of fresh water." Fresh or not, some of his new poems sound rather macho ("Proud, as a Hindu"); others are sentimental ("At times various, I seem like a honeybee").

and bringing an end to "divisive politics". He also wants religious and other groups to contribute ideas and support.

Much needs to change. Public institutions became politicised under Mr Rajapaksa and will have to return to a neutral professionalism. The extensive network of patronage from which the Rajapaksa family and its friends benefited will have to be dismantled. The role of the army, which dominates civil life in minority Tamil areas in the north and east, will need to be adjusted. Foreign policy that once heavily favoured China has already begun to shift towards closer ties with India and the West.

The new government has a chance to resolve decades of ethnic strife between the Sinhalese majority and the Tamils. Both Mr Rajapaksa and a group of former Tamil Tigers running for seats had tried to inflame tensions. But Mangala Samaraweera, who will probably stay on as foreign minister, talks of a defeat for extremists on "both sides of the divide"—the former rebels did not win a single seat.



Kapil Sibal, another poetical politician, accepts that voters care little for verse. "Only in the last election did I begin to recite poetry during the campaign—and I lost," he says. So why do politicians bother? Varun Gandhi, an MP and grandson of Indira Gandhi, who recently published his second book of poems, says he writes "when I am feeling most tender, most raw" as part of a "journey inwards". Shekhar Gupta, a columnist, says politicians versify to "buy intellectual status". Mr Modi says he writes simply to communicate: "The outpouring spring of my inner thoughts will flow afar, / And reach every soul."

A plan to devolve more power to the provinces is likely to be discussed. The moderate Tamil National Alliance, which won 16 seats, says it will co-operate. An early test involves setting up a promised independent mechanism for investigating allegations of war crimes committed late in the civil war, which ended in 2009. Next month the UN Human Rights Council will publish the results of its own inquiry, which are expected to underscore abuses on both sides during that period. The ruling party says, not very clearly, that it will "provide a response within the country's legal framework".

As for the economy, voters want lower inflation and cheaper food. The new government now has a mandate for more market reforms and less state meddling. Opposition over economic policy is unlikely. Indeed it remains uncertain just who, officially, will lead the opposition. For now the only real contender is a Marxist party, with just six seats. Unless Mr Rajapaksa somehow makes a lunge for the role. ■

# Banyan | Asia's new family values

**Europe shows how Asia's demographic crisis might correct itself**



**M**ENTION “demographic crisis”, and most people think of countries where women each have six children and struggle to feed them. Much of Asia has the opposite problem: low fertility and an upside-down family structure (four grandparents, two parents, one child). Three-quarters of all the people in countries with exceptionally low fertility live in East and South-East Asia. Prosperous Japan, South Korea and Taiwan have fertility rates of 1.4 or below. The fertility rate is the number of children a woman can expect to have during her lifetime. A rate of 2.1 implies stability: the population is replacing itself. Demographers refer to rates of 1.4 or less as “ultra low”.

The difference between 2.1 and 1.4 may not sound like much. But consider what it has meant for Japan. In the early 1970s the country had a fertility rate of 2.1, with 2m children born every year. Four decades later the number of births has halved, with the fertility rate down to 1.4. Or take an even more dramatic example, China. In 1995 some 245m Chinese were in their 20s. By 2025, on current trends, there will be only 159m, a decline within a single generation of 86m. This will reduce by more than a third the segment of the population that is best educated, most technologically astute and most open to new ideas.

Demographic trends like this are often thought to be irreversible, implying that East Asia will be stuck in an endless cycle of decline. But history suggests that is far from certain. At the beginning of the 20th century much of Europe also had very low fertility rates. These then rose for decades, peaking in the baby-boom years of the 1950s and 1960s. Europe’s historical experience, argue two American demographers, Thomas Anderson of the University of Pennsylvania and Hans-Peter Kohler of the University of California, Berkeley, helps explain East Asia’s problems now—and suggests what could be done about them.

When the first wave of industrialisation swept through northern and western Europe, women started to go to school and then to look for jobs. In France in 1900 almost half of adult women were employed. And not just as domestic servants or milkmaids on family farms, as before: they also started to work in industry. Their new jobs were typically low-status clerical occupations which did not improve their bargaining power much, or change the basic social norm which held that husbands should earn

most of the money and wives look after the children. At the time, an American sociologist, William Ogburn, coined the term “cultural lag” to describe the mismatch between the material conditions of life, which change quickly, and behaviour and attitudes, which are more resistant to change.

East Asia is experiencing a cultural lag even more extreme than the one that affected Europe in 1900. Female literacy is nearly universal, and in Japan and South Korea female college graduates outnumber male ones. Female labour-force participation is also high. But women are still treated in the old ways. Until recently Japanese women were expected to give up work on having children. Working or not, Japanese and South Korean women do at least three more hours of housework a day than their men.

Such cultural lags are associated with ultra-low fertility because if you force women to choose between family and career, then many will choose their career. In Tokyo, Bangkok and other Asian cities, rates of childlessness are sky-high. Women are refusing to marry. And if they do marry, they are getting hitched later in life, in practice reducing their likelihood of ever bearing children (births out of wedlock remain taboo and rare in Asia).

In Europe the cultural lag closed eventually. Social norms began to shift in the 1960s and have changed more rapidly in the past 20 years. Child care became more widely available. Men started to help with the laundry and the school run. Women therefore found it easier to have both a career and rugrats. In places where this process has gone furthest—France, Scandinavia, Britain—fertility rates are almost back up to the replacement level. In those where traditional male breadwinner/female homemaker roles have lingered, such as Germany and Italy, fertility rates remain low. Mr Anderson and Mr Kohler call the recovery in fertility the “gender equity dividend”.

## Culture v the law of supply and demand

It is common to say that Asia will not reap such a dividend because traditional norms of family and marriage are more deeply entrenched there than in Europe. It is true that industrialisation took place much faster in Asia than in the old continent, so attitudes have more catching up to do.

Yet Asia is changing faster than traditionalists think and may change faster still. The age of first marriage in Japan and Korea has risen from 24-25 in 1970 to almost 30 now—an exceptionally big shift. High rates of childlessness and delayed marriage show that Asian women are dissatisfied with the choices on offer. No less important, there is a mechanism which may increase their scope to secure more palatable outcomes.

Everywhere, men marry women younger than themselves, and Asia is no exception. But in societies such as Asian ones where fertility is falling, older cohorts of the population are by definition larger than younger ones. So there are more men of, say, 25-30 wanting to marry than there are women of 20-25. Over time, small imbalances in the marriage market build up to create enormous pressure for change. By some estimates, by 2070 in some Asian countries there will be 160 men seeking a wife for every 100 women seeking a husband. Men will have to compete much harder if they want to attract a mate, and that surely means doing more housework. (Those who insist on old-fashioned gender roles will doom themselves to bachelorthood.) With more supportive husbands, women will find it easier to combine motherhood and career, so they will have more babies. Asian culture will adapt to reality, just like any other. ■



### Non-governmental organisations

## Uncivil society

BEIJING

### A new draft law spooks foreign not-for-profit groups working in China

**R**ECENTLY the Communist Party has put forward a raft of proposals aimed at preventing perceived challenges to its monopoly of power. On July 1st a national-security law was passed that authorised "all measures necessary" to protect the country from hostile elements. Now a draft of China's first law for regulating foreign non-governmental organisations (NGOs) is expected to pass in the coming weeks. The law is deemed necessary because of the threats NGOs are presumed to pose.

The draft law represents a mixture of limited progress and major party retrenchment in a sensitive area. Under Mao Zedong, China had no space for NGOs. But they have multiplied in the past decade to fill the gaps left by the party's retreat from people's daily lives. Officials say the law will help NGOs by giving them legal status, a valid claim. But it will also force strict constraints on foreign or foreign-supported groups. No funding from abroad will be allowed. And all NGOs will have to find an official sponsoring organisation. They will then have to register with China's feared public security apparatus, which will now oversee the entire foreign-backed sector.

Many workers at foreign NGOs worry that the party wants to change the definition of what an NGO is so that it can kick out any organisation it does not like. If the law is implemented as drafted, one foreign employee in Beijing says, it will have "a

broad and chilling effect". Yet opposition from foreign groups, diplomats and businessmen has already brought hints that the party might soften its stance.

About 1,000 foreign NGOs operate in China, with thousands more providing financial and other support. Some larger ones, such as Save the Children, have been there for decades and are welcomed. Groups overtly supporting labour or human rights are not.

Foreign money has been crucial, though it is impossible to measure exactly how much flows in. For anything sensitive, such as promoting the rule of law or policies against discrimination, the only source of funding is abroad. This is the money the party wants to shut off.

Until now foreign and Chinese groups have operated in a legal grey area. Many are unregistered but still able to function; some are registered as businesses. They have not had specific permission to do anything. But because much of their work has been with the poor or distressed, and has helped enhance social stability, they have been tolerated. "The grey area was dangerous but also liberating. You could get a lot done," says Jessica Teets of Middlebury College in Vermont. The new draft law looks to be getting rid of the grey area.

By letting some NGOs register formally, the law would allow them to open bank accounts for the first time and take part in

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official activities. But it would also bring closer monitoring, and requires groups to hire employees only through official channels. Any group dealing with sensitive issues would be unlikely to find a sponsor and would be forced to close. The law uses vague terms about endangering national security that can be used to justify any move against an NGO.

"Party leaders are shooting themselves in the foot," says Shawn Shieh of the China Labour Bulletin in Hong Kong. He believes the police do not have the resources or knowledge to deal with the thousands of foreign groups that would need to register. Perhaps the party does not care. Disrupting some anti-poverty work is "the necessary cost of maintaining control over the groups it deems subversive," says Jia Xijin of Tsinghua University's NGO Research Centre.

### A wide net

The law, as written, could also have an impact abroad. Any foreign non-profit organisation, broadly defined, that does not have an office in China would need a temporary permit and an official sponsor to engage in any kind of programme there. Anything from a university exchange to a visiting orchestra could be denied entry based on something said or done that is perceived to be against China. The aim may be to silence criticism of the regime abroad. More than 40 American trade associations and lobby groups in China, including the American Chamber of Commerce, have also complained that the law could be used against them. The party may try to allay such fears because it cares about foreign business. But it seems unafraid to show that it wants non-governmental organisations to bow to the government. "They are saying: 'We don't want any of your values, we'll do things our way,'" says ►

► a former diplomat in Beijing. Many Chinese officials believe foreign-funded NGOs to be Trojan horses for Western ideas. The Arab spring, the revolution in Ukraine and demonstrations in Hong Kong last year confirmed those suspicions in their minds.

President Xi Jinping has cracked down on promoters of Western liberalism. Last October police detained the former head of a reformist think-tank in Beijing. In June two members of a group promoting the rule of law were arrested. Many such groups have received funding from the Open Society Foundations in New York, founded by George Soros, a billionaire philanthropist. Several hundred civil-rights lawyers have recently been detained.

Yet the draconian nature of the draft law has surprised many, because legislation covering domestic NGOs seemed to be softening. A new charities law is due to be passed soon to spur individual and corporate philanthropy. Annual contributions to charity have risen tenfold in five years, to \$15.2 billion. And last year China actually liberalised the environment for local groups it deemed to be non-political. The party knew that its ability to deliver grass-roots services was failing and discovered that many NGOs filling the gap were not anti-party, as it had feared. So it began to encourage and fund them, just as nascent Chinese foundations and philanthropists did the same. Groups doing social work can now register without a sponsor. Some can also find financial support within China, says Ma Jun, the founder of an environmental NGO.

As for foreign groups, the restricted number of bodies authorised to be a sponsoring agency, and the limited incentive to play that role, mean that even apolitical groups will struggle to find a sponsor. Yet if they are not seen as dangerous they might be allowed to continue working in the grey zone. In late July the minister for public security, Guo Shengkun, claimed that China supported the activities of foreign NGOs if they are "carrying out friendly exchanges and co-operation".

The new draft law follows a meeting of the Communist Party last year that trumpeted how China must be ruled by *fazhi*, a phrase translated as the "rule of law". But Ms Jia points out that *fazhi* is not the rule of law as understood in the West. It should, rather, be translated "law-based governance", meaning that the law is a tool the party can use to maintain order.

The new law will not necessarily be implemented to the letter. As with the internet, the party is eager to see the NGO sector flourish, but only on its own terms. It will use the language of civil society to persuade the world that such a concept exists in China. Yet anyone pushing genuine civil liberties will not be tolerated. Gradual reform is possible, but control remains everything. ■

## After the Tianjin disaster

# Poisonous connections

TIANJIN

## The explosions exposed murky links between business and government

**R**ESIDENTS who had their homes destroyed by the huge explosions that rocked the northern city of Tianjin on August 12th are being offered 2,000 yuan (\$312) a month for three months. "The government says it is taking care of people who lost their homes," says one resident, Chang Zaixing. "But they're lying and cheating. Everyone in Tianjin knows it, but we should let the rest of China and the rest of the world know it."

After one of China's biggest industrial accidents, the government's emergency response is being met with open contempt. Residents with banners, loudhailers and face masks dog officials' footsteps, demanding full compensation for their homes. Others want to know what has happened to their relatives—65 people remain unaccounted for. It took almost a week for the mayor, Huang Xingguo, to appear before a press conference. When he did, on August 19th, the city's claim that air-quality readings were acceptable met with incredulity. "Are the data really true?" asked a reporter from the Communist party mouthpiece, the *People's Daily*.

Perhaps the greatest outrage will prove to be over the murky deals now emerging between the local government and the company at the heart of the disaster. The explosions occurred in a warehouse owned by Ruihai International Logistics. Founded in 2012, it is the only private company in Tianjin handling many different kinds of hazardous chemicals. Its warehouse contained 700 tonnes of sodium

cyanide—70 times more of the compound, used in gold mining, than the company had formally registered.

After the explosion, Ruihai's ten most senior executives were taken into police custody (this is routine). Among them was Dong Shexuan, the firm's vice-president. He is the son of a former head of security at the port of Tianjin, the first link in a chain that binds the company, the city, the port and a huge state enterprise.

Ruihai's shares are formally owned by Shu Zheng and Li Liang. Mr Shu has said they are holding shares on behalf of third parties, whom he refused to identify. The real owners, it turns out, are Yu Xuewei, who left a top job at Sinochem, a state-owned chemicals giant, to found Ruihai—and Mr Dong.

Mr Dong's father, Dong Peijun, who died in 2014, was the port's chief of police and a colleague of Wu Changshun, the former head of Tianjin's public-security bureau. The Communist Party's main anti-corruption body, the Central Commission for Discipline Inspection, charged Mr Wu with bribery last year and, before his death, placed Dong Peijun under investigation too.

On August 18th it did the same to a bigger fish: Yang Dongliang, China's highest work-safety official. Before that job, he had for 11 years been Tianjin's deputy mayor. Mr Yang had been in charge of the government's emergency-response efforts and had accompanied the prime minister, Li Keqiang, on a visit to the disaster zone on August 16th. Two days later the commission accused Mr Yang of "seriously violating party discipline and laws" (a common euphemism for corruption). His disgrace may have nothing to do with the emergency response. But it undermines the government's efforts to look competent.

In 2012 Mr Yang had signed an order that loosened up rules for the handling of hazardous chemicals. This made it easier for companies with a licence to operate in a port to get permission to handle such chemicals. This seems to have been the rule which enabled Ruihai to store substances such as sodium cyanide. So a company with an opaque ownership structure, connected by family ties to a port official under investigation, was helped by an order signed by another man under investigation to expedite its handling of dangerous chemicals. On August 20th the death toll from the blast stood at 114. ■



What the blast laid bare



## Arab armies

# Full of sound and fury

CAIRO

**The region's armed forces are being put to the test**

**D**ESPITE the Middle East's bloody reputation, most of the region's generals have been able to kick off their boots for much of the past few decades. Apart from a few gruesome interludes, such as Iraq's 1990 invasion of Kuwait or the nearly decade-long war it fought with Iran in the 1980s, the major Arab powers have not had to do much fighting since reaching peace deals or durable ceasefires with Israel after the war in 1973.

Yet all armies in the region were forced to shake off their torpor after the uprisings of the Arab spring of 2011 and the conflicts that they sparked. Now it is hard to find many that are not fighting. Their foes range from Islamic State (is) in Syria and Iraq to the Iranian-backed Houthi militias in Yemen. (And, in several worrying cases, their own civilians).

With America and Europe reluctant once again to commit ground forces to the region, its stability will depend to a large degree on the fighting ability of the Arab armies. Are they up to the job?

Going on their past performance there is little reason for hope. In previous decades big Arab armies were trounced by Israel, and fared little better against Iran or in excursions into African countries such as Chad. Today, even with Western arms and support, many struggle to hold their ground when bullets start to fly. Large parts of Iraq's national army, despite having received billions of dollars in training and equipment from America, disintegrated last year when small forces from is took Mosul and swathes of the country. Put to

the test at home, the armies in Yemen and Libya have simply splintered. Lebanon, whose army in any case only has dominion over part of the country (see next article), is struggling to stop the mayhem in Syria from crashing over the border.

Arab armies' problems certainly do not stem from want of money or equipment: the region's countries allocate hefty shares of GDP for their forces (see map). The International Institute for Strategic Studies, a think-tank in London, reckons that countries in the Middle East and north Africa make up eight of the top 15 spenders on defence when measured as a share of the national pie.

One problem is that much of this money is wasted. Billions are splurged on flashy gear like jet fighters or submarines that look impressive but may not be appropriate to the kinds of conflicts they are fighting. Such toys are also hard to maintain.

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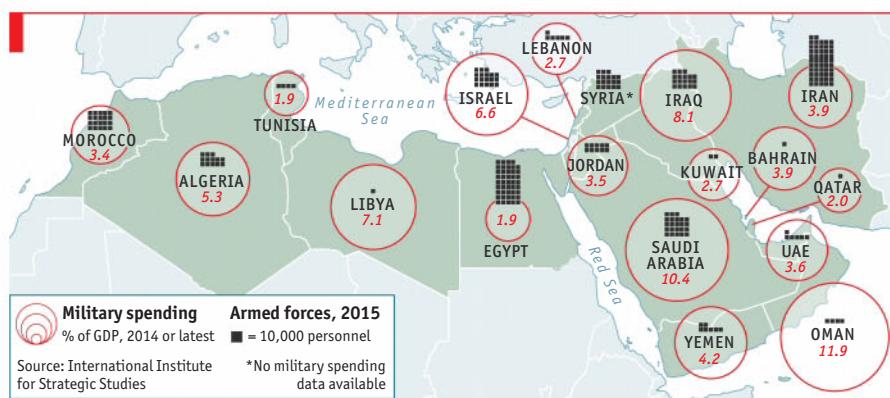
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And widespread theft and corruption mean that a lot of kit disappears, or is kept in the barracks (which is one reason why is was able to nab so much in Iraq).

Less priority is given to command and control, logistics and intelligence-gathering. Plans lack flexibility and are adhered to even when they don't work. That is exacerbated by the lack of authority given to junior and non-commissioned officers, the glue in most Western armies. Their deference to seniority is the norm in Arab society, but leaves small units unable to act quickly without waiting for approval.

An even more serious weakness is that armed forces in the Arab world simply don't function as neutral, professional institutions like their Western counterparts. They are often more loyal to a ruler or an ethnic or religious community than to the state: Syria is an example of the former, Libya and Yemen, riven by tribal and regional loyalties, of the latter. Military men are big players in the economies and politics of countries such as Egypt—ever more so since states have tottered after 2011. The turnover of senior officers is high since regimes fear them as potential coup-plotters.

To cope, many countries outsource military tasks to militias. Bashar Assad, Syria's despot, pays multiple groups to fight for him; countries that want him out support ►



► rebel groups. In Iraq the government and its ally, Iran, pay Shia militias to battle is.

Yet there is an alternative to simply handing over the protection of the state to armed gangs. Jordan and the United Arab Emirates (UAE) are by no means first-rank military powers, but they are among the region's most modern and capable. Their air forces are competent; their elite units well-trained. Jordan has particularly good special forces thanks to a bespoke training facility that regularly hosts visiting contingents from elsewhere (many of whom compete in an annual "Warrior Competition"). In general the region's counter-terrorist and special forces have proved adequate. Some have established the *esprit de corps* that makes for effective fighting units. But this small number of elite troops is generally overburdened, as they are sent from one trouble spot to another.

The UAE's conventional forces, meanwhile, have proved their—relative—worth in Yemen: since landing in Aden this month they have made rapid progress against the Houthis. That is in contrast to the force committed by Saudi Arabia,

which has made little headway.

If Arab armies are to be a bulwark against the spread of is and other militias they will need deep reform. The first step would be to shrink them. Many are bloated with poorly educated and badly paid troops. Egypt counts 438,500 men on active duty; Saudi Arabia, 227,000. That is partly because they have been used to mop up unemployed young men. The result in Syria and Egypt is boys who are underpaid, underfed and treated as cannon fodder—and perform as such. "If you think you're likely to run out of bullets or if you get injured there won't be good medical care, you are less inclined to fight," says Lord (David) Richards, the former head of the British armed forces.

Smaller, professional forces composed of educated and well-paid recruits would likely prove more effective in battle, but few governments in the region are willing to raise these sorts of armies because they fear coups. If they are to improve their performance on the battlefield, Arab states will also have to improve their governance at home. ■

Syrian air support would once have been alien to Hizballah. But today the militia not only uses armour and guided missiles, it has a fleet of armed drones, showcased in videos of strikes in Syria. It "has gone from a guerrilla ... force to one that is far more capable of a wider range of operations," says Jeffrey White of the Washington Institute for Near East Policy, a think-tank.

Despite its involvement in Syria, Hizballah's most important front remains the border with Israel. Fighters insist that "resistance" to Israel is its top priority and that its bunker and tunnel networks in south Lebanon are manned by seasoned veterans. "Those guys underground live every day as if the next war will start tomorrow," says a commander.

But in the here and now, Syria is the focus. A recruiter in south Beirut says vanloads of new fighters leave each day for Syria, where lads as young as 16 are helping defend towns. "The number of new soldiers we are training and sending to Syria is unprecedented," the recruiter says.

Lately the roads of the Bekaa Valley have teemed with Hizballah vehicles—convoys of tinted SUVs and ambulances, mostly—ferrying men and materiel to Syria, and wounded fighters to hospital. Last week outside Britel, an unmarked Jeep Grand Cherokee raced along dusty roads, its windows down, revealing bulky men in wraparound sunglasses and body armour.

This is not the first time that Hizballah has ventured abroad, but it is the most controversial. Over the past decade Hizballah has trained Iraq's Shia militias and Syria's National Defence Forces, a regime-backed militia. A few Hizballah trainers are also assisting Shia rebels in Yemen.

Some analysts question whether Hizballah is gaining autonomy from its Iranian backers. But ties remain close. In mid-August Hassan Nasrallah, the Hizballah chief, conferred in his Beirut bunker with Javad Zarif, Iran's foreign minister. Mr Nasrallah praises Iran's religious leaders in speeches, and fighters on the ground say Iran still calls the shots.

The bigger question is what those shots will be when it comes to Israel. Before reaching a deal with the West over its nuclear programme, Iran armed Hizballah with long-range rockets to deter Israel from bombing its nuclear facilities.

On August 14th Mr Nasrallah lauded his group's 2006 "divine victory" over Israel, and the party's Al-Manar satellite channel aired a slick documentary about that war, which Hizballah fought to a draw. But as war in Syria spirals, many old admirers of Hizballah are dismayed to see that a group founded to confront Israel is fighting fellow Muslims. With less pressure on Hizballah from Iran for restraint, and an expanding arsenal of rockets, the risk of conflict with Israel is growing. After its experience in Syria, Hizballah may prove formidable. ■



Hizballah's learning curve

## Deadly experience

BRITEL

**Costly but valuable lessons for a guerrilla army that once fought in the shadows**

**T**OMBSTONES in a Lebanese cemetery tell the story of Hizballah. Beneath rugged hills marking the border with Syria, modest graves display photographs of young men, their names etched in ornate calligraphy. "Died in a hateful Zionist air raid," reads the headstone of one of the group's early recruits, killed here in the Bekaa Valley over 30 years ago. Metres away a family mourns a loved one who died the day before in the Syrian town of Zabadani.

This shadowy force, once known for car bombs and assassinations, has come far since Iran's Revolutionary Guard trained its first cadres. In recent years it has

become one of the most visible protagonists in the Syrian civil war, fighting for the government. It is now perhaps the Arab world's most experienced and competent military force. But this skill has come at a cost in lives and in pan-Arab appeal. Its losses over the past three years of war in Syria are estimated at around 1,500 men, a lot for a force thought to number no more than 15,000 (excluding part-time reservists). Casualties, and an expanding area of operations, have forced it to relax its once strict qualifications for recruits, say Hizballah veterans.

Besieging Arab cities with tanks and

**Palestinian hunger strikes**

# To feed or to free

ASHKELON

**Israel's awkward bargaining with detainees who refuse to eat**

ONE man's fast, maintained behind the police barricades at Barzilai Medical Centre, highlights an agonising quandary for Israel. Muhammad Allan, a 31-year-old Palestinian lawyer and member of the militant Islamic Jihad group, this week entered the tenth week of a hunger strike. He was woken up on August 18th after four days in a medically-induced coma, and swiftly delivered an ultimatum: if his case was not resolved within 24 hours, he would refuse to drink water.

The strategy worked. On August 19th an Israeli court ordered an end to his detention after medical tests showed he had suffered brain damage as a result of his fast.

Mr Allan's case had posed the first test of a new Israeli law allowing the prison service to force-feed detainees whose lives are at risk. The practice is legal in several Western countries and America has used it in the Guantánamo Bay prison camp. But authorities in Israel cannot find a doctor to carry it out: the country's medical association has called force-feeding torture, and urged doctors not to do it.

Mr Allan was shuttled to Ashkelon after staff at another hospital refused to treat him. He has received only transfusions of fluids and salt. Mr Allan was in "administrative detention", which lets Israel hold suspects with no charge or trial. The practice dates back to the British Mandate; it was part of the 1945 emergency regulations that Menachem Begin, the founder of Israel's ruling Likud party, called "tyrannical" in the days when he was fighting Britain. There were 370 Palestinians in administrative detention at the end of June, says B'Tselem, an Israeli human-rights group. Most are held for six months to a year.

In recent years hunger strikes have become a popular form of protest against the policy. Perhaps the best-known example is that of Khader Adnan, another member of Islamic Jihad, who twice won his freedom after lengthy strikes. Hana Shalabi, the first woman to stage a long-term fast, was released after 43 days, although she was exiled to Gaza for three years as a condition.

Many Israeli politicians worry that those concessions set a dangerous precedent. Gilad Erdan, the public-security minister, denounced the doctors' stance, calling hunger strikes a kind of terrorism. "I am not willing to see the streets of Israel filled with hundreds of terrorists who went on hunger strike and were released," he said.

Yet many are relieved at the court's rul-

**Islamic State and antiquities**

# Nothing is sacred

CAIRO

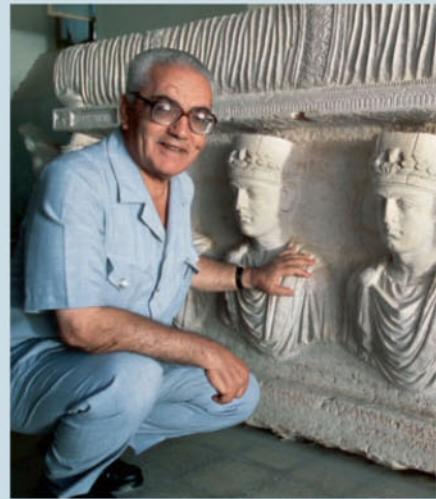
**Jihadists murder the man who tended Palmyra's art for decades**

**K**HALED ASAAD saw the continuity between Syrian Arab culture and that of the many peoples who had previously inhabited Palmyra, the 2,000-year-old archaeological site he had tended for almost half a century. A month before Islamic State (is) rolled into the oasis town in May, the archaeologist described on a Facebook page the spring rituals that would have taken place in the colonnaded city during Greco-Roman times. Those rituals "fit perfectly" with pre-Islamic Arab ones, he wrote.

Others were less open-minded than the bespectacled 81-year-old. After the jihadists entered Palmyra they arrested Mr Asaad. On August 18th is hung his decapitated body, his head and glasses at his feet, in front of the small museum where he had spent much of his life writing papers or working with teams from Germany and France. The reasons his killers gave, scrawled on a notice beside his body, were tending the site's "idols", attending "blasphemous" conferences, visiting Iran and communicating with generals in the Syrian regime.

Mr Asaad had worked for years for the government's antiquities department. Some say he was a staunch supporter of Syria's President Bashar Assad. But it seems as likely that he was killed because he refused to give up the locations of precious artefacts still buried underground in unexcavated tombs, despite being tortured. Palmyra, which flourished as a caravan stop on the Silk Road trading route, is home to temples used to worship deities before the arrival of Christianity and then Islam, as well as tombs and the ruins of a citadel.

Even though is has destroyed large swathes of Hatra and Nimrud, ancient

**Threatening only to iconoclasts**

Assyrian cities in Iraq, so far it is only known to have smashed one statue in Palmyra: a lion representing the goddess Allat that stood at the museum's entrance. Similarly when is ransacked the Mosul Museum in February, it did not show itself destroying the most valuable pieces. Despite its aversion to antiquities—it argues that statues and images encourage idolatry—iconoclasm may not be its main aim in Palmyra. There are signs that it finds antiquities more valuable when they are sold rather than smashed on camera for publicity purposes. Sales to smugglers, who often take the valuables out over the Turkish border, are probably helping is fill the hole in its coffers left by air strikes against oil facilities under its control. Attempts to stop this trade are proving as ineffective as the efforts to stop murder and maiming in Syria, whether by is or the regime.

ing. The military wing of Islamic Jihad, which last summer took part in a grinding war against Israel from Gaza, had vowed a "forceful" response if Mr Allan were allowed to die. "It will end any commitment from our side to the truce," a statement warned. Israeli security officials feared his death could also spark unrest in the occupied West Bank, and perhaps inside Israel. Police had to use foul-smelling "Skunk" water to disperse hundreds of protesters outside his hospital on August 16th.

The next day Israel offered to release Mr Allan if he agreed to a four-year exile. His lawyers refused.

These dramatic fasts have not been an effective challenge to the wider policy of

administrative detention. A mass protest by some 1,500 people in 2012 did win a major concession: authorities vowed not to hold prisoners beyond the initial six-month period without new evidence. The number of detainees dipped as low as 134 the following summer.

Detentions spiked again in 2014, however, after the kidnapping and murder of three Israeli teenagers. This month, after an arson attack—blamed on Jewish radicals—that killed a Palestinian baby and his father, the cabinet authorised the use of administrative detention for Jewish Israelis. Three have already been remanded. Far from being discarded, the practice is becoming more entrenched. ■

## South African property

# Trendy townships

SOWETO

### Apartheid eyesores are suddenly in vogue

**W**ITH its barrel-vaulted ceilings, garage for five cars and swimming pool hidden from the street by lush gardens, the sprawling home is what you might expect to see in Johannesburg's wealthy (and formerly whites-only) northern suburbs. But this is Soweto, the famous black township that was the centre of the anti-apartheid struggle in the 1970s and 1980s. The house's recent listing for sale at a cool 3m rand (\$233,000) has drawn attention to a new trend: the hotting up of the property market in South Africa's former townships.

Under apartheid blacks were forced to live in grey "matchbox" homes in segregated areas far from city centres, with dire public services and woeful transport links to where the jobs were. Yet there is now a growing desire for homes in precisely these areas—not least because they are relatively cheap—and young black professionals who fled them a few years ago are now flocking back.

The Soweto mansion, which is being sold by the widow of a prominent local doctor, is listed in the property pages next to equally pricey homes in the northern suburbs. But Soweto offers a cachet that just can't be found in Johannesburg's leafy north. Buy a home on Vilakazi Street, for instance, and you will share an address once used by two Nobel peace laureates: Desmond Tutu and the late Nelson Mandela.

Other black townships, once known euphemistically as "locations", are also exciting buyers and estate agents. Property prices in former black townships around South Africa's six biggest cities rose by 17% over the past year, more than double the 7% increase of the market as a whole (see chart). Admittedly they are coming off a low base. Houses in townships sell for a

shade under 340,000 rand, about a third of the average for all homes in big cities. Most are snapped up by young couples trying to get a foot on the property ladder.

There is more to the boom than just price, however. Townships are becoming far more congenial places to live. Soweto has seen a boom in new shopping centres and boasts trendy gyms with classes allowing one to "bump", "grind" and "get killer abs" in places where the main form of exercise was once running away from sjambok-wielding policemen. The Soweto Theatre, a colourful collection of cubes that looks as if it were designed by Frank Gehry (or a child with a box of Lego), draws some of South Africa's biggest music and comedy acts. Its stadiums, which were revamped for the 2010 FIFA World Cup, are magnets for fans from the suburbs. "Soweto is so amazing," says Trish

Luthuli, of Pam Golding Properties, an estate agent. "It has that community feel."

Yet there is also a downside. The commute to the city centres, where most of the jobs still are, remains terrible—a legacy of poor transit infrastructure and apartheid policies that often designed townships with a single road in or out to make it easier to contain protests. Crime is also a problem, though it is elsewhere too.

Unlike in the suburbs "where you have all these high walls, people here know their neighbours," gushes Ms Luthuli. Yet some locals fret that the friendly atmosphere may cool as newcomers snap up homes in old quarters. "Younger people tend to keep to themselves more," gripes Matseleng Mogodi, an estate agent who specialises in Soweto homes. "It's not as social as it used to be," she says. There goes the neighbourhood. ■

### Ali Bongo shares his inheritance

## Giving back in Gabon

JOHANNESBURG

### A selfless act in memory of a fine man

**A**LIBONGO, the Gabonese president, has declared that he will share with his countrymen a sliver of the vast wealth he inherited from his father, Omar Bongo, who was coincidentally also president of the country, in his case for 41 years. In a televised address, marking the central African country's 55th anniversary of independence from France, Mr Bongo pledged to donate part of his inheritance to "Gabon's youth".

The exact amount is unclear. Although the diminutive, platform-booted Omar Bongo died in 2009, his inheritance has yet to be distributed amid squabbling by his 53 declared heirs. There is much to squabble over, it would seem, including a fleet of cars said to include a Maybach and several Ferraris.

But the junior Mr Bongo's generosity does not end there. Two of his father's private homes in central Paris (of an estimated 39 in France) will be given up for a "symbolic franc", for "cultural and diplomatic use". A family villa in Libreville, Gabon's capital, is being turned over to the state to house a university.

What might have inspired Mr Bongo to such altruism? Surely it has nothing to do with France's long-running investigation into his father's allegedly "ill-gotten gains", spurred by the work of Transparency International, an anti-corruption watchdog? French judges are probing whether the late president and others spent embezzled funds in France on luxury homes and fancy cars.

And surely Mr Bongo's sudden largesse couldn't be a ploy to win favour



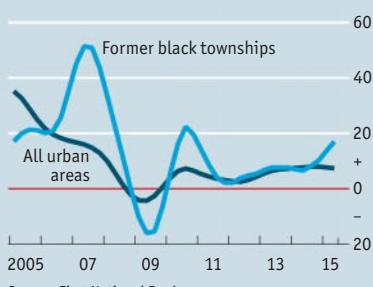
ahead of next year's presidential elections, in which he is expected to stand for another term against an opposition growing in strength? Mr Bongo has led Gabon since winning a rowdy election in 2009, after his father died. Human-rights groups say that vote was marred by violence and allegations of widespread electoral fraud.

Whatever the motive, the people of Gabon will doubtless be grateful. Despite oil wealth so vast that Gabon's GDP per head, at \$10,800, is the third-highest in Africa, a third of its citizens live on \$1.25 a day or less. Mr Bongo says he decided to open his wallet in honour of his father. "In my eyes we are all heirs of Omar Bongo," he said. "No Gabonese must be left by the side of the road." Presumably that means sports cars for all?

### Separate development

South Africa's house prices (major cities)

% increase on a year earlier





## Russia's economy

## The path to penury

ON THE ROAD FROM MOSCOW TO MOSCOW

A journey from the capital to the hinterland shows how grim life has become, and how Russians cope

**A**LMOST 500km (310 miles) separate Moscow, Russia's glittering capital, from its lesser-known namesake, a dying village deep in the forests of the Tverskaya Oblast. The road that connects them begins as smooth asphalt beside the red walls of the Kremlin and ends as a rutted dirt track amid abandoned wooden homes. The characters that populate the towns and cities along the way often live very different lives. But as Russia's recession deepens (the country's GDP shrank by 4.6% in the second quarter measured year-on-year), the effects resonate across every stratum of society.

Inflation has eaten away at family budgets. Falling oil revenues have forced the government to tighten its belt (with the notable exception of defence spending). While many struggle, there is one constant: rather than panicking, Russians adjust. Memories of earlier crises loom—a reminder of how much worse it can get. Nationalist rhetoric serves as a healing balm. People push on. "Russia's great strength throughout the centuries has been that its people can seemingly adapt to any conditions," says Maria Lipman, a political analyst.

It is Monday morning in the capital, and a snappily dressed businessman sips a grande cappuccino, flipping through messages on his iPhone 6 in a Starbucks near Red Square. Pavel, who owns a chain of coffee shops, normally takes his family to

South-East Asia for winter holidays, but not this year. "You start to think, for that much money, do I really need Thailand?" At IKEA, a furniture shop, in the Moscow suburb of Khimki, once the beacon of an emerging middle class, Stanislav Vladikov says the recession means waiting to buy a washing machine. But he takes it in his stride. "2009 was much worse," he says.

Car dealerships nearby see few buyers. In the first half of the year auto sales were down by 36%. Foreign carmakers such as GM and Toyota have ceased or scaled down operations. Smaller businesses feel the pinch, too. Gary Mkrtchyan, an Armenian, runs a store selling fountains and lawn ornaments. An eclectic ensemble of

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Charlemagne is on holiday

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concrete lions, plastic dinosaurs and stone maidens crowds his yard. After ten years in business, he will close on September 1st. "No one is buying this stuff any more," he says. "Now people have to eat." Real disposable income dropped by 3.1% year-on-year in the first two quarters. Retail sales have fallen for seven months in a row.

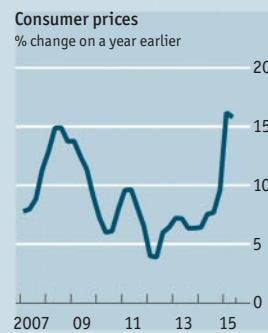
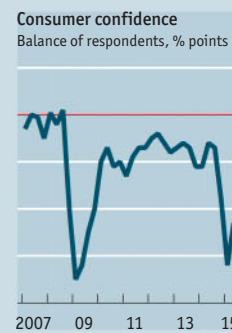
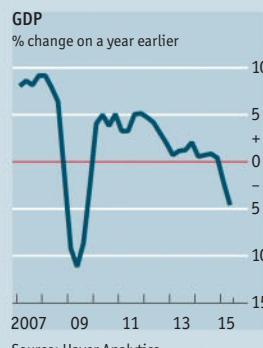
The slowdown actually started three years ago, Mr Mkrtchyan says. Nonetheless, he, like many in Russia, sees no link between political leadership and economic woes. "Putin is a hero," he says.

Others point to a corrupt system that stifles commerce. At a dimly lit café near the border of the Moscow region, Nikolai Kuznetsov, a retired policeman turned lorry driver, fumes. He has just paid yet another bribe to avoid having his cargo (frozen Brazilian meat) impounded. "They're becoming more and more brazen," he says of his erstwhile colleagues.

For Mr Kuznetsov, the combined effect of the government's ban on imported Western food and the collapse of the currency has been devastating. Fewer imports mean fewer trips. Rather than laying off ►

## Bust, boom, bust

Russia





▶ people, employers are cutting pay. His salary has fallen by nearly half since last year. "What's going on here is dark, and it will get darker still," he says, scratching at the vinyl tablecloth. He no longer takes naps in his cabin, fearing thieves who steal tyres and siphon off petrol, crimes that had all but disappeared during the boom.

Further north, heading towards Tver, birch trees loom over the highway and dense urban life gives way to sprawling valleys. Russia's economy has always been a story of centre and periphery: power and money are concentrated in Moscow, with the Kremlin sitting in the middle. Most regions survive thanks to federal support. Last year 75 of Russia's 85 regions ran budget deficits. Earlier this year, unprofitable suburban rail services in Tver briefly shut down as the regional government and the state-owned Russian Railways bickered over who would foot the bill. It took direct intervention from Mr Putin to get the trains running again. This week Vladimir Yakunin, head of the Russian Railways and a longtime confidant of Mr Putin, unexpectedly resigned.

Closer to the other Moscow, the highway narrows to two lanes. Fruit stands overflowing with watermelons line the approach to Kuvshinovo, a "monogorod" or company town, built around a massive paper and cardboard mill. "If the factory didn't exist, the city would turn into a hamlet," says Aleksei Tsoi, the mill's director of personnel. That worries the central government, as some 10% of Russia's population lives in such cities, and funds to support them are drying up. The government has classified 94 of its 314 monogorods as "red zones" at risk of economic collapse, up from 75 last year.

Mr Tsoi insists the mill is doing fine. Three years ago it got a new cardboard-making machine (the "most powerful of its kind in all of Russia," he boasts). The four other machines on the factory floor are ageing behemoths. One came from Germany as reparations after the second world war and is more than 100 years old.

Beyond Kuvshinovo, Russia's vastness comes into focus. Signs warn drivers to look out for deer. Lone women by the side of the road sell jars of berries and mushrooms. The asphalt ends some 40km before Moscow. A path snakes through dense

forest and quiet logging camps. Industrial production in Russia dropped 4.7% in July, the sixth straight month of decline.

In the Soviet era, life in little Moscow revolved around a bustling agricultural collective called Red Star. "We had stores, and even a club," says Anna Stepanova, one of four remaining residents. Since then the farm has fallen into disrepair. Young people have left. As the elderly die off, they leave behind handmade wooden homes with dishes still stacked on shelves.

Inflation stuns the residents. "When I saw the price of sugar, I lost my mind," says Ms Stepanova, a former "cultural worker". A daughter brings supplies from a nearby town. She has stopped buying imported Spanish glaucoma medicine, which she needs, and plans to switch to a cheaper Russian one.

Ms Stepanova gets her news from a small television that picks up only two channels, both state-run. Her husband says he preferred life in the Soviet Union, but he approves of Mr Putin because pensions are paid on time, and "every year they get higher and higher." That may soon change. Russia's finance ministry recently suggested ending inflation-pegging of pensions to help close a growing fiscal gap. Yet no matter how bad it gets, a flock of chickens and an expansive garden with rows of potatoes, beets, cucumbers and onions offer insurance. After the second world war "we survived on grass," says Ms Stepanova. "Russia will survive whatever happens now." ■

#### Azerbaijan

## Back in the USSR

**The conviction of two prominent dissidents conjures up the Soviet past**

“**M**Y DEAR Arif, after 36 years of life together we're in different cells in different prisons. Perhaps you're unaware, I can bear it all: Terrible physical pain (I'm already coming down with pneumonia from the cold water), pressure from a hardened prisoner and even visits from those jackals in the prosecutor's office. Most difficult of all is you are not nearby. For 36 years we have almost never been apart!”

So wrote Leyla Yunus, a human-rights defender, from her prison cell in Azerbaijan to her husband in August 2014. The day of the couple's initial detention, April 28th last year, in Soviet days marked the take-over of Azerbaijan by the Bolsheviks in 1920. The legacy lives on. In keeping with Soviet tradition, the Yunuses were arrested and charged with espionage and treason as well as tax evasion and embezzlement.



Leyla and Arif Yunus: freedom fighters

A year later they were given a show trial. Another of Mrs Yunus's letters could have been written in Stalin's day. "I was dragged by my feet into solitary confinement without explaining a reason. I heard from Arif that he had also been assaulted during the first days of his arrest."

On August 13th the trial ended with Mrs Yunus sentenced to eight-and-a-half years in prison and her husband to seven years. As prosecutors read out a list of unlikely charges in a stifling hot courtroom, Mrs Yunus comforted her husband, who was lying on a bench inside a glass cage—too unwell and weak to sit up or comprehend what was going on. He had collapsed twice during closing arguments.

Political prisoners are nothing new in today's Azerbaijan, run by Ilham Aliyev, its authoritarian president. But the Yunuses' case is especially egregious. They are veterans of the Soviet dissident movement and still the country's most prominent civil-rights activists. In the early 1980s they worked for a samizdat newspaper, Express Chronicle. In the late 1980s Mrs Yunus was at the forefront of Mikhail Gorbachev's perestroika reforms, which held out the promise of a free and dignified life. When Soviet tanks rolled into Baku in 1990 in a desperate attempt to stop the crumbling of the empire, she led a national independence movement.

In recent years Mrs Yunus has run the Institute for Peace and Democracy, the country's best known human-rights group. Mr Yunus is a scholar of the war between Azerbaijan and Armenia over the disputed region of Nagorno-Karabakh. According to Thomas de Waal, a Caucasus expert who worked with him in the past, Mr Yunus was a rare voice in Azerbaijan more interested in facts than the attribution of blame. He had travelled to Armenia to in- ►

vestigate the conflict. The contacts he made there led to the charges of treason.

It is hard to see how the Yunuses alone could be a threat to Mr Aliev. But their imprisonment is most likely intended as a warning to others. "They are planning to wipe us out in agony. Why is that? So that our agony and our deaths become a lesson for all. Fear must live in the hearts of citizens," wrote Mrs Yunus.

Western reaction has been muted, partly for fear of pushing Azerbaijan even further away. After years of trying to balance Russia and America under the rule of Mr Aliev's father, a former Communist Party boss, the country has adopted anti-Western ways and increased repression.

Mr de Waal notes that the shift became apparent in 2013 after a visit by Vladimir Putin, the Russian president, during which he conveyed to Mr Aliev the benefits of siding with its large neighbour. Since then Azerbaijan has copied Russian laws banning foreign funding of NGOs and parrots Kremlin lines about "national traitors" and "American hegemony".

The revival of Soviet clichés prompted Mrs Yunus to invoke an old slogan to describe her goals. It was used by Soviet dissidents protesting the invasion of Czechoslovakia in 1968: "For your freedom and for ours". The Yunus case has attracted little attention in Russia including among liberals. A pro-Kremlin website accused the West of "politicising" the trial. They would know about such things in Moscow. ■

#### Greek debt

## What the classics know

ATHENS

**Ancient Greek dramas help explain the country's current crisis**

THE Greeks have not had much to laugh about in recent years. Falling incomes, rising unemployment and a pervasive fear of being forced out of the euro foster a gloomy mood. Even the latest news of a third bail-out worth €86 billion (\$96 billion) feels more like a reprieve than a promising new start.

Still, the holiday season usually lifts the country, and this year Greeks are cheered by summer performances of classical dramas. Perhaps the gripping plots and rich metaphors of the ancient world seem more relevant than ever. Are labours to repay foreign debts Sisyphean? Was the prime minister's victory in a recent referendum Pyrrhic?

Aristophanes, the ancient comic playwright whose raunchy satires were first performed 25 centuries ago, is especially popular. His plays, written for an annual

drama festival in Athens, first entertained weary citizens impoverished by a long-running war with Sparta. This year productions of two works, "Acharnians" and "Ecclesiazouses", in modern Greek translation, have become unexpected hits. They opened in July to sell-out audiences at the prestigious annual festival of ancient drama held in a 14,000-seat amphitheatre at Epidaurus in southern Greece. Both productions are now touring the country's open-air stages.

Audiences grow in difficult times, says Platon Mavromoustakos, professor of theatre studies at Athens University. "Theatre-going hasn't suffered as a result of the crisis; in fact audiences are probably bigger now." The production of "Acharnians" has broken box-office records, opening the week after capital controls were introduced.

In the play, first performed in 425BC, a resourceful charcoal-burner named Dikaiopolis manages to bypass corrupt Athenian politicians and a pompous general to make peace with the Spartans. This allows farmers and traders to open up markets closed by six years of conflict. A chorus line dressed in dark overalls and wearing gas masks mimics riot police spraying tear gas at anti-austerity protesters.

The play resonates with crisis-hit Greeks, says Christos Hadjipanagiotis, a well-known television actor making a cameo appearance. He cites his own role as a starving farmer taking his two young daughters to market disguised as piglets. "I get plenty of laughs but there's a serious undertone," he says. Praxis, a local welfare group, claims that some desperate Athenian families are sending children to live with better-off relatives in other provinces or even giving them up for adoption.

Yiannis Bezos's production of "Ecclesiazouses" also follows the current practice among Greek directors of adapting Aristophanes's text to lampoon recent events. "It brings the plays closer to a revue, but everyone enjoys the fact that the barbs are so relevant," says Olga Sella, a correspondent for *Kathimerini*, a daily newspaper.

Mr Bezos has given an extra twist to the comedy about women taking over the all-male ancient Athenian assembly, seen as the first parliamentary democracy, and then passing measures that could undermine society, such as outlawing marriage. His performance as Praxagora, the heroine who advocates such extreme reforms (there were no female actors in classical Greece) is modelled on a Greek woman politician, Zoi Konstantopoulou, selected as the speaker of parliament by Greece's left-wing Syriza government. Ms Konstantopoulou's long-winded speeches and punctilious attention to details of parliamentary procedure have alienated her peers. One conservative MP recently caused an uproar in parliament by asking, "Why doesn't Mrs Konstantopoulou's hus-

band keep her under control?"

To decode current Greek politics, it may help to consult some of the analysis offered by such ancient writers as Aristophanes and Thucydides of demagogues: speakers who whipped up grievance and victimhood and urged their followers to take a foolishly maximalist line. Kostas Lavdas, a Greek-born political scientist now working at Tufts University in Massachusetts, says his homeland's atmosphere during the July referendum was full of demagoguery. But he finds the modern Athenian variant less interesting than the classical one, in which silver tongues constructed entirely new versions of reality. ■



Angela Merkel's power

## Angela regina

BERLIN

**The German chancellor may wobble, but not for the reasons widely assumed**

ON AUGUST 19th, hours before jetting off to Brazil for more of the statesmanship the world associates with her, the German chancellor, Angela Merkel, sat waiting in the Bundestag. Germany's parliament had to approve a third bail-out of Greece since 2010. As usual she ostentatiously fiddled with her mobile phone whenever the opposition attacked her, while putting on an inscrutable expression. But she was probably pondering two numbers.

One was the size of the rebellion among MPs in her party. When the Bundestag first approved a rescue of the euro in 2010, only four members of Mrs Merkel's conservative bloc dissented. But with each

► successive bail-out the level of resistance has grown in the Christian Democratic Union (CDU) and its Bavarian sister party, the Christian Social Union (CSU), collectively known as the Union. Later that day, even after unusually heavy bullying by Mrs Merkel's whip, Volker Kauder, dissent reached new heights, with 63 naysayers and three abstentions.

The rescue plan still passed comfortably, with support from the centre-left Social Democratic Party (SPD), Mrs Merkel's coalition partner, and the opposition Green party. Nonetheless the state of the Union caused hand-wringing. Could growing conservative discontent, now at 21% of the parliamentary party, finally signal limits to Mrs Merkel's power after years of presumed supremacy?

Another number published the same day suggests otherwise. A new poll puts support for the Union at 43% if the election due in 2017 were held now. Given Germany's electoral system, that would give Mrs Merkel half the seats in parliament, a hair's breadth from an absolute majority. She is within reach of becoming the first chancellor since Konrad Adenauer in 1960 to rule without a coalition partner. In her tenth year in power, and without term limits to constrain her, Mrs Merkel rides high.

Take it from the Social Democrats, normally the Union's archrival but forced into an unhappy coalition as her junior partners. The SPD should be planning a campaign to defeat her in 2017 but shows little vigour. One Social Democrat bigwig, Torsten Albig, the premier of Schleswig-Holstein, conceded on television that Mrs Merkel is doing an "excellent" job and questioned whether his party should even bother nominating a candidate for the next election.

That is awkward for the most obvious contender: Sigmar Gabriel, the SPD's boss, as well as vice-chancellor and economics minister. Seemingly in desperation, he has poached a campaign consultant, Thomas Hüser, from the Christian Democrats. Embarrassingly, Mr Hüser recently said on Facebook that Mr Gabriel will struggle to do better than the 25.7%, the SPD achieved in 2003. (The SPD now polls at about 23%) Some Social Democrats are talking about a grassroots vote among members to pick a candidate.

Given no strong contender to challenge Mrs Merkel, the real cap on her power is more subtle: few think she stands for any particular values in domestic politics. This may surprise foreigners who associate her with a stubborn imposition of austerity. But at home she is considered wobbly or absent in big debates from immigration to gay marriage. The leading contender in a "youth word of 2015" competition is currently the verb *merkeln*. It means to avoid big decisions with maximum delay, passivity and obfuscation. ■

## Bullfighting

# Why Spanish bulls are now deadlier

MADRID

### Austerity and thrill-seeking are undermining an ancient tradition

**D**AVID GONZALEZ was trying to capture a charging bull on his mobile phone camera during a village fiesta in Villaseca de la Sagra in central Spain on August 9th. Instead it was a bull that caught him. The 32-year-old became one of nine people gored to death at festivals this summer (four alone on the most recent weekend), raising questions about Spain's love-hate relationship with bulls.

Sophisticated Spaniards are dismayed that foreigners associate their country more with stomping beasts and strutting matadors than with painting, music or technology. Whether romantic or revolting, Spain conjures up visions of fearless, sequinned, cape-waving fighters dancing around half-tonne bulls and sinking swords into their necks—or being gored.

The truth is less glamorous. The animals mostly provide entertainment at village fiestas, chasing the brave and the foolish down streets or around makeshift rings. All are amateurs and a few are drunk. The last top matador to die in a Spanish ring was José Cubero, known as El Yiyo, in 1985.

While village fiestas thrive, serious bullfighting is in a sorry state. A bull bubble, pumped up by municipal income from building licences, burst in 2008, mirroring Spain's housing market. The number of quality bullfights has halved since 2007, even though critics claim they still receive €560m (\$623m) of public money a year, mainly from town halls. The highest category, in which renowned matadors kill fully-grown animals, has fallen from 953 to 398 annu-

al fights. But the decline bottomed out last year and ticket sales are reportedly up again, providing a quirky indicator of the health of the Spanish economy.

Still, the performances of high-end matadors remain overshadowed by less mannered fun. There are 16,000 so-called "popular bull festivals", a hotchpotch of local customs that include the Pamplona-style bull runs made famous by Ernest Hemingway. Even Catalonia, the north-eastern region that banned serious bullfighting in 2012, allows such festivals.

Everything from alcohol to camera phones have been blamed for the surge in deaths. An unproven theory also suggests that, as serious bullfights decline, ranchers are providing bigger, deadlier beasts for the popular fiestas. Vicente Royuela, an economist at the University of Barcelona, says these events are much cheaper to organise, making them easier for town halls to fund. That may explain both the current boom, which has seen 2,000 new village festivals this year alone, and the deaths. More amateurs challenge the bull, and fewer professionals. Nor do the festivals have the slick medical services and operating theatres of the best bullrings.

It will take serious bullfighting time to recover, if it manages at all. Breeding and raising a fighting bull takes four or five years. Ranchers have scaled-down production and there are fewer fights for up-and-coming bullfighters. Opponents may rejoice, but even bulls that take part in popular festivals usually go straight to the knacker's yard.



What happened to the photographer?



### Britain's new underclass

## Hiding in plain sight

#### SOUTH SHIELDS

**Britain's economic and jobs performance is better than much of the rest of Europe's. But at the bottom of the heap too many lag far behind**

**N**OT much happens in South Shields at nine o'clock on a weekday morning. The high street is mostly empty, with just a handful of commuters at the metro station. The exception is the job centre, bustling with men and women searching for work as forklift drivers, industrial painters and at call-centres. Many have been looking for months, if not years, for paid employment.

Compared with much of continental Europe, Britain is doing quite well. Last year its economy grew faster than that of any other G7 country. Unemployment is 5.6%, next to 10% in France. Although high

at 16%, youth unemployment has fallen. The share of youths not in employment, education or training (NEET) is 12%, around the rich-world average. Crime and teenage pregnancies are at record lows.

But in one area Britain still does especially badly. According to the OECD club of mostly rich countries, using data from 2012 and 2013, one in seven British youngsters leaves school early. Those dropouts are also the most likely to be unemployed in the rich world (see chart 1). Britain has the third-highest share of youngsters with poor literacy and numeracy skills, and the fourth-highest share who are bad with technology. And British NEETS are the most illiterate and innumerate.

Britain has one of Europe's most flexible labour markets, which creates lots of jobs for the relatively unskilled. But this may exacerbate differences between those who are employed and those who are not. In 2012 the literacy gap between young Britons in employment and those out of work was the highest in the OECD.

Such findings underline a worrying pattern among jobless, working-class youths. This group—once termed the “underclass”—is especially numerous in deindustrialised places like South Shields, which has the highest youth jobless claimant rate in England. But there are also many in Midland cities, seaside towns and parts of London. That the underclass does so badly points up some failures of welfare,

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employment and education policies.

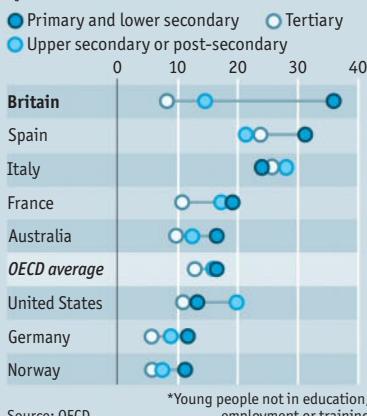
In any recession, young people tend to suffer first. Moreover, unemployment among 16-24-year-olds was edging up even before the financial crisis. Youngsters have since faced a “double whammy” of scarcity of work and falling real wages, says Stephen Machin of the London School of Economics (LSE). Those who are unskilled, a group of which Britain has a larger share than most, were particularly badly hit.

Young Britons have worse literacy and numeracy rates than those aged between 30 and 54, a pattern not seen in any other country in the European Union. Some of this stems from high levels of immigration. But it also reflects the poor educational standards of many British youths. Native-born children are more likely to be unemployed than children of immigrants, another finding not matched in any other European country (see chart 2).

Many of those searching for jobs in South Shields did not complete their edu-

#### We do need education

NEETs\*, % of population aged 15-29  
By educational attainment, 2013



#### Homegrown and out of work

NEETs\*, % of population aged 16-29, 2012

Offspring of: native-born (dark blue) immigrants (light blue)



cation. Tony Nesbitt, a 27-year-old industrial painter, wishes he had remained in college rather than dropping out to take on his summer job full-time. "They asked me to stick with it and I stuck with it," he says. "And so I am stuck in what I am doing now." Few teachers talk of apprenticeships or alternatives to university, say others.

Plenty of youngsters are stuck geographically as well. Partly this is because few want to move from where they grew up—although some talk wistfully of moving to such far-flung places as Australia. But it also reflects restrictive rules for social housing and shoddy transport links.

Entrenched poverty has knock-on effects. According to a paper by Professor Machin, Brian Bell and Anna Bindler, the average conviction rate for youths entering the labour market during a recession is 4% higher than for those joining it in better times. If they cannot find work, youngsters may seek other forms of occupation. "People I used to hang around with are now drug dealers," says Jordan Smith, an unemployed 18-year-old in Wolverhampton who is trying to get a job as chef.

In all this Britain contrasts especially with Germany, where youth unemployment is only 7% and the NEET rate is 6%. Many point to apprenticeships offered in Germany as one reason why youths do better there: around one in four employers offer them, compared with just one in ten in Britain. European youths often begin earlier as well: in Austria children who take up an apprenticeship may choose their future occupation when they are just 14.

Such systems can seem overly restrictive. But apprenticeships in much of Europe are generally of higher quality, and many apprentices also go on to further education. In Britain, apprenticeships only have to last for a year and their quality is patchy. In Germany most last for around three years, and apprentices learn different skills, says Conor Ryan at the Sutton Trust, a charity. At one fridge company in Munich, for example, a three-year long apprenticeship involves six months in different parts of the firm, from marketing to manufacturing, he says. This makes the apprentices far more flexible.

The government is trying to improve things. Since 2013, under legislation passed by the Labour government, youngsters have had to stay in some form of education or training until they are 17; that will rise to 18 this year. This week Matt Hancock, the paymaster-general, announced that the government would start a "boot camp" in 2017 to teach youngsters how to write a cv and apply for jobs; benefits may be restricted to those who are neither in training nor in education. The government has also pledged to boost apprenticeships by 3m and improve their quality.

Although these measures may help a few of today's most disadvantaged, most

do not tackle the underlying causes. After riots in 2011, a £448m (\$716m) scheme for "troubled families" was announced to try to help 120,000 of the very poorest. Last year it was expanded. But funding per child for some early education schemes has shrunk in real terms by a quarter under the 2010-15 government, according to academics at the LSE and the Universities of Manchester and York. A report from a social mobility quango last year warned that the government's changes to tax credits and benefits will probably increase child poverty.

In effect, the government already has a backlog of unemployed, disillusioned youngsters to deal with. Some may be pushed into work by benefit cuts, but a lot will not. If this problem is to be tackled, politicians must start investing more in the next generation, notably in early education. Otherwise the underclass will grow—and so will the costs linked to it. ■

#### The Labour Party

## Seeing red

**Jeremy Corbyn will probably win—but then run into trouble**

IT IS hard to exaggerate the chaos of the Labour Party in the 1980s. It once held a press conference to announce that Michael Foot was still party leader. Visitors to Walworth Road, recalls Tom Watson, now a party grandee, were "met at the front door by two striking miners and their table full of Davy lamps and buckets of shrapnel" and treated to harmonica recitals of "The Red Flag". On Peter Mandelson's first day as head of communications one colleague tried to kill another with poison.

This was a time when the party strayed far into the electoral wilderness, then succumbed to years of infighting as modernisers like Mr Mandelson, Tony Blair and Gordon Brown wrenching it away from the loony left and led it back to power after 18 years in opposition. Three decades on, however, one of the losers in that battle—Jeremy Corbyn, the hard-left MP for Islington North—is on the verge of winning the party leadership. Once more a period of introspection and infighting looms.

This is unexpected. In May bookmakers put the odds of Mr Corbyn winning at 100/1. He struggled to gather the 35 nominations from MPs needed to get onto the ballot. Yet a combination of support from left-wing unions, lacklustre performances by his three rivals and a change of the electoral system to allow outsiders to vote by signing up as "registered supporters" for just £3 (\$4.70)—now puts him way ahead of

his rivals. A recent poll by YouGov suggested that a majority of the electorate will give him their first-preference votes. The result is due on September 12th, but some bookmakers are already paying out to those who bet on his victory.

That outcome would plunge the party into new turmoil. Hostility between Mr Corbyn's comrades and the Labour establishment would intensify. The Corbynites have already responded with vitriol to anti-Corbyn speeches by Mr Blair and Mr Brown. This week it emerged that Mr Mandelson tried unsuccessfully to persuade the three other candidates to pull out of the contest, making it invalid. Several front-benchers have ruled out serving in Mr Corbyn's shadow cabinet. Two, Tristram Hunt and Chuka Umunna, are launching a group of moderates on September 8th as a focus for opposition.

Recriminations are already flying. Allies of Andy Burnham, the shadow health secretary, have criticised Yvette Cooper, the shadow home secretary, for refusing to pull out and let their man be the "stop Corbyn" candidate. Ms Cooper's campaign has attacked Mr Burnham for refusing to tell his supporters to give her their second-preference votes (ensuring that, if he is knocked out before her, his votes transfer to her, not Mr Corbyn). This infighting will only produce more bitterness.

If and when he wins, Mr Corbyn will not face immediate defenestration. After all, a second contest could well produce the same result. But he will inherit a party most of whose MPs are opposed to him, significant parts of whose establishment will want to dump him before the next election and much of which is at war with itself. He will do so with no front-bench experience and having initially thrown his hat into the ring with no expectation of winning. It is almost enough to make one feel sorry for him. ■



Corbyn before the fall

# Bagehot | Getting to Cambridge

The political philosophy of Britain's most successful city



**I**T WAS just a bit of fun at the weekend,” shrugs Toby Norman, almost apologetically. Bagehot stifles a laugh at the understatement. The two are sitting in a 14th-century rectory, looking at three gizmos. Mr Norman’s team built the first, a brick of plastic and circuitry known as “The Hulk”, for a competition hosted by ARM, a Cambridge-based electronics firm. This attempt to create a device to help doctors and aid workers in poor countries store and retrieve patient data (along with a second, smaller version), attracted mentors and over \$1m of investment. The third, all moulded plastic and contours, resembles the slick product that Mr Norman’s startup, SimPrints, will take to market in January. Its success story—a marriage of academia, private money and entrepreneurial savvy—exemplifies that of Cambridge.

It is hard to live in the city (as your columnist does) and not sense that one is amid something special. What began with the creation of business parks to host enterprising dons and their doctoral students in the 1970s has grown into the most exciting technology cluster in Europe. Microsoft probes the edges of its understanding in Cambridge. AstraZeneca, a drug giant, is building its new headquarters there. Apple is setting up shop. Some 4,000 knowledge-intensive firms exist in the orbit of a settlement of just 120,000 people. To drink in the pubs of its medieval old town is to mix with angel investors, Nobel prize-winning scientists and professors plotting their next startup with PhD students. A can-do spirit floats in the dank Fen air.

No surprise, then, that property prices are rising faster in Cambridge than anywhere else in Britain. With a productivity level 30% above London’s, it generates more patents per head than its next six British rivals put together, sports near-full employment and has more billion-dollar companies than cities ten times as big. Development theorists like Mr Norman call the path towards social and economic sophistication “getting to Denmark”. Within Britain one might reasonably call it “getting to Cambridge”.

It helps that the city has an 800-year-old university (the best in Britain and fifth in the world, according to new rankings this week) and is an hour from London. But that is not enough. So leaders from other British cities and beyond flock to analyse Cambridge’s success. A history of “the Cambridge phenomenon” by Charles Cotton, a local businessman, is being translated into

Mandarin. All want to know: what is Cambridge’s secret?

Touring its laboratories and workshops, Bagehot confronted technologists and researchers with the same question. The responses were strikingly uniform. Each asked him to step away from or stop touching whatever bit of machinery he was curiously eyeing. Each, duly reassured, proceeded to praise what one might call the enlightened laissez-faire philosophy of the city’s academic and political leaders.

This is not to say that Cambridge is hands-off. From the 1960s onwards its university and council have worked together to create benign circumstances for enterprise: building business parks, incubators and housing estates, wooing investors, railing against Britain’s restrictive immigration regime and, most recently, trying to wrangle planning and even fiscal powers away from London. The city council, though dominated by leftists, works well with the right-leaning council of the surrounding district, and with the dons. “Cambridge is like an orchid; it will grow, but the conditions have to be just right,” says Tony Raven, who runs the university’s commercial arm.

As the comparison suggests, Cambridge’s authorities also refuse to micromanage. Their attitude—crystallised in a report published in 1969 by Nevill Mott, a physics professor who had chided them for rejecting IBM—is to support development, but without choosing what sorts of high-tech industry the city should prefer. The university encourages academics to set up companies (seeking a much smaller equity share in spin-offs than do its counterparts) and makes the membrane between its laboratories and Cambridge’s private firms as porous as possible. Jeremy Sanders, one of its pro-vice-chancellors, describes his philosophy when he ran the chemistry department: “hire people smarter than you, give them as much freedom and research funding as possible, stand back and reap the harvest ten years later.”

## The liberal arts

That freedom, combined with the chance encounters that are possible in a small city full of brainy folk, means that much of Cambridge’s genius is off-balance-sheet. Entrepreneurs donate advice. Dons and angel investors take young firms under their wing. Companies invite students to help them. SimPrints, for example, hosts weekly “hacking” sessions during which young developers help solve its technical quandaries—and it also flies star volunteers out to Zambia to help test products. Fumiya Iida, one of the brains behind a robot that (terrifyingly) invents and builds new robots, notes that Cambridge is unusually good at inducing people from different disciplines (in his case zoology, genomics, computer science and engineering) to mingle, whereas elsewhere they exist in silos.

For more places to “get to Cambridge”, then, policymakers must take an interest in the long-term requirements of their local economy and troubleshoot for businesses as necessary, but leave the rest to human ingenuity and serendipity. For politicians in particular, such enlightened laissez-faire will not come easily. It is so much nicer to back the “industries of tomorrow” than merely to clear traffic jams, expand railway capacity, improve broadband speeds, free land for houses and offices and help smart foreign graduates to remain in Britain. But they should console themselves with the fact that these same quandaries are the main brake on places like Cambridge. Bagehot advises them: get these things right—no mean feat—and leave the rest to those clever people having a bit of fun at the weekend. ■



### Islam and slavery

## The persistence of history

**Islamic State's revival of slavery, extreme though it is, finds disquieting echoes across the Arab world**

**S**POILS of war," snaps *Dabiq*, the English-language journal of Islamic State (is). The reference is to thousands of Yazidi women the group forced into sex slavery after taking their mountain, Sinjar, in August last year. Far from being a perversion, it claims that forced concubinage is a religious practice sanctified by the Koran. In a chapter called "Women", the Koran sanctions the marriage of up to four wives, or "those that your right hands possess".

Literalists, like those behind the *Dabiq* article, have interpreted these words as meaning "captured in battle". Its purported female author, Umm Sumayyah, celebrated the revival of Islam's slave-markets and even proffered the hope that Michelle Obama, the wife of America's president, might soon be sold there. "I and those with me at home prostrated to Allah in gratitude on the day the first slave-girl entered our home," she wrote. Sympathisers have done the same, most notably the allied Nigerian militant group, Boko Haram, which last year kidnapped an entire girls' school in Chibok (pictured above).

Religious preachers have responded with a chorus of protests. "The re-introduction of slavery is forbidden in Islam. It was abolished by universal consensus," declared an open letter sent by 140 Muslim scholars to is's "caliph", Abu Bakr al-Bagh-

dadi, earlier this year. "You have taken women as concubines and thus revived ... corruption and lewdness on the earth."

But while is's embrace of outright slavery has been singled out for censure, religious and political leaders have been more circumspect about other "slave-like" conditions prevalent across the region. is's targeting of an entire sect for kidnapping, killing and sex trafficking, and its bragging, are exceptional; forced labour for sexual and other forms of exploitation is not. From Morocco, where thousands of children work as *petites bonnes*, or maids, to the Syrian refugee camps in Jordan where girls are forced into prostitution, to the unsanctioned rape and abuse of domestics in the Gulf, aid workers say servitude is rife.

Scholars are sharply divided over how much cultural mores are to blame. Apologists say that, in a concession to the age, the Prophet Muhammad tolerated slavery, but—according to a prominent American theologian trained in Salafi seminaries, Yasir Qadhi—he did so grudgingly and advocated abolition. Repeatedly in the Koran the Prophet calls for the manumission of slaves and release of captives, seeking to alleviate the slave systems run by the Greeks, Romans, Byzantines and Jewish Himyarite kings of Yemen. He freed one slave, a chief's daughter, by marrying her,

and chose Bilal, another slave he had freed, to recite the first call to prayer after his conquest of Mecca. His message was liberation from worldly oppression, says Mr Qadhi—enslavement to God, not man.

Other scholars insist, however, that is's treatment of Yazidis adheres to Islamic tradition. "They are in full compliance with Koranic understanding in its early stages," says Professor Ehud Toledano, a leading authority on Islamic slavery at Tel Aviv University. Moreover, "what the Prophet has permitted, Muslims cannot forbid." The Prophet's calls to release slaves only spurred a search for fresh stock as the new empire spread, driven by commerce, from sub-Saharan Africa to the Persian Gulf.

To quash a black revolt in the salt mines of southern Iraq, the Abbasid caliphs in Baghdad conscripted Turkish slaves into their army. Within a few generations these formed a power base, and from 1250 to 1517 an entire slave caste, the Mamluks (Arabic for "chattel"), ruled Egypt.

### A path to power

Their successors, the Ottoman Turks, perfected the system. After conquering southeastern Europe in the late 14th century, they imposed the *devshirme*, or tribute, enslaving the children of the rural poor, on the basis that they were more pagan than Christian, and therefore not subject to the protections Islam gave to People of the ➤

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► Book. Far from resisting this, many parents were happy to deliver their offspring into the white slave elite that ran the empire.

Under this system, enslaved boys climbed the ranks of the army and civil service. Girls entered the harem as concubines to bear sultans. All anticipated, and often earned, power and wealth. Unlike the feudal system of Christian Europe, this one was meritocratic and generated a diverse gene pool. Mehmet II, perhaps the greatest of the Ottoman caliphs, who ruled in the 15th century, had the fair skin of his mother, a slave girl from the empire's north-western reaches.

All this ended because of abolition in the West. After severing the trans-Atlantic slave trade in the 19th century, Western abolitionists turned on the Islamic world's, and within decades had brought down a system that had administered not just the Ottoman empire but the Sherifian empire of Morocco, the Sultanate of Oman with its colonies on the Swahili-speaking coast and West Africa's Sokoto Caliphate.

With Western encouragement, Serb and Greek rebels sloughed off *devshirme*. Fearful of French ambitions, the *mufti* of Tunis wooed the British by closing his slave-markets in 1846. A few years later, the sultan in Istanbul followed suit. Some tried to resist, including Morocco's sultan and the cotton merchants of Egypt, who had imported African slaves to make up the shortages left by the ravages of America's civil war. But colonial pressure proved unstoppable. Under Britain's consul-general, Evelyn Baring, Earl of Cromer, Egypt's legislative assembly dutifully abolished slavery at the end of the 19th century. The Ottoman register for 1906 still lists 194 eunuchs and 500 women in the imperial harem, but two years later they were gone.

For almost a century the Middle East, on paper at least, was free of slaves. "Human beings are born free, and no one has the right to enslave, humiliate, oppress or exploit them," proclaimed the Cairo Declaration on Human Rights in Islam in 1990. Early jihadist groups followed the trend, characterising themselves as liberation movements and, as such, rejecting slavery.

But though slavery *per se* may be condemned, observers point to the persistence of servitude. The Global Slavery Index (GSI), whose estimates are computed by an Australian NGO working with Hull University, claims that of 14 states with over 1% of the population enslaved, more than half are Muslim. Prime offenders range from the region's poorest state, Mauritania, to its richest per head, Qatar.

The criteria and data used by GSI have been criticised, but evidence supports the thrust of its findings. Many Arab states took far longer to criminalise slavery than to ban it. Mauritania, the world's leading enslaver, did not do so until 2007. Where bans exist, they are rarely enforced. The

year after Qatar abolished slavery in 1952, the emir took his slaves to the coronation of Queen Elizabeth II. Government inspections and prosecutions are rarities. "The security chiefs, the judges and the lawyers all belong to the class that historically owned slaves," says Sarah Mathewson of London-based Anti-Slavery International. "They are part of the problem."

No labour practice has drawn more international criticism than the *kafala* system, which ties migrant workers to their employers. This is not slavery as is imposed; it; migrants come voluntarily, drawn by the huge wealth gap between their own countries and the Gulf. But the system "facilitates slavery", says Nicholas McGeehan, who reports for Human Rights Watch on conditions in the desert camps where most such workers live. The Gulf's 2.4m domestic servants are even more vulnerable. Most do not enjoy the least protection under labour laws. Housed and, in some cases, locked in under their employer's roof, they are prey to sexual exploitation.

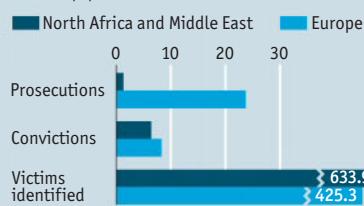
### Irons and red-hot bars

Again, these workers have come voluntarily; but disquieting echoes persist. Many Gulf nationals can be heard referring to their domestics as *malikat* (slaves). Since several Asian governments have suspended or banned their female nationals from domestic work in the Gulf out of concern for their welfare, recruitment agencies are turning to parts of Africa, such as Uganda, which once exported female slaves. Some domestic servants are abused with irons and red-hot bars: resonant, says Mr McGeehan, of slave-branding in the past.



### Impunity

Human-trafficking estimates  
Per 100m population, 2014



Elsewhere in the region, the collapse of law and order provides further cover for a comeback of old practices. Syrian refugee camps in Jordan provide a supply of girls for both the capital's brothels and for Gulf men trawling websites, which offer short-term marriages for brokerage fees of \$140-270 each. Trafficking has soared in Libya's Mediterranean ports, which under the Ottomans exported sub-Saharan labour to Europe. Long before Boko Haram kidnapped girls, Anti-Slavery International had warned that Nigerian businessmen were buying "fifth wives"—concubines alongside the four wives permitted by Islam—from neighbouring Niger.

Gulf states insist they are dealing with the problem. In June Kuwait's parliament granted domestic servants labour rights, the first Gulf state to do so. It is also the only Gulf state to have opened a refuge for female migrants. Qatar, fearful that reported abuses might upset its hosting of the World Cup in 2022, has promised to improve migrant housing. And earlier this year Mauritania's government ordered preachers at Friday prayers to publicise a *fatwa* by the country's leading clerics declaring: "Slavery has no legal foundation in sharia law." Observers fear, though, that this is window-dressing. And Kuwait's emir has yet to ratify the new labour-rights law.

Rather than stop the abuse, Gulf officials prefer to round on their critics, accusing them of Islamophobia just as their forebears did. Oman and Saudi Arabia have long been closed to Western human-rights groups investigating the treatment of migrants. Now the UAE and Qatar, under pressure after a wave of fatalities among workers building venues for the 2022 World Cup, are keeping them out, too.

Internal protests are even riskier. Over the past two years hundreds of migrant labourers building Abu Dhabi's Guggenheim and Louvre museums have been detained, roughed up and deported, says Human Rights Watch, after strikes over unpaid wages. Aminetou Mint Moctar, a rare Mauritanian Arab on the board of SOS Esclaves, a local association campaigning for the rights of *haratin*, or descendants of black slaves, has received death threats.

Is it too much to hope that the Islamic clerics denouncing slavery might also condemn other instances of forced and abusive labour? Activists and Gulf migrants are doubtful. Even migrants' own embassies can be strangely mute, not wanting criticism to curb the vital flow of remittances. When Narendra Modi, India's prime minister, visited the UAE this week, his nationals there complained that migrant rights were last on his list. Western governments generally have other priorities. One is simply to defeat IS, whose extreme revival of slavery owes at least something to the region's persistent and pervasive tolerance of servitude. ■



The motor trade

## Death of a car salesman

No one much likes car dealers. But changing the system will be hard

**T**HE internet was supposed to do away with all sorts of middlemen. Yet house sales are mostly conducted by estate agents, and car sales are still finalised in cavernous showrooms that smell of tyres. Technology is diminishing the role of car dealers, however. Customers are using the internet for much of the process of choosing a new car, and are increasingly getting loans and insurance online rather than buying them from the dealer who sells them their car. Some carmakers are seeking ways to bypass dealers too.

In the motor industry's early days, a century ago, manufacturers tried selling their vehicles at the factory gate, in shops they owned themselves, by mail order and through travelling salesmen. But eventually they settled on a system of franchising, in which independent dealers mostly sell just one maker's models. Now, almost all of the 90m motor vehicles sold worldwide each year cross dealers' forecourts. In America, the second-largest car market, their total revenues reached \$806 billion in 2014. China's car market, the largest, has rapidly come to resemble the West's, with all its faults (see box on next page).

Surveys show that car buyers find the experience of visiting a dealer boring, confrontational and bureaucratic, notes Nick Gill of Capgemini, a consulting firm. No wonder they try to avoid them. Ten years ago Americans visited five dealers before

making a purchase, according to McKinsey, another consulting outfit, but now they visit 1.6 on average. The trend is similar elsewhere in the world. In many cases car buyers turn up having already decided which model and which options they require; and, having checked price-comparison websites, how much they will pay. Almost all cars these days have decent performance and handling, so test drives are less important than ever. Styling and branding—things that can be assessed without visiting a dealer—figure more prominently in buyers' minds. The role of traditional car salesmen, geared for the hard sell, is waning.

What motorists do want, though, is someone to talk them through all the features that cars come with these days—entertainment systems, navigation services, automated parking and so on. Carmakers are beginning to respond. Since 2013 BMW, taking Apple Stores as its model, has been installing "product geniuses" in some larger showrooms, to talk potential buyers through its cars' features without pressing them to close a sale. Daimler-Benz, another German premium carmaker, and even Kia, a mass-market South Korean firm, have begun similar initiatives.

Apple's softer sell, which stresses its products' design and whizzy features, helps to persuade customers to pay premium prices. Its selling methods have also

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succeeded in training customers to accept that the list price is the final price. In contrast, the motor industry has spent more than a century training buyers to expect haggling, followed by discounts. Yet customers say having to argue about the price is one of the things that puts them off dealers. Some firms are offering them ways to avoid it. Costco, a discount retailer, sold 400,000 new and used cars in America last year, using its buying power to get good deals, doing the haggling on behalf of motorists. Lexus, Toyota's premium brand, is experimenting with haggle-free pricing in a handful of its American dealerships.

Some dealers are experimenting with selling cars online, or opening temporary "pop-up" showrooms in shopping centres. Others are offering to bring cars to a potential buyer's home or workplace for a test drive. But the most controversial experiment is the one that Tesla, a maker of expensive electric cars, is trying: cutting out the dealers altogether and selling directly to motorists. Two decades ago Ford and General Motors tried to revive this idea from the industry's early days, but they were deterred by resistant dealers and restrictive laws in some American states. The legislation, enacted in the 1950s to protect dealers from onerous terms that carmakers were trying to impose on them, is now being used to put the brakes on Tesla. It has battled to open stores in several states where direct sales are banned or restricted (see diagram, next page). And it is winning most of its fights. New Jersey and Maryland recently overturned bans, though the struggle continues in Arizona, Michigan, Texas, and West Virginia.

In other countries, although carmakers face no legal hurdle to selling directly, they certainly would face resistance from their dealer networks. Nonetheless, Hyundai, ►

Daimler Benz, BMW and Volvo have set up small experiments in Europe to sell cars through their company websites. Customers can use the sites to configure their new cars and pay a deposit. Volvo sold all 1,900 of a special version of a sports-utility vehicle it offered online last year, and it now wants to get its entire line-up for sale online by 2016. Daimler is mulling an expansion of pilot schemes in Hamburg and Warsaw. GM's premium Cadillac brand plans to open several test-drive centres and virtual dealerships across Europe.

In all these cases except that of Tesla, the final stage of the transaction is handled offline, by a dealer. Even so, such selling methods strengthen customers' relationships with carmakers, so they may steadily weaken the case for having dealers. This trend is set to be reinforced anyway, since most new cars will soon come with built-in mobile-internet connections that, among other things, will stream data directly to the manufacturer. By offering motorists such things as remote diagnostics and automatic updates to the software installed in their cars, the makers will have a ready-made excuse to stay in touch.

If carmakers did eventually cut out the middlemen, it could mean higher profits for them, lower prices for buyers, or both. Daron Gifford of Plante Moran, a consulting firm, notes that the potential savings could run from a few hundred to a few thousand dollars per car. Since mass-market carmakers' margins are so slim, it could have a striking effect on their profitability.

Aside from the prospect of capturing the retail margin, and building direct links with buyers, carmakers' shareholders have another reason to support the idea of eliminating dealers. That is because many manufacturers have got into the bad habit of overproducing, and of using dealers' forecourts as dumping-grounds for their excess stock. In the trade it is called "channel-stuffing": manufacturers twist dealers' arms to take on their surplus cars, with a combination of juicy discounts and the

threat of holding back more sought-after models. If cars were sold directly by the maker, and production were constantly tailored to match sales, the industry's fortunes could be transformed.

Dealers, predictably, are desperate to remain the source of new cars even though they often make little or no money flogging them. In Britain, typically two-thirds of revenues but less than a quarter of profits come from that part of the business. However, selling new cars is the engine that drives the rest of their business—finance, insurance, warranties and other aftermarket products. Buyers often bring their cars back for repairs and servicing. Trade-ins

provide dealers with a stock of used cars, another important source of income. In America, such ancillaries helped dealers survive in the six years to 2011, when they were selling new cars at a loss.

Online firms are replicating these services and chipping away at dealers' local monopolies. Websites such as Edmunds and TrueCar in America, Carwow in Britain and Mobile.de in Germany let buyers quickly gather quotes from multiple dealers. Likewise, cheap insurance, finance and warranties are easy to find online. Motorists may get a better price for their old cars from a site like webuyanycar.com in Britain than by doing a trade-in with a dealer. ►

### China's motor trade

## Driven to the brink

SHANGHAI

### Slowing car sales are a threat to shaky dealerships

CHINA'S car market used to run like a high-revving engine. But after double-digit growth in much of the past decade, sales volumes have slowed dramatically. Barclays, a bank, recently revised its growth forecast for 2015 down from 8.5% to just 1.7%. Others think sales may even shrink. China's car dealers, mostly newcomers to the business and over-reliant on selling new cars for their livelihoods, are struggling to cope.

Carmakers frantically expanded their networks when sales were booming, and now China has a surfeit of dealers. By the end of 2014 some 26,400 had set up, according to Sanford C. Bernstein, a research firm, 60% more than in America, even though China's new-car sales are just 40% higher. Often, carmakers handed out franchises with little regard for the suitability of either the location or the dealers themselves. The German premium marques have done best at building an efficient network (see chart). But even their dealers are having to scrap among themselves for custom.

There has not yet been much consolidation of car retailing into larger chains of dealers. The 100 biggest dealership firms have just a fifth of total outlets; almost three-fifths are single-site operations, often run by a local entrepreneur with limited capital and even less idea how to flog motors. Most are powerless to resist carmakers stuffing their showrooms with surplus stock that requires heavy discounting. Chinese consumers' enthusiasm for haggling is only being reinforced as a result.

Chinese dealers have neglected the ancillary businesses, from insurance and loans to servicing and spares, that contribute much of their Western counterparts' profits, notes Jochen Siebert of JSC

### Their mileage may vary

Average number of cars sold per dealership in China, foreign premium brands, 2014



Source: Sanford C Bernstein

Automotive, a consulting firm. Dealers lack the experience to trade the second-hand cars that are now flooding on to the market. Used vehicles account for 14% of profits at American dealerships but just 2% in Chinese ones.

Car dealerships' failure to grasp these opportunities has left them open for others to exploit. Independent service garages, not linked to a car dealer, are thriving. Motorists put off by the high prices that dealers try to charge for official replacement parts are flocking to stores that sell cheap copies. Websites for trading used cars are sprouting.

The low prices dealers are getting for new cars, and their failure to profit from sidelines, are forcing carmakers to bail them out. BMW, Audi, Volkswagen and Toyota have all given cash to their dealers this year to help cover losses. Carmakers are also belatedly helping them to develop after-sales services and used-car businesses. China's badly-assembled motor trade needs a complete overhaul.

### Tesla's tessellation

Allowed	Allowed with restrictions
Uncertain*	Challenged in court, by legislation or regulation
Banned	



Source: Automotive News

\*No formal challenges known

► But just as some tourists still like to buy package holidays, there may always be some motorists who prefer a one-stop-shop that provides everything, and some who prefer to buy face-to-face rather than over the internet. America's National Automobile Dealers' Association puts forward two other reasons why motorists are better off with things the way they are. First, it argues, the competition among dealers to sell any given model helps to keep the retail profit margin low—and if carmakers captured the retail margin for themselves, there is no guarantee that any of it would be passed on to customers. Second, when a model has to be recalled because of a safety problem, dealers have an incentive to contact owners of that model promptly, since they usually get paid by the carmaker to correct the fault.

In America especially, car dealers are a powerful lobby, and unlikely to remain silent if carmakers try cutting them out of the picture. But their grip on the industry is loosening. The all-purpose dealership, encompassing sales of new and used cars, finance, insurance, servicing and parts, once made sense. Now this business model is being squeezed. If car buyers take to online buying in large numbers, it may not be long before a mass-market carmaker follows Tesla's lead and tries to muscle aside the dealers. If customers are happy to buy direct from the manufacturer, lawmakers certainly should not stand in their way. ■

#### European mobile telecoms

## Together we stand

MILAN AND PARIS

**The EU's new competition chief will have to rule on a wave of mergers**

WHEN plans to merge Wind and 3 Italia, the third- and fourth-largest mobile operators in Italy, were announced on August 6th their rivals breathed a sigh of relief. Italian operators' revenues from mobile services have fallen by 40% since 2011, according to GSMA, a global trade association. That has made them skimp on investment. Though half of Italians have a smartphone, fewer than one in ten has access to speedy "4G" services. A weak domestic economy had something to do with this, but so did the industry structure, some argue: too many operators wooing price-sensitive customers the only way they could.

If approved by regulators, the Italian job will be the latest in a series of deals that are consolidating Europe's mobile market. One by one, countries are switching from having four principal operators—ones that own their cell towers and radio spectrum—to just three (see map). In 2012 Euro-



pean Union regulators let the Austrian subsidiary of 3 Italia's parent, Hutchison Whampoa, buy the Austrian operations of Orange of France. Telefónica of Spain bought the German mobile business of KPN of the Netherlands, to combine it with its own, and Hutchison bought Telefónica's in Ireland. Now, Telenor of Norway and TeliaSonera of Sweden want to merge their Danish subsidiaries; and Hutchison, owner of Three in Britain, plans to buy Telefónica's subsidiary there, O2. Repeated attempts to merge mobile operators in France have failed, but Spain could be next: its number-four operator, TeliaSonera's Yoigo, has been on sale for a while.

Besides mobile operators merging among themselves, another form of consolidation is going on in which mobile firms combine with fixed-line operators. Most recently BT, Britain's fixed-line incumbent, has proposed buying a mobile operator, EE, from its parents, Deutsche Telekom and Orange. Vodafone, another British mobile operator, is understood to be talking to Liberty Global, a cable company.

The way to make all these mergers work, says Wolfgang Bock of the Boston Consulting Group, is to take out costs while keeping prices constant (and thus customers content). The savings can then be used to invest in improving the networks. The EU's competition regulators have, of late, accepted this rationale, even though for a long time they had believed that strong competition, among at least four firms, would spur innovation and investment, not constrain them, while keeping prices down. Many national authorities still think that way.

What has changed the climate at the EU's headquarters in Brussels is a feeling that rampant competition has given consumers cheap prices, but has left its telecoms companies weak. This worries them at a time when powerful American firms seem to be dominating the brave new digi-

tal world. Another concern is that Europe is being slow to roll out fast mobile broadband, and the savings from mergers could pay for it to be speeded up.

Pundits are divided over whether or not the first merger, in Austria, demonstrates the merits of consolidation. For Matthew Bloxham of GSMA, it does. Mobile-broadband speeds and 4G coverage have increased since the merger, he says, while average spending per user has stayed relatively constant. Significant growth in data usage has been offset by reductions in the cost per megabyte.

Antonios Drossos of Rewheel, a Finnish consulting firm, sees things differently. His firm analysed the prices customers paid in Austria and found some had risen by as much as 80% since the merger. "In any event," he says, "customers should be getting more for less: the cost of mobile gigabytes has plummeted as operators get more spectrum, pay much less for network equipment and build more cells. The question is how much better a deal they would be offered now if a fourth operator were still in the market." Austria's national competition regulator, which opposed the deal three years ago, will be releasing a new assessment this autumn.

More important, however, will be the view taken on the various proposed mergers by the EU's new competition commissioner, Margrethe Vestager. In office since November, she has yet to rule on a merger between two mobile operators. When she approved the takeover of a Spanish fixed-line firm, Jazztel, by a mobile firm, Orange, she imposed heavier conditions to preserve competition than had been expected. In her public comments so far she has sounded disinclined to buy the argument that competition hinders investment.

So, when commission staff return from their summer break next month, industry executives will be waiting to see what she does about the proposed combinations of mobile operators in Italy, Britain and Denmark. Will she move the dial further back towards preserving competition?

The first case she will have to rule on is the one in Denmark, her home country. That case may not prove a reliable template for the other decisions. It would result in a greater degree of concentration than either the Italian or the British merger, giving the new firm 45% of a market in which the new third operator is tiny. And she may be wary of attracting the ire of fellow Danes by letting prices rise. She may well let the merger through, albeit laden with conditions to encourage new competitors. That will leave Europe's policy on mobile mergers murkier than ever. ■

**Correction:** In our story about Google last week ("Spelling it out"), we should have said that the smart contact lenses it is developing detect levels of glucose, not insulin. Sorry.

**Odebrecht**

# Principles and values

SÃO PAULO

## The two sides of a construction giant facing corruption allegations

**I**N MANY ways Odebrecht, Latin America's largest construction conglomerate, is an exemplar of a modern, well-run and progressive business. It has a strong internal culture which emphasises training, meritocracy and decentralised decision-making. It led the way among Brazilian firms in going global, and now earns about half its revenues abroad. Its achievements have won it praise from afar. In 2010 IMD, a Swiss business school, named it the world's best family firm. Last year McKinsey, an American consulting firm, published a highly flattering interview with Emílio Odebrecht, the chairman, which was headed: "Principles and values have helped this Brazilian family-owned conglomerate thrive."

Odebrecht's boosters will surely be regretting their words of praise, especially the bit about principles and values, now that the firm has become caught up in a huge bribery scandal that is engulfing Brazil. On August 16th mass street protests were held, for the third time this year, in which 800,000 people railed against corruption and called for the removal of President Dilma Rousseff. Prosecutors allege that, in return for padded contracts with Petrobras, a state-controlled oil giant, a "gang" of Brazil's biggest builders funnelled cash to politicians from Ms Rousseff's Workers' Party and its coalition allies.

The scheme has cost Petrobras 6 billion reais (\$1.7 billion), its auditors reckon. But it is Brazilian builders that have taken the most direct hit. Two large ones have already filed for bankruptcy; and a handful of construction bosses are in custody awaiting trial, including Emílio Odebrecht's son Marcelo, their firm's chief executive (pictured, bottom right). The younger Mr Odebrecht has been charged with corruption and money-laundering.

The knocks have kept coming. Last month the authorities opened an unrelated investigation into whether Luiz Inácio Lula da Silva, Ms Rousseff's predecessor, had lobbied illegally to help Odebrecht win juicy foreign contracts since leaving office in 2010. On August 14th the police raided Odebrecht's offices in an investigation into alleged corruption over the contract to build the Arena Pernambuco, one of the stadiums in which Brazil staged the 2014 football World Cup. In all these cases Mr Odebrecht, his company and the politicians involved all protest their innocence.

Despite the reasons to see it as a para-

gon of modernity, Odebrecht has long been accused of winning business in an old-fashioned and less admirable way. In 1994 it was among a group of construction firms named in a congressional inquiry as having bribed politicians to win work (again, it denied this). Before that it was among the donors to a political-consulting firm at the centre of an influence-peddling scheme that brought down another president, Fernando Collor, in 1992. No corruption accusation against the company has ever been proved in court. Nevertheless, its current woes present the biggest challenge in its 71-year history.

### From Luther to Drucker

The Odebrechts have been building in Brazil since 1856, when a young engineer called Emil was among a wave of German immigrants. Today's company was founded in the 1940s by Marcelo Odebrecht's grandfather, Norberto. From the start it espoused a management philosophy that combined the Protestant work ethic—infused by the founder's childhood tutor, a Lutheran pastor—with the ideas of Peter Drucker, an American management guru.

In modern times Odebrecht has expanded into other industries, from petrochemicals to forestry. Having survived Brazil's currency collapse in 1999, it benefited from a splurge of infrastructure spending under Mr Lula da Silva's 2003–10 government. The company also won lots of contracts in other resource-rich countries



Many questions to answer

where it had a foothold, from Angola to Venezuela. Now, the group employs 181,000 people in 21 countries. Its innovative petrochemicals business, Braskem (a partnership with Petrobras), is listed on the New York Stock Exchange and boasts an investment-grade credit rating. Its construction arm still has one, too, the Petrobras affair notwithstanding, thanks to low debt and net cash of 1.5 billion reais.

Odebrecht owes its success in part to its strong internal culture. Employees, who are referred to as *integrantes* (members), are expected to study Norberto's five books, and are quizzed on their teachings. In their first five years corporate acculturation makes up a big part of their annual appraisals. Targets, which constitute the rest, are set jointly by superiors and subordinates, who in turn are subsequently given a lot of freedom to meet them—and rewarded with generous profit-shares if they do. The result is a sense of loyalty that verges on the religious. A closed Facebook group called Odebrecht United has more than 17,000 members, mostly employees. Their praise for the firm knows no limit: "We are all one family, we are all Odebrecht!", one disciple has posted.

Will this unrivalled devotion be enough to carry the firm through its latest rough patch? Authorities in places like Colombia and Peru are now poring over their Odebrecht contracts. Banks are cautious about extending new loans while the controversy rages. On August 12th Odebrecht, along with Queiroz Galvão and Camargo Corrêa, two other construction firms under investigation in the Petrobras affair, pulled out of a consortium to build a nuclear-power station near Rio de Janeiro. An official from a state-run utility overseeing the contract is under arrest, accused of receiving bribes from other companies.

However, the government, keen to avoid big job losses, is promising that builders implicated in the Petrobras affair will not be barred from public-sector work. Odebrecht's oilfield-services subsidiary is under investigation but last month it still managed to secure a \$800m loan from a consortium of international banks.

A question-mark remains over the company's future leadership. Marcelo Odebrecht, aged 46 and described by a long-time acquaintance as a "supremely intelligent, almost robotic pragmatist", groomed for his job since childhood, would be hard to replace if he were convicted. Besides his 70-year-old father only four other family members work at the company, none in a position to take the reins of the whole group. So if a new chief executive were needed, the job might fall to a non-Odebrecht, such as the chief counsel and acting boss, Newton de Souza, who has been with the firm since 1988. Given how close-knit the company is, such a change may not make much difference. ■

# Schumpeter | When workers are owners

The received wisdom that employee ownership is a good thing comes with caveats



IT IS popular to lament the growing gap between capitalists and workers. In one respect, however, the gap is shrinking: the number of workers who own shares in the business that employs them has never been higher. America leads the way: 32m Americans own stock in their companies through pension and profit-sharing plans, and share-ownership and share-option schemes. The idea continues to gain momentum. Hillary Clinton's recent speeches suggest that she may make it an important plank in her plans to reform capitalism. And worker-capitalists are also on the march in Europe and Asia.

Conservatives like employee ownership because it gives workers a stake in the capitalist system. Left-wingers like it because it gives them a piece of the capitalist pie. And middle-of-the-roaders like it because it helps to close a potentially dangerous gap between capital and labour. David Cameron, Britain's Conservative prime minister, praises John Lewis, a retailer entirely owned by its staff. Bernie Sanders, America's only socialist senator and now a candidate for the Democratic nomination (see Lexington column), is a champion of employee share-ownership.

The trend is also being driven by a long-term shift from "defined benefit" (DB) pension plans, in which employers guarantee the retirement income of their workers, to "defined contribution" (DC) schemes, in which workers and employers put money into an investment pot, with no guarantees of how much it will eventually pay out. Including current workers and pensioners there are more than 88m DC plans in existence. A 2013 survey by Aon Hewitt, a consulting firm, found that 14% of such plans' assets were invested in the shares of the employer in question.

A number of studies have found that workers at firms where employees have a significant stake tend to be more productive and innovative, and to have less staff turnover. Employee ownership has its drawbacks, however. One is the risk that workers have too many eggs in one basket: if their employer goes bust they can lose their pensions as well as their jobs. Enron employees were encouraged to stuff their "401(k)" plans (the most popular type of pension scheme) with company stock. Just before the firm went bankrupt in 2001 the average employee held 62% of his or her 401(k) assets in Enron shares. Likewise when Global Crossing went bust a few months later, the collapse in its shares wiped

out a large chunk of its workers' pension savings. Despite various initiatives by Congress to stop firms touting their shares to employees, cases are still arising: some former workers at Radio Shack, a retailer that filed for bankruptcy in February, are taking the firm to court, arguing that it kept offering to make its pension contributions in the form of company shares, when it should have known they were going to lose value.

A second problem is entrenchment. Supporters of worker ownership argue that it helps companies take a more long-term perspective. Critics argue that it can entrench bad management and undermine a company's long-term competitiveness: underperforming bosses are much more likely to be able to stay in place, and resist hostile takeovers, if some of the company's shares are in friendly hands. In 1994 United Airlines handed many of its workers a 55% stake, and representation on the board, in return for pay cuts. But its performance remained poor, and it filed for bankruptcy in 2002.

A third risk is entitlement. The strongest argument in favour of employee ownership is that workers will not only toil harder if they get a slice of the profits, but will make sure that their colleagues do so too. A new paper by Benjamin Dunford and others, presented at the Academy of Management's annual meeting in Vancouver, argues that commitment can transmute into entitlement. The academics studied a sample of 409 employees at a commercial-property firm in the Midwest and found that those who invested a higher proportion of their 401(k) accounts in company stock expected better benefits—in the form of promotions and pay rises—than the rest, and took more discretionary leave. (However, the study did not consider whether, nevertheless, employee ownership boosted the firm's overall performance.)

## ESOP fables

Arguments about employee ownership can easily become too sweeping: grand claims from supporters invite vigorous rebuttals by critics. A great deal depends on how schemes are structured, and the motives for introducing them. Another recent paper, by Han Kim and Paige Ouimet, of the University of Michigan and University of North Carolina respectively, considers the sizes of ESOPs and of the firms that offer them. They find that small ESOPs (which control a stake of less than 5% in the company in question) are far more likely to boost productivity than large ones, because firms that introduce large ESOPs are often troubled ones trying to conserve cash by substituting shares for pay, or seeking to fend off hostile takeovers by giving shares to friendly insiders. They also argue that ESOPs are much more likely to work in smaller firms than larger ones because employee-owners can more easily monitor each other and thereby boost overall productivity.

There is plenty to be said for employee ownership. It can sharpen workers' motivation and go some way to healing a potentially dangerous divide between the working class and the boss class. But if politicians are serious about the idea, they need to think harder about how to make it work in practice. They should pay closer attention to how schemes are designed, and look for ways to tailor regulations and tax incentives so as to encourage well-designed schemes. They also need to deal with the problem of concentrating risk in a single company's shares. Given that the average life expectancy of Fortune 500 companies has fallen from 75 years in the 1930s to perhaps just 15 years today, encouraging employees to invest their savings with the companies that employ them is a recipe for miserable retirements. ■



### The sell-off in commodities

## Goodbye to all that

### A decade of bingeing on raw materials may leave an even longer hangover

IT WAS only a decade or so ago that Scotland was hit by the "Great Drain Robbery", the disappearance of 50 manhole covers in Fife. It gave an inkling of the emergence of a new era in commodity markets, spurred by insatiable demand from China. Scrap-metal prices—and so scrap-metal thefts—soared. Africa was over-run by Chinese engineers; Australia elected a Mandarin-speaking prime minister; and emerging markets from Argentina to Zambia relished the rising values of their farmland and mines. The boom was fanned by a weak American dollar, the currency in which most stuff that comes out of the ground is priced.

The gears have now gone into reverse. A resurgent dollar has hammered commodity prices: many have recently fallen below their levels of a decade ago. That is a fate not shared by other tradeable assets: not since the late 1990s have commodity prices been so weak compared with shares (see chart 1). The American economy is strengthening, but by no means enough to encourage thieves to filch bronze bells from Chinese temples to send as scrap to the United States. The impact of its recovery is dwarfed by slowing demand in China, which still consumes about half the world's metals such as iron, aluminium, and zinc.

The real curse for producers is over-supply in almost all raw materials. Yet they continue to act as if they are blithely un-

aware of it. Capital is still pouring into holes in the ground, creating a hangover that may last at least a decade. Jeff Currie of Goldman Sachs, a bank, says past cycles suggest it can take up to 15 years to work through the over-investment. "The world has just flip-flopped," he says.

Analysts point out that not all commodities act the same way. Coal prices started falling in 2011; crude oil hung on until mid-2014; agricultural prices hinge on the weather. But a generalised whiff of fear about China's economic prospects has re-emerged in recent weeks, partly caused by sliding stockmarkets and by the unexpected devaluation of the yuan this month. So far this year, almost all major commodities—energy, industrial metals and agricul-

ture—have fallen in a 10-20% range, a fairly homogenous performance. What's more, the supply glut is being fed by three common factors. Cost-cutting has led producers to think they can bear the pain of falling prices for longer. Heavy hitters, whether OPEC princes or global miners, still yearn to increase market share. And funding is still available.

The cost cuts are part of a self-reinforcing downward spiral. Outside America, cheap currencies vis-à-vis the dollar have made domestic inputs, such as manpower, appear less pricey. Ironically, cheaper energy and steel help, too. In Australia, for example, Gina Rinehart, a mining tycoon, uses low costs to justify opening a \$13 billion mine in the outback that is expected to produce 55m tonnes of iron ore a year—as much as America's annual output.

In the oil world, cost cuts have come from producers once thought likely to be wiped out by falling oil prices: shale producers. "Frackers" have slashed a third off their cost bases, and continue to pump enough black stuff to depress prices. Lower costs may give them a false sense of security about where prices will go: when crude prices temporarily ticked higher in America this spring, the number of drilling rigs rose for the first time since December. Shortly afterward prices fell again.

Among drilling titans, efforts to recoup market share from fracking upstarts can appear counterproductive. Led by Saudi Arabia, OPEC is pumping well above its 30m barrel-a-day quota, helping push crude prices to below \$47 a barrel on August 19th, just about the lowest level since March 2009. But if it intended to strangle American shale producers, its plan has backfired, instead pushing frackers to become more efficient. Meanwhile global miners such as BHP Billiton and Rio Tinto have continued to increase iron-ore production, despite ➤

### Also in this section

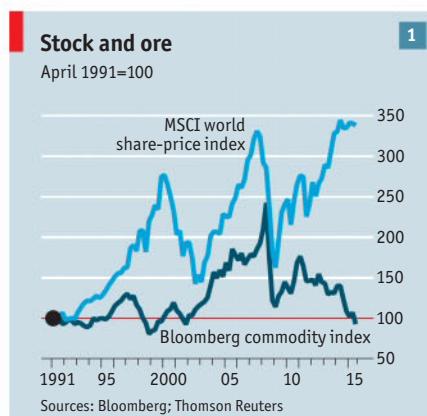
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► plunging prices. Analysts say they are trying to drive higher-cost competitors in China and elsewhere out of business.

Funding avenues have not closed down, however. Tomás Gutiérrez of Kallanish Commodities, an industry watcher, notes that in China steel output has only recently peaked. Yet rather than facing bankruptcy, many inefficient steel producers are limping along thanks to local-government support. Their surpluses are exported, adding to the pressure on global steel prices (see chart 2).

In the oil industry Goldman's Mr Currie says that, unusually, high-cost output, such as Canada's tar sands, is owned by oil majors with strong balance-sheets. Though they have cut spending, it may take longer to shut down entire projects.

Eventually stresses will manifest themselves more violently. Small shale producers may find themselves in a pickle unless prices stop falling. Deutsche Bank notes that energy companies account for about one in six of America's high-yield borrowers. It believes American crude prices below \$55 a barrel may push them into financial distress. OPEC has its own invalids, such as Venezuela, Nigeria and Libya.

But the latest leg down in crude prices may not yet have run its course. Saudi Arabia, the all-important swing producer of the cartel, is deaf to talk of a cutback. Earlier this month it raised \$5 billion to offset flagging oil income. America's summer driving season is ending. If an Iran nuclear deal is ratified by America's Congress next month, once-embargoed oil will start flowing. Glencore, an Anglo-Swiss miner and commodities trader, reported whopping losses on August 19th. Its boss, Ivan Glasenberg, has railed against rivals unwilling to throttle back production and decried "prices that are still not making any sense".

If these are daunting headwinds, they are not unusual. When prices fall far enough for long enough, output does eventually decline, as it started to do with nickel last year. In the meantime, big mining and oil firms will take over smaller ones and shut down their weakest assets. Then another decades-long cycle can start. ■

## American oil

# Nafta naphtha

### A long-overdue easing of a protectionist export ban

WHEN the economics textbooks of the future are written, America's ban on crude-oil exports will be a fine example of the perverse effects of protectionism. Similarly, a decision by Barack Obama's administration on August 14th to allow American firms to swap some oil with Mexico, so easing the restraint, will earn an honourable footnote in the story of the ban's inevitable demise.

Geology, engineering, economics and politics are all at play. In 1975, just after the first oil shock, America banned crude-oil exports in order to stabilise domestic prices. The country's oil refineries are still configured to deal with the heavy, sulphur-laden crude oil it used to import. Now, thanks to the shale revolution, oil imports have plunged as production has soared. Oil from shale is lighter and less sulphuric. There are not many refineries in America that can deal with it efficiently. Yet the ban means it cannot be exported, either.

This archaic rule now keeps the price of domestically produced oil, signalled by the West Texas Intermediate (WTI) benchmark, at a hefty discount to the world price—currently over \$6 per barrel. That has become particularly painful since OPEC's excess production has sent prices tumbling. American oilmen fume that their potential export markets are being sacrificed to the interests of America's refining industry, which enjoys artificially cheap feedstock thanks to the ban.

Others would benefit too from its wholesale demise, including consumers

around the world and possibly American motorists. Supporters of the ban say it keeps American petrol (gasoline) prices low. But the consensus among economists is that prices of refined products such as petrol are set in the world market. With American crude bringing that price down, the cost of fuel may even fall a bit for Americans.

The administration's decision will test this theory. Mexico's national oil company, Pemex, has long wanted to send its heavy crude to America, and import lighter American oil to turn into petrol; it currently imports about half of what it sells at the pumps. So long as that was counted as foreign trade, it was impossible. But the Commerce Department will allow about 100,000 barrels a day of light crude and condensates to flow into Mexico, in exchange for a similar amount of heavier Mexican crude heading to American refineries.

It is not the first breach of the ban. The definition of what constitutes crude oil owes more to art (and bureaucratic fiat) than science. America has already allowed the export of some kinds of ultra-light crude. Canada has long enjoyed a privilege similar to the one now granted to Mexico. Opposition to the ban is also growing among lawmakers: the Senate held hearings in the spring, and both houses of Congress are expected to vote on the issue before the end of the year. Its scrapping would delight America's allies: the ban undermines America's moral authority on trade. Better yet, it would also hurt unfriendly petrostates such as Russia, Venezuela and Iran.

The details will still be tricky. America's cosseted crude-oil refiners would be willing to see an end to artificially cheap raw materials in exchange for other concessions. These could include laxer environmental rules, or a change in an even more archaic law, the Jones Act, which bans foreign ships from carrying cargo between American ports. This law delights shipowners and unions, but imposes a hefty cost on anyone wanting to send a tanker from, say, a refinery on the Gulf coast to a port in the north-east.

Such a wholesale solution to this elderly quirk in the world oil market may still be some time off. But by lowering trade barriers for Mexican oil, the Obama administration will at least improve the functioning of the world oil market—and highlight the potential benefits of more dramatic reforms.



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## Bitcoin

## Forking hell

**A spat exposes unwieldy governance at the digital currency**

**F**EEDERAL Reserve deeply split. Renegade group of board members to create separate American dollar." Such a headline seems highly unlikely, but this in essence is what is happening in the land of Bitcoin, a digital currency. On August 15th two of its main developers released a competing version of the software that powers the currency. With no easy way to resolve feuds, some are warning that this "fork" could result in a full-blown schism.

The dispute is predictably arcane. The bone of contention is the size of a "block", the name given to the batches into which Bitcoin transactions are assembled before they are processed. Satoshi Nakamoto, the crypto-buff who created the currency before disappearing from view in 2011, limited the block size to one megabyte. That is enough to handle about 300,000 transactions per day—suitable for a currency used mainly by geeks, as Bitcoin once was, but nowhere near enough to satisfy the growth aspirations of its boosters. Conventional payment systems like Visa and MasterCard can process tens of thousands of payments per second if needed.

By how much and when to increase this limit has long been a matter of a heated debate within the Bitcoin community. Overlapping cabals of "core maintainers" and "main developers" serve as de facto keepers of the currency, especially in Mr Nakamoto's continued absence. Now one camp wants to increase block sizes, and do it soon. Otherwise, they argue, the system could crash as it runs out of capacity as early as next year. Transactions could take hours to confirm and fees could rocket, warns Mike Hearn, a leading Bitcoin developer. "Bitcoin would survive," he wrote in a blog post in May, "but it would have lost critical momentum."

The rival faction, supported by other heavyweight developers, frets that rushing to increase the block size would turn Bitcoin into more of a conventional payment processor. The system currently relies on thousands of independent "nodes", computers dotted across the world that check whether transactions are valid and keep tabs on who owns which bitcoins. Increasing the block size could make the whole edifice so unwieldy as to dissuade nodes from participating, so hastening a recent decline in users. The result would be a more centralised system, prompting angst among Bitcoin purists who fret concentration could undermine the currency.



The dispute is as ideological as it is technical. The Bitcoin community has a process to settle such controversies, but it is by design slow and produces decisions only when everybody is happy. Frustrated that the discussion has kept dragging on, Mr Hearn and Gavin Andresen, another Bitcoin grandee, decided to press the issue by organising a referendum of sorts: they have called on "miners", specialised nodes that assemble the blocks and mint new bitcoins, to install their new version, called "Bitcoin xt". Once at least 75% of the blocks are processed by xt, but no earlier than January, it will upgrade to a block size of a maximum of eight megabytes (and double that limit every two years). The nodes that then still run the old "Bitcoin Core" software would find themselves excluded from the system.

Predictably, this move has increased the temperature of the debate. On discussion sites such as Reddit, moderators have censored mentions of xt because they see it as an effort to undermine the Bitcoin community. Comments purportedly made by Mr Nakamoto warning that a fork would lead him to "declare Bitcoin a failed project" have been widely dismissed as a hoax.

Despite all the sound and fury, a genuine split is still unlikely. Like doves and hawks at an old-fashioned central bank, the two sides will probably agree on some sort of compromise, perhaps at two fun-sounding "Bitcoin Scalability Workshops" scheduled for later this year. And even if miners get to decide by using the version they like, this would probably not lead to a Bitcoin split. Once it becomes clear which version is likely to prevail, all miners will have an incentive to join the winning side. Already, 13% of nodes have jumped on the dissident xt bandwagon, albeit few miners. Whether majority rule is the best way to run a system with Bitcoin's pretensions is an entirely different question. ■

## Tax blacklists

## EU hypocrites!

**The naming and shaming of tax havens is fraught with folly**

**B**LACKLISTS have been a feature of tax diplomacy ever since an internationally co-ordinated assault on tax havens began in the late 1990s. One of the first lists, produced by a global anti-money-laundering body, included, among others, Panama. The Central American country rattled the only sabre it had—its canal—and was promptly taken off the list after some Western governments squealed that their companies might lose engineering contracts.

Politised though blacklisting may be, it is no less popular today. Pressure to name and shame is high in a time of post-crisis austerity. The latest such list, published in June by the European Union (EU), points the finger at 30 countries it views as "non-co-operative" on tax.

The targets (see table) have cried foul. Far from being exhaustively researched, the list is an aggregation of national lists: it includes any country blacklisted by ten or more EU members. Not only does that strike many as arbitrary, but the criteria for inclusion differ from EU state to state: some consider a low tax rate alone sufficient grounds, others require secrecy and opacity too. The most avid blacklists are financial minnows such as the Baltic states and Bulgaria; Germany and Britain are among those with no entries.

Worse, mistakes appear to have been made in the totting-up—and left unrectified even when pointed out. Guernsey is on the list by virtue of being blacklisted by precisely ten EU countries—but one of those, ➤

### The dirty thirty

EU list\* of "non-co-operative" tax jurisdictions

#### Caribbean

- Anguilla
- Antigua & Barbuda
- Bahamas
- Barbados
- Belize
- British Virgin Islands
- Cayman Islands
- Grenada
- Montserrat
- St Kitts & Nevis
- St Vincent & the Grenadines
- Turks & Caicos Islands
- US Virgin Islands

#### Pacific

- Cook Islands
- Marshall Islands
- Nauru
- Niue
- Vanuatu

#### Asia

- Brunei
- Hong Kong
- Maldives

#### Africa

- Liberia
- Mauritius
- Seychelles

#### Europe

- Andorra
- Guernsey
- Liechtenstein
- Monaco

#### Americas

- Bermuda
- Panama

\*Nominated by ten or more EU member states

► Poland, has a beef not with Guernsey but nearby Sark. Guernsey's government says that it made clear before the list was published that it has no legal authority for Sark in tax matters, but that this fell on deaf ears.

The list is at odds with reality in other ways, too. On it are Nauru and Niue, two Pacific microstates. Both have had problems with dodgy shell banks in the past, to be sure, but these were shut down a decade ago under international pressure. Today Nauru's only formal financial institution, according to an anti-money-laundering group, is a branch of Western Union, a money transmitter, in a hardware store. Niue's financial sector is by this measure at least twice as big—it boasts no fewer than two Western Union branches, plus a commercial bank. "It is hard to imagine complex tax-evasion schemes being run from such places," says Jason Sharman, an expert in offshore finance at Griffith University in Australia.

Though blacklists lack credibility among tax cognoscenti, they do matter. They affect public perceptions and give NGOs a rod with which to beat perceived offenders. Moreover, inclusion on a list damages more than just reputation. The information is fed into commercial risk software, making banks that use it less willing to deal with blacklisted countries. Few will want to open local outposts in places regularly denounced as financial rogues.

A list compiled by one country or region is often used as an input for those of others, compounding the problem. That can overlook the progress made by some places to shed their pariah status by, for example, agreeing to exchange tax information systematically. The OECD, a rich-country club which oversees that process, has called the EU list "unfortunate".

The more advanced jurisdictions on the list, such as Guernsey and Bermuda, are particularly annoyed. Though no angels, they have made progress and now meet more global tax and anti-money-laundering standards than many OECD countries do. Bermuda points out that at least 5 of its 11 EU blacklists have themselves failed to meet international tax obligations. Indeed, if the EU had assessed its own members honestly, it is hard to imagine the Netherlands, Luxembourg and Ireland—home to particularly rococo tax schemes attractive to American tech groups—not being on it. Some might add Britain, too.

The European Commission has responded to the criticism by arguing that the list should not be viewed as a central blacklist, since the batching of the 30 names is merely a "consolidation" of national lists. That is disingenuous, given that officials themselves refer to it as "the pan-EU list". They insist the removal or addition of countries is down to individual member states, not Eurocrats. One official says the list is already having a positive ef-

## Amish banking

# Nice gig

BIRD-IN-HAND, PENNSYLVANIA

## Lessons from one of America's youngest lenders

**B**ANK of Bird-in-Hand sounds like a prudent name for a lender, perhaps suitably for the first bank to be founded in the aftermath of the financial crisis. Its name is no marketing ploy, however; it is merely taken from the southern Pennsylvania town that is home to this one-branch outfit. What really marks the bank out is the clientele it caters to, the local Amish community, a religious group sceptical of modern technology and, it turns out, a rather good credit. Since opening in 2013, Bank of Bird-in-Hand has never had to write off a loan.

Bill O'Brien, one of its founders, claims this is no coincidence. Though he is not Amish himself, Mr O'Brien has been lending to farmers in this traditionalist community since moving to the area 26 years ago. Many know his phone number and call him directly when they need a loan (phones are forbidden inside Amish homes, but communal phone shanties can be used to conduct business). Others prefer to use the bank's

drive-through window, large enough for a horse and carriage.

Losses are rare because loans extended to the Amish community are well collateralised. "Plain people" typically only turn to a bank to buy land, which is more stable in value than, say, the cars that non-Amish favour as security. They also tend to make large downpayments, nearly always of 20% or more. Smaller expenditures such as livestock are more likely to be paid for out of savings or by tapping family and friends.

In his previous stint as a loan officer at another bank, Mr O'Brien can recall only one occasion when he lost money betting on an Amishman, during the recession prompted by the meltdown of Bank of Bird-in-Hand's distant Wall Street cousins. It helps, he says, that his clients believe that "when they don't pay their bills on time, it's like stealing".

If a borrower is struggling, he can always find help within the community. In some cases, more experienced farmers have been known to convince a borrower that his farm is not viable and encourage him to sell the property and use the proceeds to repay the loan. Lenders like Mr O'Brien then avoid having to foreclose or book a loss. They may not even know the borrower ran into trouble.

Extending credit to customers who always repay sounds like an easy way to make money, but financing the Amish has its challenges. Beyond having to provide wooden shelters for their horses, many clients don't have credit histories. Mr O'Brien often asks applicants about their family history instead. It also helps to be acquainted with Amish institutions and customs. Lenders, for example, must be willing to accept the communal property insurance favoured by the Amish.

Bank of Bird-in-Hand is likely to remain a niche lender. It currently holds assets worth \$96m, a piddly amount even by the standards of small-town banks. But what it lacks in size, it makes up for in credit quality.



But what's in the bush?

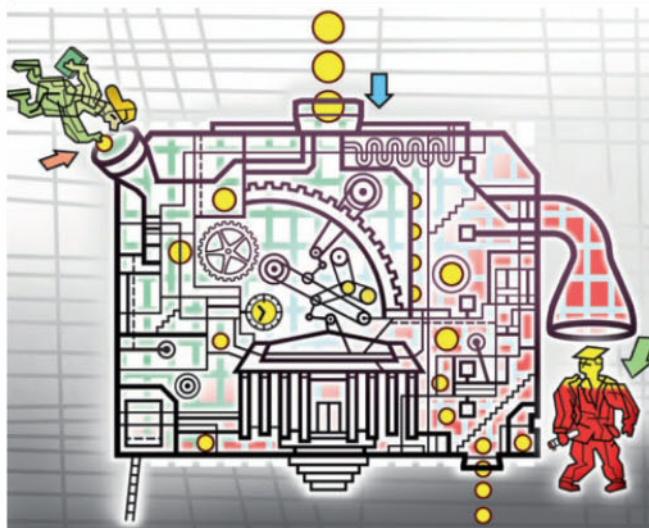
fect, by making offshore centres more willing to engage with small EU countries that have blacklisted them. After all, who knows where closer co-operation between Guernsey and Estonia could lead?

As pressure has mounted, however, Brussels has backtracked. At a meeting with the 30 ostracised states last month, it agreed to make clearer reference to efforts that some of them have made to adhere to

new tax-transparency standards—though it is not clear if it will ditch the "non-co-operative" label. Officials have assured Guernsey that it is not considered a tax reprobate, but the island remains on the list—at least until it is formally updated later this year. "This sort of thing can make you feel like your efforts are never rewarded," sighs Steve Wakelin, who handles Guernsey's international relations. ■

# Free exchange | Graduate stock

Funding students with equity rather than debt is appealing. But it is not a cure-all



**D**EBATES over how to fund higher education never lie dormant for long. In Britain, recently, there have been reforms about twice a decade; the last one, which hiked tuition fees, all but killed off the Liberal Democrats, members of the previous coalition government. In America, concerns abound over soaring costs and towering student debts. As a result, presidential candidates have been weighing in with plans to overhaul the system.

Why should the state support students in the first place? One argument is that society benefits from educated citizens, who pay more taxes, generate more jobs and help to advance human knowledge. Typically, such social gains justify subsidies. But the private returns to many degrees are juicy enough to encourage would-be students without a subsidy. The New York Fed reckons that a bachelor's degree provides a 15% return on investment.

A better argument is that a purely private market for funding college would probably struggle. Despite the rosy averages, not all graduates succeed, so borrowing to pay for college is a gamble. Students do not know what job opportunities they will have later on; lenders must guess whether a 20-year-old will become a banker or a busker. Asset-poor youngsters cannot post collateral to compensate lenders for the risk. Unable to raise cash, poor students would be locked out of education without state support.

Governments can help spread these risks around. One option is to fund higher education fully, as many European countries do (the downside being that poor taxpayers subsidise successful graduates). Another is to offer loans on more generous terms than banks. For instance, governments can make repayments conditional on graduates earning a decent income, and collect the money like an additional income tax. Australia pioneered this approach in the early 1990s; Britain has since followed. Today, Hillary Clinton promises to expand America's hodgepodge of "income-based repayment" schemes if she becomes president.

There are two problems with these schemes. First, taxpayers shoulder some risk, bailing out those who never earn enough to repay. Second, the incentives are skewed. Universities can sell dubious courses at a high price to students who do not care that the degree may not boost their earnings—as the taxpayer will foot the bill. When Britain trebled its cap on tuition fees in 2011, the government promised universities would charge the maximum only

in "exceptional circumstances". But two-thirds of universities—including many middling ones—immediately priced at the cap.

Can these problems be overcome? Marco Rubio, a Republican candidate for president, wants income-based repayment with a twist. Instead of borrowing to pay for college, students could sell a percentage share of their future income to private investors, and use the proceeds to fund their studies. Students' liabilities would then resemble equity rather than debt.

This idea—which was floated by Milton Friedman in 1955—has several advantages. Students do not face too much risk; if they earn only a pittance, they pay little. But investors will not fund a booze-up; if a course fails to add value, students will be unable to raise enough cash to enroll.

Investors, though, would still face uncertainty over a student's ability and career intentions. To resolve this, they would need to invest in a whole cohort of apparently similar students, to be sure of backing both high-rollers and hipsters. That might be easier said than done. Income-contingent financing will appeal most to students who expect low incomes; it is most expensive for the highest earners. If students can choose whether to participate, few wannabe-bankers will sign up (although an upper limit on lifetime payments might mitigate this).

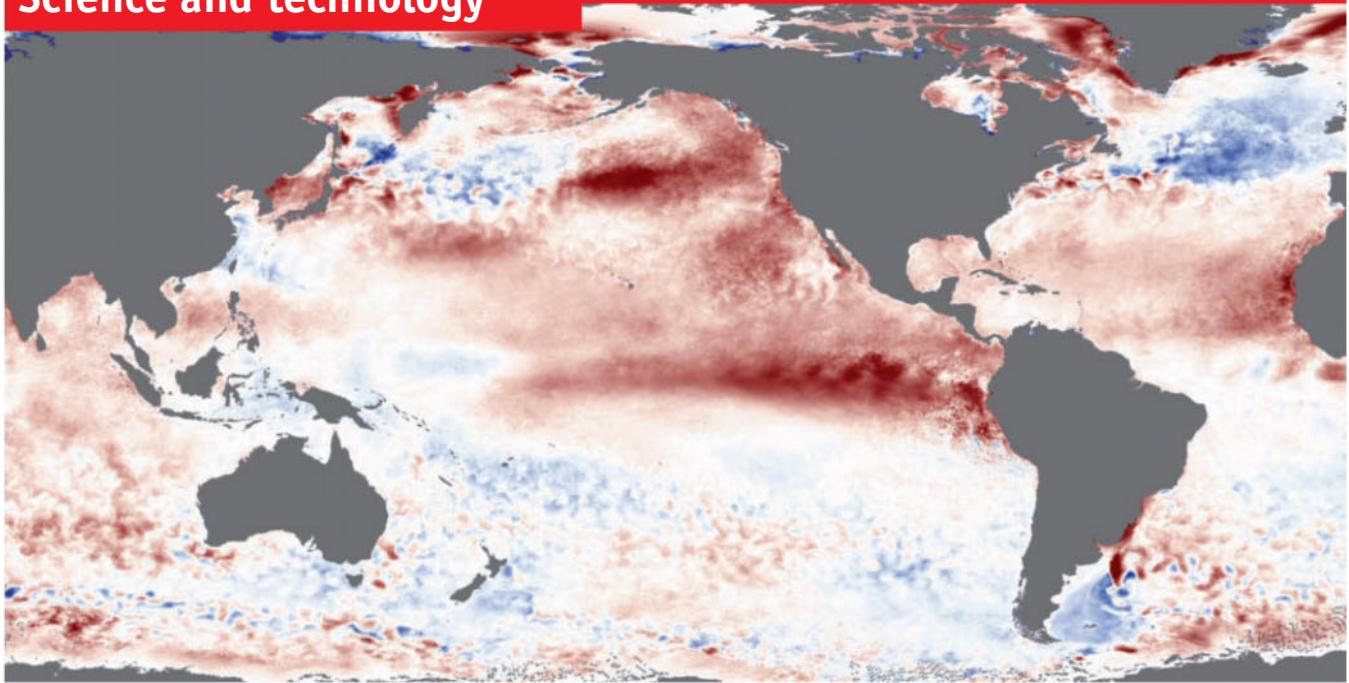
Adverse selection plagued an experiment with equity financing at Yale University. In the 1970s around 3,300 undergraduates there agreed to pay 4% of their annual income for every \$1,000 of funding they received until the entire group's fees were paid. But students who expected future riches had no incentive to sign up in the first place to what was in effect an income-redistribution scheme. Worse, those who did take the money could later buy themselves out too cheaply. Alumni were still stumping up a quarter of a century later, and Yale had to terminate the plan.

## Select wisely

Unlike the Yale students, investors would see this problem coming, threatening the viability of the contracts from the outset. But they could make their offers more attractive to the best students. For instance, Upstart, a peer-to-peer lending platform that has dabbled in equity financing, predicts students' future income based on their academic background and area of study. That could enable bright students to agree a more favourable income-sharing agreement, lessening the adverse-selection problem.

To help limit adverse selection, the government might also gradually withdraw subsidised loans, which the best students will usually prefer to equity. The main role for government would then be to help to collect payments through the tax system, as the administrative burden of monitoring incomes would be too great for investors to bear.

That day is a very long way off. In the meantime, a final problem haunts all income-based repayment schemes: moral hazard. With repayments linked to income, graduates are discouraged from working. In Britain, student-loan repayments mean most graduates face a steep marginal tax rate of 41%. Repayments that must be made come-what-may do not create this problem (American student debts persist even through bankruptcy). That means the optimal financing mix for students—as with companies—is probably some mix of discipline-inducing debt and flexible equity. On the path to the perfect scheme, pitfalls abound. But Mr Rubio's idea is a good start. ■



## El Niño

## Bringing up baby

### Beware the return of the world's most powerful climatic phenomenon

IT IS a long way from the western Pacific Ocean to the flooded streets of Buenos Aires where, this month, the city's Good Samaritans have been distributing food and candles by kayak after some unseasonably heavy rain. But there is a link. Its name is El Niño.

El Niño (Spanish for "The Boy") is a Pacific-wide phenomenon that has global consequences. A Niño happens when warm water that has accumulated on the west side of the Pacific floods eastward with the abatement of the westerly trade winds which penned it up. (The long, dark equatorial streak on the map above, which shows sea-surface temperatures for August 10th-16th, indicates this.) The trade winds, and their decrease or reversal, are part of a cycle called ENSO (El Niño Southern Oscillation—see box on next page).

The consequences of this phase of ENSO include heavy rain in south-eastern South America, western North America and eastern Africa, and drought in Australia, India and Indonesia. Another consequence, around Christmastide, is the sudden disappearance of the food supply of the Pacific anchoveta—and thus of the livelihoods of Peruvian fishermen. It was these fishermen who gave the phenomenon its name, the Boy in question being the young Jesus Christ.

El Niño-watchers at America's National

Oceanic and Atmospheric Administration (NOAA) noted worrisome ENSO-related changes in both sea temperature and air pressure earlier this year. They declared the return of the Boy in March. Australia's Bureau of Meteorology decided to wait until May. Such forecasts can be wrong. Despite signs of the phenomenon last year, no monstrous event actually emerged. But during July the surface temperature of the central equatorial Pacific was almost 1°C higher than expected, and its equivalent in the eastern Pacific was more than 2°C above expectations. Among other things, that puts the temperatures in these areas well above the 26.5°C minimum needed for the formation of tropical storms. Right on cue, on July 12th, six such cyclones spun in the Pacific—more than on any previous day in over four decades.

### Wet, wet, wet

Mike Halpert, the deputy director of NOAA's Climate Prediction Centre, believes the current Niño could be among the strongest since records began in 1950. At the moment, the title is held by the one that straddled 1997 and 1998. This is reckoned to have killed 21,000 people and wreaked \$36 billion of damage on houses, bridges and culverts. Such destruction could occur again if the trade winds relax still more, which Kevin Trenberth of America's Na-

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tional Centre for Atmospheric Research reckons might happen in September.

That would pose problems to areas already too wet, such as Argentina. But it would also affect some dry places. In California four years of drought and huge wildfires have left the landscape vulnerable to damage by deluge. Precipitation onto the denuded land may well trigger mudslides and floods. Nor will the extra rain necessarily break the state's drought, for the water will quickly find its way back to the Pacific. What California really needs is snow in the Sierras, where it will stay put, melt slowly, and thus replenish the reservoirs. But snow seems a remote possibility, thanks to the Pacific's unusual Niño-induced warmth.

California aside, though, the United States tends to benefit from Niños. Increased Pacific storm activity is matched by decreased activity in the Atlantic. That means fewer hurricanes hit America's east coast. The yields of farms in the Midwest improve too, thanks to milder weather. A recent study by Paul Cashin and Mehdi Raissi of the International Monetary Fund, and Kamiar Mohaddes of Cambridge Uni- ►

**Correction.** An editorial brainstorm in last week's Science brief, "Multiversal truths", ascribed the uncertainty principle to Erwin Schrödinger. It was, of course, elucidated by Werner Heisenberg. Apologies to the shades of both.

versity, cites the 1997-98 event as adding \$15 billion to America's economy.

Other countries, however, may be less lucky if this year's Niño is a whopper. Indonesia could dry up, hurting coffee harvests and palm oil production (see page 57). Its hydroelectric-power supply might stall. And forest fires across its parched landscape would add up to 2 billion tonnes of carbon dioxide to the atmosphere (equiva-

lent to 5% of worldwide human-related releases of the gas for the year), according to Simon Lewis of University College, London. Soyabeans in India, wheat in Australia and rice in China could also suffer. Between 1984 and 2004, according to a study published in May 2014, almost a quarter of the world's harvested areas saw yields affected by Niño-related phenomena.

A Niño may also bring disease. In 1997

and 1998, heavy rain in Kenya and Tanzania created stagnant pools ideal for the larvae of malaria-carrying mosquitoes, and also, by damaging roads, made the distribution of drugs, insecticides and bed nets difficult. That could happen again.

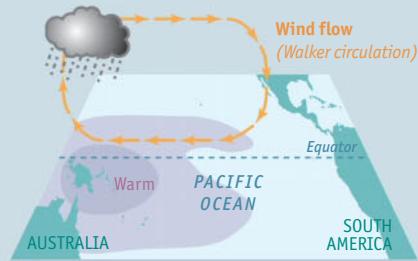
One other consequence of a strong Niño may be to test the nature of recent climate change. A Niño's rapid release of stored heat produces sudden global warming. It is, many climatologists believe, no coincidence that a recent apparent pause in global warming coincides with the quiet period since the last big Niño. There have been four sets of weak Niño-like conditions since 1998, but nothing full-blown—and between 1999 and 2013 the Earth's surface temperature rose at a rate of just 0.04°C a decade, compared with the 0.18°C increase of the 1990s.

#### Truth or dare

Many of those sceptical of the extent of human-created climate change point to the pause as evidence of earlier rises being part of a natural cycle that has now peaked. Those who think human activities are changing the climate a lot believe excess heat has been sequestered during the pause, probably in the oceans, and is sitting there waiting to be released. Last year, for example, was the hottest in recorded meteorological history, a record assisted by the partial spilling, Niño-like, of the Pacific's warm pool (even though no full-blown Niño developed). If ENSO does go the whole hog this time, it may be possible to find out who is right. ■

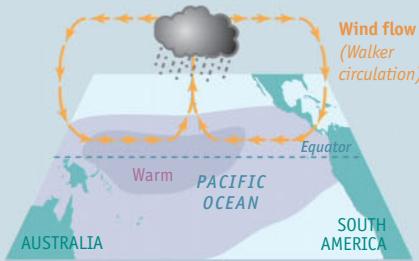
#### A walk on the wild side

Typical tropical conditions



Source: NOAA

El Niño conditions



#### Climatology

## Childbirth

#### The genesis of El Niño couples events that are half a world from each other

**E**L NIÑO is part of a wider climate system called El Niño Southern Oscillation, in which the Pacific Ocean and the atmosphere above it influence each other. This interaction drives the warming and cooling of the equatorial Pacific, which in turn affects the weather elsewhere in the world.

The process starts with surface water, propelled westward across the ocean by trade winds and heated by the sun as it travels, running into the Philippines, the Malay Archipelago and New Guinea. Over the course of between two and seven years the pool of warm water thus created grows into something with an area of about 12m km<sup>2</sup> (4.6m square miles). Balmy, humid air rises from the pool, cooling and shedding rain as it does so, as part of a phenomenon called the Walker circulation (see chart). Some of this air travels west, where it irrigates Indonesia with its precipitation. Some travels east, discharging its load on the Pacific, and then sinks back to the surface near the coast of South America, replacing the air that has travelled west as the trade winds.

Below the surface things are happening, too. The movement of warm water towards the Pacific's west draws cool water to the surface in its east. This process, known as upwelling, lifts nutrients from the dark ocean bed to sunlit levels where they can be absorbed by plank-

tonic algae and thus support one of the world's richest sources of wild protein, the Peruvian anchoveta fishery.

As the pool of warm water grows, the ocean's surface rises. This means the western equatorial Pacific's surface can be up to 30cm higher than that of its eastern counterpart. Take the trade winds away, though, and this mountain of water will collapse and start spreading east. That collapse and spread is the essence of El Niño.

To a large extent, the pooled warm waters of the Pacific west are the author of their own destruction. Once their surface temperature exceeds 26.5°C, cyclones can form. These sap the trade winds' energy, and thus their ability to keep the raised pool intact. The result is that the whole system quickly fails, the warm water sloshes back towards South America, and the Boy is born.

Higher-than-usual sea-surface temperatures across the central and eastern equatorial Pacific then slow the trade winds further, accelerating the pool's demise. The upwelling stops, and the anchoveta fishery disappears. The ascending air that starts the Walker circulation moves east, and no longer brings rain to Indonesia. And the knock-on effects of the Walker circulation's easterly movement echo around the Earth, disturbing rainfall systems everywhere, in a pattern that usually peaks in December.

#### 3D printing

## What goes around, comes around

#### Fine glass is the latest material to be manufactured additively

**G**LASSMAKING began 4,500 years ago, in Mesopotamia. The industry's first products were trinkets, such as beads and pendants, cast from moulds and carved by hand. But craftsmen quickly worked out how to make more practical stuff, such as jugs, bottles and drinking vessels, by coiling strands of molten glass around a sand or clay core of appropriate shape, which could then be shaken or scraped out after the glass had cooled.

Since those early days, many other ways of forming glass have been invented. These range from blowing forcefully through a tube to inflate a hot gob of the stuff, creating a hollow vessel, to floating it as a liquid on a bed of molten tin to produce perfectly flat window panes. But ancient wisdom often still has value, and ►

► now a group of researchers at the Massachusetts Institute of Technology have had another look at the coiling method, pronounced it good, and modernised it. Their principal updating is to dispense with the core. Instead, they have turned to the field of 3D printing—or additive manufacturing, to give its formal name. Objects of rare beauty, and possibly of great utility, result.

Neri Oxman and Peter Houk, the team's leaders, started with the form of 3D printing most familiar to hobbyists. Fused-deposition modelling, as it is known, works by extruding a filament of semi-molten material (in desktop applications this is usually a thermoplastic) through a mobile nozzle in a pattern controlled by a computer. This builds up whatever object the software is programmed to create. Using glass instead of plastic requires higher temperatures, but the principle is the same.

The researchers' first efforts failed because the filament—pulled by gravity from a hole in the bottom of a crucible heated to 1,000°C—had an irregular diameter. This, and too-rapid (and therefore uneven) cooling to room temperature, led to poor adhesion between successive coils as an object was built up, and also to stress within the filament as it solidified. That meant the finished product was often fragile.

To overcome this problem, the team added a heated ceramic nozzle which they could use to shape and control the flow of glass through the hole, and also an annealing chamber, heated to 500°C, in which the object being manufactured is built up. This chamber acts as a staging post on the journey from the temperature of the crucible to the temperature of a room and thus reduces the risk of uneven cooling. At present, the flow of glass is turned on and off by cooling and heating the nozzle by hand, using compressed air and burning propane respectively. In future versions, this process might be automated. A plunger

could also be employed to propel the filament, thus controlling the rate at which it is extruded.

Dr Oxman and Dr Houk have already used their device to print a range of objects, including optical prisms and decorative vessels. It could also, they think, turn out things like specialist lighting fixtures and special glassware for biological experiments. One useful feature for this sort of work is that, unlike a blown-glass vessel, which necessarily has a smooth internal surface, a printed vessel can have complex surface features on the inside as well as the outside. That can help control the circulation of liquid inside such a vessel. If the process can be industrialised, then, 3D printing looks like a clever way of making bespoke glass devices that can, according to need, be either extravagantly decorative, or impressively utilitarian. ■

#### Natural aerobatics

## Glider spiders

**Arachnids that glide to safety may mirror the evolution of insect flight**

**A**S FAR as biologists can tell from the fossil record, only four groups of animals have evolved sustained, powered flight. These are the insects, the pterosaurs, the birds and the bats. Many others, though, can manage powered flight's precursor, gliding. The more researchers look into the matter, the more sorts of glider they find. And the latest to be added to the list is, scarcely for arachnophobes, a type of spider.

Its discoverer, Steve Yanoviak of the University of Louisville, in Kentucky, is an ecologist who studies the rainforests of Panama and Peru. He specialises in the ecological role of ants, the dominant animals of such forests. But he has a side interest in the evolution of flight—and, in particular, in how insects came to be the only flying invertebrates. His theory, developed in conjunction with Robert Dudley of the University of California, Berkeley, is that they started as gliders, and sprouted wings afterwards. That idea is backed by the pair's discovery, a few years ago, that wingless insects called bristletails can glide.

By glide, Dr Yanoviak means that if a bristletail misses its footing and falls from the tree in which it is living (or is thrown out of that tree by an inquisitive biologist), it can steer itself as it travels through the air, and thus reach the branches or trunk of another tree before it hits the forest floor. Since the forest floor is a bad place to be if you are a tasty morsel like a bristletail (not least because of all those ants), this trick is a good one.

Other wingless insects, including some ants, can glide too. But Dr Yanoviak found himself wondering if any invertebrate that was not an insect could manage the trick. In particular, he knew of no arachnid that could. He and his colleagues therefore started throwing arachnids out of trees in their research sites to see what happened.

Over the years they have made amblypygids, opilionids, pseudoscorpions, scorpions and various sorts of spider walk the plank in this way. Most did not so much fly, as plummet. But there was an exception, a genus of spiders called *Selenops*. These seemed able, as they fell, to steer themselves to safe harbour on either the tree they had fallen from, or a neighbour.

To understand how *Selenops* can manage what others cannot, Dr Yanoviak and his colleagues then conducted some experiments. As they report in the *Journal of the Royal Society Interface*, they collected 59 specimens of *Selenops*, covered them with orange powder to make them easily visible as they fell, and then dropped them from tree tops and videoed their falls.\*

Fifty-five of the creatures, they found, managed to steer themselves to land on a tree before they hit the ground. And the video showed them how.

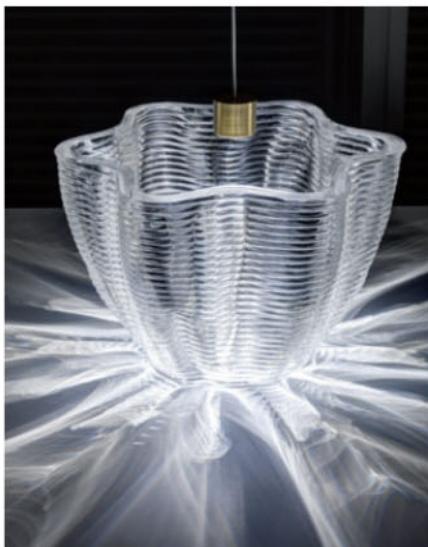
First, regardless of its orientation when shaken out of the box it was being kept in, each spider rapidly righted itself and spread its legs so that its body acted as a parachute. It then used its forelegs as rudders, to guide it through the air until it reached the tree it was aiming at.

Why, of all the spiders Dr Yanoviak has tossed out of trees, only *Selenops* can do this, is mysterious. But if he is right, and gliding was the precursor to flying among insects, then arachnophobes can thank their stars other spiders have not followed suit—and then gone on to evolve wings. ■

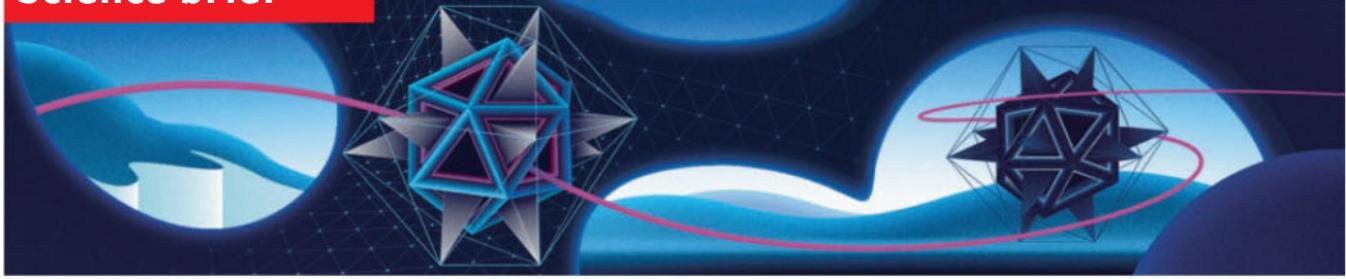
\* Video is available at [economist.com/spiders](http://economist.com/spiders)



Wheeee!



Murano eat your heart out



**Of what is the universe really made?**

## To the dark side

In the third of our briefs on scientific mysteries we ask just what it is that makes up 95% of the cosmos

ANCIENT Greek philosophers thought the world was composed of four elements: earth, air, fire and water. To explain the heavens, though, many saw a need for something more—quintessence (*quinta essentia* in Latin), a fifth element. Quintessence was part of the universe, but lay out of humanity's grasp.

These days, physicists face a similar problem. The material around them, made up of atoms, seems unable to explain what most of the rest of the cosmos is made of. Energy and matter are two sides of the same coin, so a list of universal ingredients must measure both.

The latest research has it that some form of unseen energy, of unknown nature, makes up about two-thirds of that total “energy density”. Of the stuff with mass, which thus counts as matter, inscrutable “dark matter” constitutes another quarter of the universe’s contents. What is left is what humanity perceives as normal matter. But it is far from normal. Every atom of Earth, every star dotting the heavenly vault, every bit of dust between and beyond: together they account for less than 5% of the universe’s recipe.

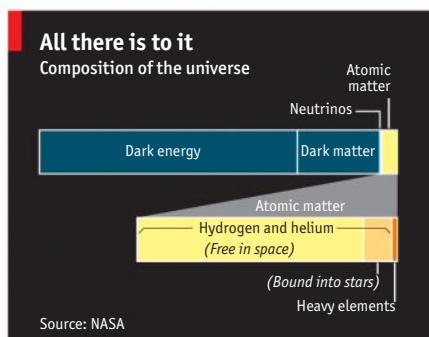
The idea that there might be more to the universe than the familiar atomic matter of stars, planets and people began to take shape in the early 1930s, when Fritz Zwicky, a Swiss astronomer, noticed something odd about the behaviour of galaxies. Those within clusters, he observed, move far faster than they should, based on the sizes of their gravitational fields, as inferred from their visible matter. Jan Oort, a Dutchman, had noticed the same thing about stars nearer Earth. Something, and a lot of it, was generating gravity without producing or reflecting light. It was Zwicky who dubbed it dark matter. At that time he estimated it outweighed the familiar kind by ten to one.

To start with, people thought dark matter was just normal matter in the guise of things that did not shine—orphan plan-

ets, perhaps. But close study of the cosmic microwave background (CMB), an all-suffusing bath of radiation left over from the Big Bang, put limits on the amount of such normal matter that the Big Bang could have created. These limits are too low to explain the apparent preponderance of dark matter if it is simply atoms that are not lit up.

These days, “cold dark matter”, as it is now known, is thought to be made of something which does not interact much with ordinary matter except via the force of gravity. One class of weakly interacting particle, neutrinos, is well known, but these are too light to balance the ledger (see chart). To distinguish what they seek from neutrinos, researchers refer to the components of cold dark matter as weakly interacting massive particles, or WIMPs.

**A problem of considerable gravity**  
In the 1980s, as simulations based on cold dark matter lined up better and better with astronomers’ detailed maps of galaxy clusters, it seemed that the two types of matter, dark and visible, accounted for all of the stuff in the universe. In 1990, however, a survey of 2m galaxies suggested that they did not. Though matter was drawing things together, something else was pushing them apart—and that something else was so powerful that it formed much of the universe.



The story of what that something might be began in 1915, when Albert Einstein was putting the finishing touches to his general theory of relativity. Einstein’s problem was that his theory predicted a universe whose size could vary—in contrast to the idea then widely held, not least by himself, that it was of a fixed extent.

The answer to what such a stretchy universe might mean lay in observations made a few years earlier by Vesto Slipher, an American astronomer who had been measuring the speeds and distances from Earth of far-flung galaxies. What he found was that galaxies more distant from Earth were moving away faster. Edwin Hubble, another American, came to the same conclusion in 1929.

One way to explain these findings was that the fabric of space itself was expanding. Einstein, when faced with the uncomfortable idea of a universe that changed its size, had fudged his equations with a “cosmological constant”, denoted by the Greek letter lambda, whose value could be set to keep the universe static. Slipher’s and Hubble’s results caused him to throw this out. His equations predicting an expanding universe had been right.

After the survey of 1990, though, there were murmurs that lambda needed dusting off in order to fix things—not by holding them steady, but by pushing them apart. And the murmurs continued until 1999, when two groups of astronomers who were studying the farthest (and therefore the oldest) visible supernovae found that the speed-with-distance relation first seen by Slipher and Hubble was different in the young universe. It appeared that, after an enormously rapid, but short burst of expansion at the beginning, known as inflation, the expansion of space had settled down to something slower than it is now. It then started speeding up again (see chart on next page). Not only was the universe getting bigger all the time, it was getting bigger, faster.

Soon after this discovery, Michael Turner, a cosmologist, gave the cause a name: dark energy. Its effects were rounded up and accounted for in the revived cosmological constant. These days, “lambda-CDM”, which pairs the constant with cold dark matter, is the gold-standard theory in cosmology.

The best test bed for lambda-CDM is the CMB, which a succession of space



► telescopes have examined it in ever-greater detail. Rather than being uniform across the sky, it is riddled with ripples and hot-spots. These deviations from the average are tiny—a few hundred-thousandths of a degree—but they are telling.

The lambda- $\text{CDM}$  model reduces the universe to an equation with six easy pieces. When these are balanced to line up theory and observations—such as staggeringly precise measurements of the CMB taken by a European space telescope, *Planck*—the equation elegantly accounts for a wide range of phenomena. The model's predictions best match the *Planck* picture when the universal recipe includes 68.3% dark energy (a bit less than original estimates), 26.8% dark matter, 4.6% familiar matter and 0.3% neutrinos.

### Untangling the web

It is all well and good knowing how much of these things there is, but what exactly are they? Relativity requires that, because dark matter has mass, it bends the paths of light rays. This can induce a phenomenon called gravitational lensing. Astronomers have therefore become expert at deciphering images of distant, normal-matter objects that have been distorted en route by dark matter. What they have found is a cosmic web. Vast lumps and long threads of dark matter are spread through the universe, dragging atomic matter, in the form of galaxies, along with them.

Three kinds of experiments aim to find the WIMPs of which these threads are presumed to be made. The most straightforward try to catch WIMPs directly. Weakly interacting is not non-interacting, so WIMPs should occasionally bump into atoms, transferring a smidgen of energy as they do so. About a dozen WIMP-hunting machines have been set up in laboratories deep underground, to try to measure the tiny traces of heat, light or sound that would result from such collisions.

Another way is to look for what dark matter leaves behind. Many theories hold that WIMPs are their own antiparticles—dark antimatter, if you like—and when matter and antimatter meet, they annihilate each other in a blaze of light. Since there is lots of dark matter, annihilations should be happening in lots of places, leading to spikes of light of a particular colour. Astronomers are on the lookout for such peaks in places where they suspect

dark matter may be at its densest, such as the centres of galaxies, including the Milky Way.

Or you could just make WIMPs in a laboratory. This requires particle collisions of the highest achievable energies. And that, in turn, calls for the Large Hadron Collider, in Switzerland. There is some chance that tiny amounts of dark matter will be created there, in the soup of particles the machine's users hope to stir up.

Dark energy, meanwhile, will be an even trickier beast to capture, for theorists think it does not manifest itself in any form of particle they might plausibly create or observe. It is presumed to be distributed evenly, so should permeate laboratories on Earth. But it is weak. Efforts to spot its influence on an old-time weight-on-a-wire gizmo called a torsion balance have turned up nothing. So have experiments using a fancy source of neutrons to check for gravitational weirdness over distances of microns. Pinning dark energy's nature down, it seems, will happen in the same way as its discovery: by looking to the skies.

There are several ways to do this. The simplest is to measure ever more precisely the distances of supernovae and galaxies of various ages, and thus plot a more detailed graph of the interplay between dark energy's push to expand the universe and matter's pull to contract it.

More subtle approaches should be able to squeeze extra value out of those same data. Light and matter pushed one another to and fro in the early universe, creating pressure waves. As the early universe expanded, matter was scattered along

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these so-called baryon acoustic oscillations: more densely at the peaks of the waves and less so at the troughs. A plot of the oscillations' imprints on the distribution of matter at various distances from Earth should reveal more about dark energy's historical influence.

A third approach which may reveal that history is to focus on a weak variety of gravitational lensing. Light is bent not only by discrete chunks of mass in single galaxies, but also by the large-scale structure of all the stuff that surrounds galaxies. Better telescopes will be able to measure how dark energy has effected tiny changes on the lensing over time.

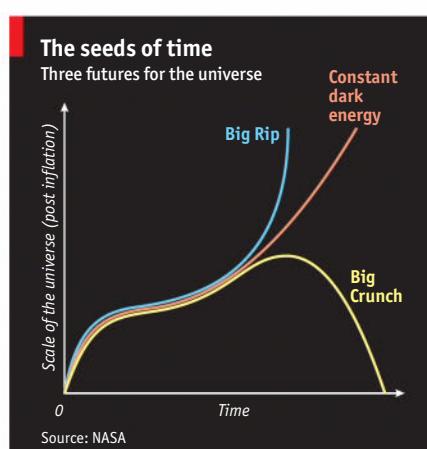
### Nothing more constant than change

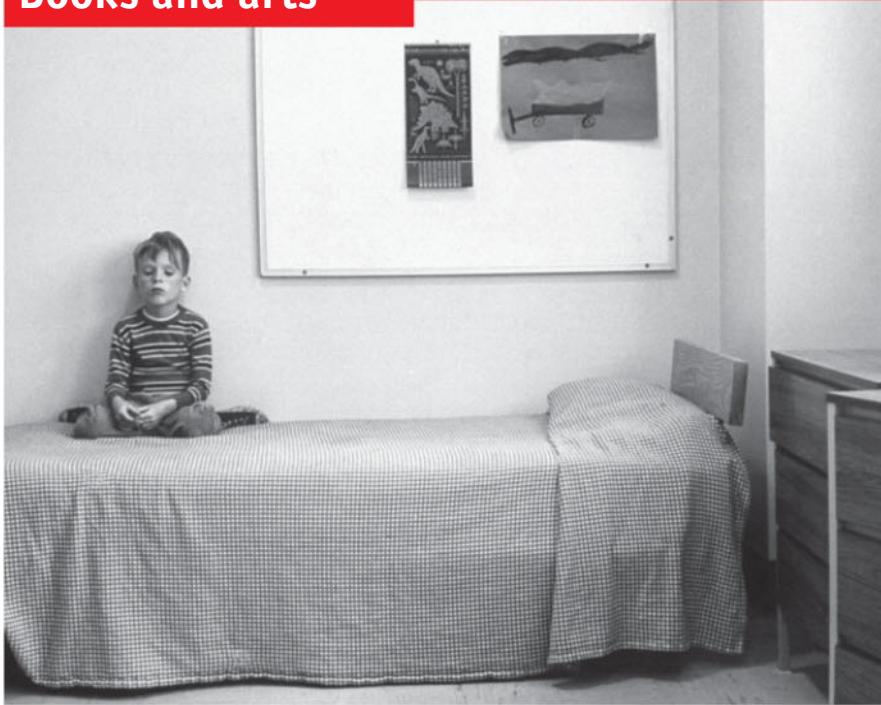
For now, though, there is a dearth of data to shore up or shoot down diverse conjectures, leaving a vast playground for theorists to mess around in. The most credible ideas involve a fundamental constant of physics—perhaps the cosmological constant itself—varying in time or space. So far, it appears that dark energy's effects came into prominence only in the past 6 billion years or so. A time-varying cosmological constant would thus be an easy fix.

That is the idea behind a theory that a handful of physicists have cleverly called quintessence. But such adjustments all run into a whack-a-mole problem: fix the darknesses and your modified theory fails to account for some other phenomenon.

Banishing the darkness is a worthy goal. Indeed, the ultimate fate of the universe is at stake. The amount and nature of dark energy, and whether its properties vary with the age or size of the universe, will dictate which of three futures happens. In one, the universe expands calmly for ever. More dramatically, the expansion may speed up as the effects of dark energy overwhelm everything else. The universe then thins out of existence in a “Big Rip”. Or matter may eventually win out over dark energy—its gravity slowing and reversing the expansion, and drawing everything together again in a “Big Crunch”.

In an era when so much science seems understood, all this uncertainty might appear to be an embarrassment. Not so. Any physicist would tell you it is an opportunity, a frontier. After all, from his point of view, there remains 95% of the universe—a quintessential part, it might be said—yet to be discovered. ■





### Childhood autism

## Horrible history

**The treatment of autistic children in the 20th century was shocking**

EVERYTHING about autism, which is among the most common and the most slippery of mental conditions, is contested. The American Psychiatric Association, which determines what ailments American insurance companies will pay to treat, classifies it as a disorder. Many parents of autistic children are desperately searching for a cure, and find themselves easy prey for people who overpromise, selling remedies that have no scientific basis. Plenty of other people think that autism—which is characterised, among other things, by an inward focus that makes it hard to abide by the conventions of social behaviour—is not a disorder at all, and therefore has no need of a cure. America's Centres for Disease Control and Prevention thinks that one in 68 children in the country have at least a touch of autism, which if true means there are more autistic Americans than Jewish ones. This too is contested.

Steve Silberman's interest in autism was prompted more than a decade ago by his work in Silicon Valley for *Wired* magazine. He kept coming across software engineers with autistic children and, in an article entitled "The Geek Syndrome", speculated whether this was a coincidence. Work by Simon Baron-Cohen at Cambridge University suggests it is not. Mr Baron-Cohen's team has shown that peo-

**Neurotribes: The Legacy of Autism and the Future of Neurodiversity.** By Steve Silberman. Avery; 544 pages; \$29.95. Allen & Unwin; £16.99

ple who have engineers for grandfathers are far more likely to be diagnosed with autism. In "Neurotribes" Mr Silberman goes further. He traces the prehistory of autism, which he argues persuasively was around long before it was given a name in the 1940s, and explains how a condition that now seems common is the product of ego-driven scientists and of the unusual circumstances in which they worked.

The book begins on Clapham Common, in south London, in the 18th century with the perambulations of Henry Cavendish, an aristocratic scientist obsessed (in the proper sense) with measurement. Cavendish took the same route around the common at the same time every night; he ate the same meal every day; wore the same clothes, insisting that his tailor replicate them when they wore out. He avoided eye contact with people. Colleagues at the Royal Society found that they could engage Cavendish in conversation only if they avoided addressing him directly. Yet he was only turned inward in a cocktail-party sense: he endowed a library which schol-

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ars were free to borrow from (so long as they did not talk to him) and shared his scientific discoveries with anyone who was interested. Among them were hydrogen, his "inflammable air", and an accurate estimate of the Earth's mass, which he calculated on his own at home using instruments of his own design.

Cavendish died 130 years before autism was recognised, but his biography suggests he would have been a good candidate for diagnosis. The same goes for Nikola Tesla, who could not sit comfortably at a breakfast table without calculating the precise volume of the coffee cups on it, or for Paul Dirac, whose work predicted the existence of antimatter. Faced with some marital tension over his tendency to ignore his wife (and everybody else, really), Dirac constructed a spreadsheet where he could insert her queries and make sure he answered them properly, an arrangement that seems to have worked rather well for the Diracs.

Yet for all its current associations with outstanding brains, autism was first identified as a pathological state. Before it got its own label, the condition was referred to as childhood schizophrenia. At the core of "Neurotribes" is an explanation of how autism emerged as the product of conflicts between psychiatrists anxious for career advancement, as played out against the backdrop of the Holocaust. The chief protagonists in this story are Hans Asperger, he of the syndrome, and Leo Kanner, who is widely credited with the invention of autism in a paper published in 1943.

Asperger's syndrome, which has been dropped from the latest version of the Diagnostic and Statistical Manual, the textbook of American psychiatry, has been ➤

criticised for its focus on brilliant oddballs and also for its basis in a small number of observed cases. Yet Mr Silberman shows that Asperger, who was working in Nazi-controlled Austria, deliberately played up the brilliance of his patients in the hope of saving them from murder, and that his work was in fact based on the study of a large number of children who were less obviously gifted. German eugenics, inspired by work in America, referred to such children as "useless eaters" and said the kindest thing would be to kill them. Asperger lost this argument, but continued his work in a place that made it impossible. One haunting image in the book is of his head nurse buried alive in Vienna by an Allied bomb, her arms wrapped protectively around a young patient.

### Cold parents, autistic children

Kanner would surely have known of this work, done by a fellow German-speaker, but chose to ignore it. The Nazis dragged Kanner's 70-year-old Jewish mother to a gas chamber and scattered the rest of his family. After a spell working in a primitive asylum in South Dakota, he fetched up in Baltimore, where autism was born. Kanner was so keen to make a brilliant breakthrough that he insisted that his discovery was new and rare, when it was neither. That bit of vanity might have been more forgivable had he not also speculated, on flimsy evidence, that the parents of autistic children were unusually cold. *Time* magazine ran a story headlined "Frosted Children" about these "Diaper-Age Schizoids". The slur on refrigerator mothers took decades to fade.

Much of the subsequent history of autism has been about recovering from Kanner's mistakes. In his defence, Kanner never used a cattle prod, unlike some other doctors trying to treat autistic children. Perhaps the grimmest case Mr Silberman cites is of a child who would not stop crying being subjected to electroconvulsive therapy, after which he never spoke again. This sort of stuff is, thankfully, now largely forbidden. But most treatments for autism still inhabit the realm of chelation, supplements, strange diets and other junky science.

If "Neurotribes" has a shortcoming, it is a minor one. By focusing on some of the most interesting cases, Mr Silberman says little about autistic people with severe learning difficulties who will probably require lifelong care. It may be that in a generation the diagnosis thrashed out by Asperger, Kanner and their heirs will splinter anew into lots of separate syndromes, and the notion of an autism spectrum, which is currently used to make sense of a situation where people with very different characteristics are given the same diagnosis, will fade. Whatever the future of autism, though, Mr Silberman has surely written the definitive book about its past. ■

### Finance

## The money trap

**Other People's Money.** By John Kay.

PublicAffairs; 352 pages; \$27.99. *Profile:*  
£16.99

**W**HAT is the finance sector for? This vital question is all too often forgotten in the debate about the debt crisis of 2008 and its aftermath; it certainly seemed to be forgotten by bankers in the build-up to the debacle. But if the world is to avoid future banking collapses, or at least limit their economic impact, people need to think clearly about the issue.

John Kay's new book, "Other People's Money", does the job; it should be read by everyone concerned with preventing the next crisis. The early books after the crash, like Andrew Ross Sorkin's "Too Big to Fail", analysed how the collapse unfolded in minute detail; Mr Kay, an academic and columnist for the *Financial Times*, takes the longer and broader view.

In doing so, he skewers the pretensions of the finance sector and questions whether its high rewards reflect its true economic contribution. Barely a page goes by without an acute observation or pithy aphorism. "A country can be prosperous only if it has a well-functioning financial system, but that does not imply that the larger the financial system a country has, the more prosperous it is likely to be," he writes. "It is possible to have too much of a good thing."

The purpose of the financial sector is to process payments, extend credit and capital to business, to manage savings and to deal with economic risks. But the sector has become dominated by trading, with

assets changing hands faster than humans can blink. This frenetic activity has had little to do with the needs of the real economy. "People who applaud traders for providing liquidity to markets are often saying little more than that trading facilitates trading," he writes. "An observation which is true, but of very little general interest."

The constant exchange of all these pieces of paper should not logically result in net profit for the finance sector as a whole, let alone the economy. When profits do occur, they require the taking of risk. All too often this trading resembles tailgating on the motorway—a high-risk strategy that works most of the time but occasionally ends in a devastating crash. Skewed incentives mean traders are rewarded for pursuing short-term profits; the cost of their mistakes will be borne by shareholders or, ultimately, taxpayers.

A further problem is that the finance sector is, by its nature, an intermediary. Banks channel money from savers to borrowers; fund managers invest on behalf of their clients. This agent-principal relationship has to rely on trust if it is to work. But the subprime mortgage debacle of 2007 showed the problems that arise from a long chain of intermediaries who cared little about the credit quality of the loans they were passing on. "People who traded mortgage-backed securities knew about securities, but very little about mortgages, and less about houses and homebuyers," Mr Kay writes. Smarter people have been employed in finance in recent decades, using more sophisticated technology, but the quality of intermediation has got worse.

So what is to be done about this? The authorities responded to the crisis with minutely detailed regulation, such as the voluminous Dodd-Frank act in America. But Mr Kay says there are already far too many regulations, not too few. The problem is the structure of the industry itself. "We need some of the things that Citigroup and Goldman Sachs do, but we do not need Citigroup and Goldman Sachs to do them," he writes. Instead of vast conglomerates, what is needed are focused institutions; banks that take deposits, for example, should be limited in the assets that they hold. Intermediaries who handle other people's money should be held to high standards of customer care, and subject to civil and criminal penalties. These penalties should fall on individuals, not corporations, which tend merely to pass on the cost to shareholders.

Above all, the finance sector should be judged on the same basis as other industries; if an activity is unprofitable without taxpayer support, it should not occur. "Our willingness to accept uncritically the proposition that finance has a unique status has done much damage," the author wisely says. Let us hope those in authority will listen. ■



## Gore Vidal

## Life out loud

**Empire of Self: A Life of Gore Vidal.** By Jay Parini. Penguin Random House; 480 pages; \$35. Published in the UK as "Every Time A Friend Succeeds Something Inside Me Dies: The Life of Gore Vidal". Little, Brown; £25

"**N**EVER lose an opportunity to have sex or be on television" is a familiar Gore Vidal quip—and, as Jay Parini notes in a marvellous new biography, Vidal enthusiastically followed his own advice. The sex was almost always homosexual; invariably "on top"; and usually in the afternoon, to allow for disciplined writing in the morning and extravagant socialising in the evening. For Vidal, television meant a show of eloquent punditry projected on both sides of the Atlantic, but most memorably—as any trawl through YouTube will confirm—in the form of confrontations on American chat shows with William Buckley, editor of the conservative National Review, and with a pugnacious fellow writer, Norman Mailer.

Vidal died in 2012 at the age of 86. He wrote so many novels, screenplays, television shows, literary commentaries and essays that he ought to defy pigeonholing. Yet that prolific versatility is precisely the reason that often he is dismissed as a social-climbing, publicity-seeking gadfly when, in his own view, he was a groundbreaking novelist superior to contemporaries such as John Updike. Vidal was always ready to give criticism but loth to take it—and was especially angered by the *New York Times*, which primly refused to review "The City and the Pillar", his best-selling exploration of gay life in America

that was published in 1948.

Given Vidal's sensitivity to any slight, real or imagined, Mr Parini wisely declined an offer that he write his story during his lifetime. The wait has allowed the author, whose friendship with Vidal began in the 1980s, to produce a portrait that is both affectionate and balanced. Vidal, knowing everyone who was anyone (from Princess Margaret to Rudolf Nureyev), was certainly a snob. He was also delighted to be rich, having as a young man not known "where the next bottle of champagne might come from," Mr Parini writes. It mattered immensely to Vidal that he could live well, whether in huge homes in America and Italy or in comfortable suites at the best hotels in London, Paris and Bangkok.

Yet Mr Parini's Gore Vidal is a man hiding his shyness with a mask of suave sophistication and with viper-like scorn for his enemies (he called Buckley a "crypto-Nazi" in one TV clash, and said Truman Capote's death was "a wise career move"). Though Vidal accused Buckley of being a "closet queen", this was not the retort of a militant homosexual: Vidal, a "pansexual", always saw "homosexual" and "heterosexual" as adjectives, not nouns.

History, as Mr Parini points out, will give its verdict on Vidal the novelist. What is already beyond doubt, though, is Vidal's importance as a "public intellectual" with a wonderfully contrarian instinct. For Vidal, who failed twice to win elected office and follow in the footsteps of his politician grandfather, his country was "the United States of Amnesia" and there were no longer two political parties: Republicans and Democrats were wings of the "Property Party". Vidal's sympathy for Timothy McVeigh, responsible for the Oklahoma City bombing in 1995, may be hard to accept, but far fewer eyebrows will today be raised by his opposition to the Vietnam war (hence the clashes with Buckley), his

scorn for Presidents Reagan and George W. Bush, his hostility to American policy in the Middle East, or even his view that America is an empire always in search of an enemy (following the demise of the Soviet Union, "one billion Muslims and the Arabs in particular" would, he said, "make a fine new evil empire to oppose").

The obvious parallel is with Noam Chomsky—and in September 1991 Mr Parini brought both Mr Chomsky and Vidal together for a television interview. Asked what motivated them, Mr Chomsky replied: "Looking in the mirror in the morning and not being appalled." Vidal, as so often with words, went one better: "For me, it's looking out of the window and not being appalled." ■

## Asia's history

## Brilliant threads

**The Silk Roads: A New History of the World.** By Peter Frankopan. Bloomsbury; 656 pages; £30. To be published in America in February by Knopf

**T**HIS is, to put it mildly, an ambitious book. The author, a historian at Oxford University, could have crafted a dozen pithy histories of, among other subjects covered: the rise of Persia; the creation of the Silk Roads, the story of long-distance trade across the Eurasian continent; the commercial as well as religious revolution that was Islam; the first global economy in the 17th century, powered by discoveries of South American silver; the 19th-century geopolitical intrigues known as the Great Game; the reasons for Germany's push east in the second world war (wheat); the Asian dimensions of the cold war and the rise of Islamist extremism.

Yet by spinning all these stories into a single thread, Peter Frankopan attempts something bold: a history of the world that shunts the centre of gravity eastward. "The Silk Roads: A New History of the World" is a counterblast to another ambitious book from an earlier generation, J.M. Roberts's Western-centric "Penguin History of the World", which came out in 1976.

Mr Frankopan writes with clarity and memorable detail. When Cyrus the Great, creator in the sixth century BC of the Persian Empire, was killed attempting to subdue the Scythians, his head was carried about in a skin full of blood "so that the thirst for power that had inspired him could now be quenched." The Huns, destroyers of the Roman Empire, bandaged the heads of their children, applying pressure to flatten the frontal and occipital bones, so causing their heads to grow in a ►►



Fine views

pointed fashion. Spending so much of their lives on horseback, when on the ground "they looked like animals standing on their hind legs": not only was their behaviour out of the ordinary, "so was the way they looked."

Where other histories put the Mediterranean at the centre of the story, under Mr Frankopan it is important as the western end of a transcontinental trade with Asia in silks, spices, slaves—and ideas. Here he is at his most original. Particularly striking is the rapid conversion Christianity made in the east—right into modern-day China. Asia and the Near East were noisy with religious competition (not least because new rulers and empire-builders wanted divine authority to underpin their rule). In the early seventh century Christian evangelists tried to win over Buddhists with the case that not only was Christianity compatible with Buddhism, "it was Buddhism." Religious jostling led to borrowings—think of the halo as a common symbol in Christian, Zoroastrian, Buddhist and Hindu art. It also spurred creativity, in the form of the outpourings of devotional Buddhist art from the Bamiyan carvings in modern Afghanistan to the painted caves of Dunhuang in north-west China.

Mr Frankopan has searched the sources. For evidence that the period after the sack of Rome really was a Dark Age, he turns to pollution measured in Greenland's polar ice-caps. They imply smelting activity returning to prehistoric levels. The author challenges received notions: the Black Death, carried into Europe in 1348 along the Silk Roads, was not the end of Europe, but its making. Catastrophic depopulation altered the balance of power between authority and labourers, who were now in a position to demand higher wages and more rights. It even saw in northern Europe the birth of a proto-feminism: "Don't hurtle into marriage too soon," wrote Anna Bijns in the Low Countries, for "one who earns her board and clothes shouldn't scurry to suffer a man's rod".

The second half of the book turns rather rapidly to 19th-century Western imperialism and its consequences in Asia. The canvas is too broad to be wholly satisfying, while the conclusion, that "new silk roads are rising again," is not really convincing. Certainly, gaudy palaces for modern potentates are on the rise from Azerbaijan to Kazakhstan. But a crescent of war, violence or brittle autocracy runs from the Middle East to western China. As for the Central Asia that Mr Frankopan cites in his conclusion, the region of fabled entrepôts like Samarkand and Bukhara, it certainly has the attention of both Russia and China. But its autocrats are Soviet-era dinosaurs, its democracy a veneer and its cultural life stifled. Far from being at the heart of a new Asia, sullen and misruled Central Asia languishes, for now, on the periphery. ■

## American television

# Down and dirty in city hall

A new series from the creator of "The Wire"

**S**HOW ME A HERO", a new series on HBO, starts with a victory speech: an ominous sign. When a first episode ends in triumph, the only way ahead is down. The year is 1987, and 28-year-old Nick Wasicsko, an ex-cop, has just become the youngest mayor of Yonkers, a New York suburb that was then mostly working-class and white. Wasicsko won because he promised to appeal a federal court order requiring Yonkers to build subsidised housing on its richer, whiter east side, to counteract the concentration of poverty in its mostly black west.

As he speaks, a telephone ringing in the background grows gradually louder. The scene cuts to the next day, when the new mayor takes a call from the city's lawyers. There are no grounds for appeal, they tell him. Wasicsko is disappointed, but resigned. Now it's time to follow the law and build the houses, he reasons: nobody can blame me for that, right?

Over the next five episodes, the ramifications of Wasicsko's decision play out in two worlds. In the world of city politics he is, of course, roundly blamed: it costs him his career (saying this gives away nothing: this is a true story, ably told by Lisa Belkin in her book of the same name, and adapted by David Simon, creator of "The Wire", and his fellow writer William Zorzi). He appeals to his fellow citizens' pragmatism: for every day Yonkers fails to come up with a workable plan to build the houses, the court will hold the city in contempt, with fines doubling daily from \$100. He also appeals for support from New York's governor and senior senator—Mario Cuomo and Daniel Patrick Moynihan, titans of 20th-century American politics and liberal icons. But they dodge his calls, unwilling to alienate their white working-class supporters. He goes from being a rising star to getting spat on in front of the television cameras.

To the show's credit, it does not turn Wasicsko into a white saviour, though at times he seems eager to be one. Oscar Isaac plays him perfectly: needy, ambitious, desperate to be loved and self-obsessed (a politician, in other words), but basically decent and a bit out of his depth. After just one term he loses the mayoralty to Hank Spallone, a charismatic demagogue who promises to "fight" the housing decision, but never says quite how. Alfred Molina plays Spallone with slicked-back hair and an alligator grin, forever chewing on a toothpick.



Broken dream

The series also shows the lives of people who are stuck in Yonkers's high-rise, crime-ridden housing projects. Initially, these stories seem peripheral: in the first episode viewers are hurled into the deep end of municipal politics. But as aficionados of "The Wire" will know, Messrs Simon and Zorzi do not create peripheral characters. Everyone matters. And as the series progresses their arcs neatly tie in to the main narrative, and it becomes their story.

Still, people outside Yonkers may wonder why they should spend six hours of their lives caring about any of this. There are two reasons. First, because the questions it raises remain painfully topical. How does a politics based on faith that people will do the right thing defend itself against demagogery? America has done away with legal segregation; how to do away with its legacies? How should people overcome the fear of their fellow citizens who happen to look different than they do?

And second, because as drama "Show Me a Hero" excels. Younger viewers may find this hard to believe, but once upon a time American studios made films for adults, with nary a dinosaur, superhero or hunger game in sight. Directors such as Elia Kazan, Sidney Lumet and Spike Lee dealt with serious moral questions, and made urban realism riveting. Messrs Simon and Zorzi are their successors, but their work is richer, more sophisticated—and better.



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## Appointments



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To be considered, education and research/professional experience/expertise are required in at least one of the following units:

**Accounting and Management:** financial reporting and analysis, management accounting, performance measurement and management control systems. Closing date: 29 November 2015.

**Business, Government & the International Economy:** economic, political, historical, and legal environment in which business operates. Closing date: 1 November 2015.

**Entrepreneurial Management:** entrepreneurial leadership and organization; emerging industries and technologies; innovation; or financing ventures and growth. Closing date for applicants with background in management, organization theory, sociology, psychology, or strategy: 1 November 2015 (indicate "Entrepreneurship (MOS)"). Closing date for applicants with background in economics or finance: 29 November 2015 (indicate "Entrepreneurship (ECF)").

**Finance:** corporate finance, capital markets, investments, behavioral finance, corporate governance, and financial institutions. Closing date: 30 November 2015.

**Negotiation, Organizations and Markets:** negotiation, decision making, incentives, the motivation and behavior of individuals in organizations, and the design and functioning of markets. Closing date for applicants with a background in judgment and decision making, negotiation, social psychology, and/or organizational behavior: 9 October 2015 (indicate "NOM - Behavioral Sciences"). Closing date for applicants with a background in economics: 20 November 2015 (indicate "NOM - Economics").

**Organizational Behavior:** micro- and macro-organizational behavior, leadership or human resources management. The unit welcomes diverse theoretical and disciplinary perspectives, including organizational behavior, organization studies, human resource studies, industrial relations, sociology, psychology, economics, and networks, among others. Closing date: 30 September 2015.

**Strategy:** competitive strategy, corporate strategy, global strategy, firm organization and boundaries, strategy and technology, strategy implementation and process, non-market strategy, and the economics of competitive interactions. Closing date: 13 November 2015.

**Technology and Operations Management:** operations management in manufacturing and service contexts, new product development, management of technological innovation, supply chain management/logistics or information technology. Candidates should submit a current curriculum vitae and a job market paper abstract by 9 October 2015. A complete application packet is due by 16 November 2015.

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## Property



### Rome (42 Romagna Street and 153 Sardegna Street)

The property is located within the historic center of Rome, 300 m. directly south of the Villa Borghese gardens. The property benefits from its close proximity to both Roma Termini (Rome's main railway station) as well as the "METRO A" underground line. The surrounding streets are characterised by a high density of luxury residential properties, as well as a number of high quality office buildings including 3 private banks. It is arranged in ground floor level, five upper floors, basement and attic and provides a gross floor area of c. 1,600 m<sup>2</sup>. The property operated as a hotel until 2007.

Minimum Acceptable Price: EUR 8,000,000

For further inquiries

Cushman & Wakefield LLP (Via Vittorio Veneto, 54/B, Roma, 00187, Italy.)

**Carlo Vanini** e-mail: [carlo.vanini@eur.cushwake.com](mailto:carlo.vanini@eur.cushwake.com) tel. +39 06 420079 45

**Fabio Braidotti** e-mail: [fabio.braidotti@eur.cushwake.com](mailto:fabio.braidotti@eur.cushwake.com) F +39 06 42007950

**Sara Pesino** email: [sara.pesino@eur.cushwake.com](mailto:sara.pesino@eur.cushwake.com) F +39 06 42007950

### Ljubljana (17 Veselova Street)

The property is a listed building situated in a prime residential area, protected by cultural heritage regulations. The surrounding area accommodates a number of embassies (of U.S.A. and Austria), government buildings, many retail stores, as well as the famous Tivoli Park. It is a two-storey building with basement and attic with a total built area of 1215 m<sup>2</sup> and two independent parking lots of 20 m<sup>2</sup> and 15 m<sup>2</sup> respectively.

Minimum Acceptable Price: EUR 800,000

For further inquiries

Coreside Savills (115v Boulevard Mihajla Pupina, 11 000 Belgrade, Serbia.)

**Srdjan Vujicic** e-mail: [srdjan.vujicic@coreside.rs](mailto:srdjan.vujicic@coreside.rs) tel. +381 11 301 0000



HELLENIC REPUBLIC ASSET  
DEVELOPMENT FUND

**GOVERNMENT OF THE PUNJAB  
LIVESTOCK & DAIRY DEVELOPMENT DEPARTMENT  
EXPRESSION OF INTEREST**

Government of the Punjab, Livestock & Dairy Development Department invites Expression of Interest (EOI) for conducting of feasibility studies for the production of Foot & Mouth Disease vaccine to cater the needs of livestock in the province of Punjab, Pakistan. The scope of work will be as under:-

A feasibility study will be conducted by the consultant / consulting firm to suggest one of the following modes of mass vaccine production and its modalities:

1. Public sector
2. Private sector
3. PPP mode will be the focused
4. UTF basis

Interested companies may forward Expression of Interest along with the following Details for shortlisting and evaluation:

1. Company profile with detail of core staff.
2. Detail of work done in the field of feasibility study including viable assessments of:
  - a) Legal matters with Public Private Partnership
  - b) Socio-economic aspects
  - c) Technically viable opinions / considerations
  - d) Initial environmental examination
  - e) Financially viable estimations
  - f) Quality assurance and control
  - g) Development of SoPs for FMD vaccine production, R&D, quality control and marketing.
  - h) Setting of modalities between L&DD Department, academia and entrepreneur under PPP business model.
3. Certificate of registration with (name of relevant professional institution) along with the latest renewal letter (for Pakistani origin firms) copy of registration
4. Demonstrated ability to implement the procedure by reliable and known international organizations / authorities / professional associations.
5. Audited statement of accounts for the last three (3) years.
6. Evaluation of EOI will be carried out as per PPRA Rules 2014

Proposals are invited from reputed firm / company (National / International) for the conducting of feasibility studies for the production of Foot & Mouth Disease vaccine with detail plan and timeline. International / national companies may participate through local representatives. Only shortlisted companies would be invited to submit RFP for the identified tasks. Participating firm / company should be able to certify that they have not been blacklisted and have not defaulted on contractual obligations. Compliance with national / international tax regime is necessary.

Expression of Interest should be forwarded not later than **15th September 2015** upto **2:00 pm** to Director Planning & Evaluation L&DD Department Government of the Punjab and will be opened on the same day at **2:30 pm** in the presence of representative of the firm. The mailing address is mentioned below.

**For further queries / details, please contact the undersigned**

**Dr. Qurban Hussain** (Director Planning & Evaluation)  
Government of the Punjab, Livestock & Dairy Development Department  
Livestock Complex 16 Cooper Road Lahore, Pakistan.  
Ph: 0092-42-99201125, E-mail: dpe@livestockpunjab.gov.pk

SPL # 1582

**CITY OF BELGRADE**  
**PUBLIC INVITATION TO SUBMIT APPLICATIONS  
FOR QUALIFICATIONS RECOGNITION**

**PPP PROJECT FOR THE CITY OF BELGRADE FOR THE PROVISION  
OF SERVICES OF TREATMENT AND DISPOSAL OF RESIDUAL MSW**

The City of Belgrade - City Administration - Secretariat for Environmental Protection (the **Contracting Authority**), a local self-government unit, with registered address at 27. marta 43-45, 11000 Belgrade, Republic of Serbia, website <http://beograd.gov.rs>, invites all interested persons to submit an application for qualifications recognition within the competitive dialogue procedure initiated in respect to granting the Public-Private Partnership contract for performance of residual municipal solid waste treatment and disposal services (the **PPP**).

The PPP project scope shall include services of design, financing, construction, operation, and maintenance of treatment and disposal facilities for about 480,000 tonnes per year of residual municipal solid waste and about 100,000 tonnes per year of construction and demolition waste, with the production of electrical and/or heat, energy, as well as services of closure and rehabilitation of the existing landfill (the **Project**). The Project is designated under CPV code 90510000-5 – Waste Treatment and Disposal Services.

For the purpose of awarding the PPP contract, the Contracting Authority will follow the competitive dialogue procedure, as a type of the public procurement procedure envisaged under the Law on Public Procurement (Official Gazette of the Republic of Serbia, no. 124/2012, 14/2015 and 68/2015). All interested persons are invited to respond to this public invitation and request for qualification (the Request for Qualification). This public invitation and the **Request for Qualification** can be downloaded electronically from the City's website (<http://beograd.gov.rs>) and the Public Procurement Portal ([www.portal.upn.gov.rs](http://www.portal.upn.gov.rs)). This public invitation and the Request for Qualification is also published in the "Tenders Electronic Daily". The applicants selected according to the terms and conditions set out in this public invitation and Request for Qualification shall be invited to participate in the dialogue stage of the competitive dialogue procedure.

The applications must be submitted in hard copy in person or via post courier service, in sealed envelope and/or box, by October 15th 2015 at 1.00pm Central European Time at the following address of the Contracting Authority

**CITY OF BELGRADE**  
BELGRADE CITY ADMINISTRATION  
SECRETARIAT FOR ENVIRONMENTAL PROTECTION  
Registry Office, 27. marta 43-45, BELGRADE, SERBIA

with annotation – ‘APPLICATION - PPP PROJECT FOR THE CITY OF BELGRADE FOR THE PROVISION OF SERVICES OF TREATMENT AND DISPOSAL OF RESIDUAL MSW – Do not open’.

The name and address of the applicant must be stated at the back of the envelope or box. The application must be sealed in a way that during the opening of application it can be determined that such application has not been opened before. It shall be deemed that an application is timely received if it is received by the Registry Office of the Contracting Authority until the deadline designated in this public invitation above.

It is not possible to submit the applications electronically, by email or by fax.

Public opening of applications received as per the terms and conditions described in this public invitation and Request for Qualification document will be done on October 15th 2015 at 2.00pm Central European Time at the following address: City Assembly of Belgrade, The Old Palace, Dragoslava Jovanovića 2, Belgrade, Serbia.

Representatives of the applicants that intend to attend the public opening of the applications must submit a special authorization for participation in the procedure of opening of applications that meets conditions set out in the Request for Qualification.

The decision on the recognition of the qualifications shall be made within 25 days as from the date of the opening of the applications.

For any additional information on the Project, please contact:  
**City of Belgrade** - Communication Address: [mswppp@beograd.gov.rs](mailto:mswppp@beograd.gov.rs).

  
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**Call for proposals – Pre-investment Inception Study: Petrochemicals and Chemical Product Manufacturing Project (PCPMP), Ethiopia**

The Government of Ethiopia, in collaboration with the UK Department for International Development (DFID), would like to invite qualified organisations to submit proposals to carry out a pre-investment inception study of petrochemical and chemical product sector investment opportunities, with the ultimate aim of creating a sustainable and internationally competitive petrochemical and chemical product sub-sector in Ethiopia.

*The study will comprise four components:* 1. market study; 2. technical configuration; 3. institutional structure; 4. transport and logistics. The key output will be a comprehensive, evidence-based report containing recommendations on whether to proceed to the next pre-investment/pre-feasibility stage. It is expected that the inception study will be completed by February 2016.

The successful bidder will be contracted through the DFID-funded Private Enterprise Programme Ethiopia (PEPE).

To obtain the terms of reference for this work please contact [pcpmptender@pepeteam.org](mailto:pcpmptender@pepeteam.org).

**Deadline for applications:** 25 September 2015

**AFRICA UNION COMMISSION (AUC)**  
**REQUEST FOR EXPRESSIONS OF INTEREST (EOI)**  
**Ref. No. AUC/CDP/QCBS/01A-2015**

Support for Capacity Development of the African Union Commission and other African Union Organs Project (P126848–World Bank) Grant No.: IDA H9390

**Development Objective of the Project (P126848):** Strengthen African Union Commission's capacity to facilitate economic development results and transformation through enhanced institutional efficiency. This will be achieved by enhancing the AUC's internal human resources and management systems, and supporting result-oriented external partnerships and collective actions designed to enhance the implementation of regional economic development initiatives in priority areas (e.g. regional trade, energy, infrastructure, governance, natural resource management) for the benefit of African Union member states, the Regional Economic Communities and African citizens.

**Contract Title:** Consultancy Services For Organizational Review And Development of an Operating Model for The African Union Other Organs.

AUC now invites eligible consulting firms ("Consultants") to indicate their interest in providing the Services as indicated on AU external website: [www.auc.int/en/bids](http://www.auc.int/en/bids)

EOI must be delivered to the address provided on the website above on or before **September 4, 2015 at 14:30 hours local time**.

**The Economist**

To advertise within the classified section, contact:

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**The Economist** August 22nd 2015



**LAGOS STATE GOVERNMENT  
MINISTRY OF HEALTH**

**REQUEST FOR EXPRESSION OF INTEREST (REOI) FOR THE DEVELOPMENT OF A MEDICAL PARK IN LAGOS, NIGERIA**

**1.0 BACKGROUND**

Lagos State, with a population of over 20 million people and projected to be the 3rd largest megacity in the world by the end of 2015 is Nigeria's economic and commercial nerve-centre.

In line with its policy thrust of making Lagos State more prosperous and safer by pursuing an inclusive economic and community development agenda built on improved infrastructure, healthy environment and educational attainment, the Lagos State Government (LASG) has commenced implementation of State Development Plan. As a key initiative for Social Development and Security, the Lagos State Ministry of Health (LSMH) has the mandate to position Lagos State as a prime global destination for persons in quest of qualitative medical care.

In this regard Lagos State Ministry of Health (LSMH) desires to create a state of the art Medical Park ("the Park") to provide a full spectrum of excellent high technology cutting-edge specialist medical and diagnostic services at a single location of 2 hectares of land along the prime Awolowo Road, Ikeja, Lagos, Nigeria.

The Lagos State Ministry of Health (LSMH) now seeks Expression of Interest from interested local and international parties, on the development of private hospitals/health centers at the medical park via a Public Private Partnership (PPP) model.

It is expected that the Park shall cater for general and specialty medical services tailored to meet the need of residents. It should include the provision of the following; with back-up diagnostic services for the polyclinics and in-patient facilities.

The asterisked services should be available on a 24/7; 365-day basis:

[A] \*Paediatrics including Neonatology [B\*] Internal Medicine including Gastroenterology and Neurology [C] \*Surgery including Neurosurgery and Urology [D] \*Obstetrics and Gynaecology [E] \*Cardiology [F] \*Orthopedics and Traumatology [G] Radiology [H] \*Emergency and Ambulance Services [I] Oncology [J] \*Clinical Support Services- [i] Administrative [ii] Medical Records [iii]Laboratory Services [iv] Diagnostic Services [v] Security [vi]Pharmacy

**2.0 REQUIREMENTS FROM INTERESTED PARTIES**

In order to be pre-qualified, the prospective party/consortia must possess the requisite capabilities and relevant experience in the provision of the required services. They are expected to submit comprehensive information that includes:

**2.1. ORGANISATIONAL DETAILS**

- Full name and nationality (country of registration) of the company and contact person, postal address, telephone, e-mail addresses and web site URL (if any)
- Brief description of the history and business of the respondent
- Ownership structure including name(s) of shareholders, percentage shareholdings, intermediate and ultimate holding company or beneficial owner
- Company registration including Certificate of Incorporation, certified true copies of Memorandum and Articles of Association and CAC Form C07 or the equivalent
- Most recent 3-Years Audited Financial Statements and latest Management Accounts if available
- Evidence of financial capacity to deliver the project as contemplated
- Evidence of previous experience and expertise in providing the required services locally and/or internationally including

experience in PPP Initiatives where applicable. This should include the following details:

- Name of Project, Brief Description and Client(s)
- Scope of work, Role, Contract Value, Nature of Contract (PPP, Lump Sum etc.) and Contractual Period
- Name and address of related client's referee

**2.2 DEVELOPMENT PLAN**

A comprehensive development plan is the main thrust of this EOI and would engender further consideration of submissions. The State is open to suggestions on possible models with justification, especially in the areas of strategic purchase of services and/or sharing of facilities, contracting out/sharing of non-clinical responsibilities, price setting, cross-fertilization of expertise and experience sharing.

The summary of the proposed Medical Park Development Plan and Models proposed should include the following:

- Nature and scope of services to be provided - clinical and allied services, diagnostic and laboratory services, on-clinical supporting and ancillary facilities and services. The distribution of the floor areas among the proposed specialties and facilities should be provided
- Commercial overview of the plan – nature and source of investments/income required for design development, construction, operations, maintenance etc.; proposed allocation of profits to shareholders and improvement/extension of hospital services
- Implementation timeframe
- Human resources for Health arrangement: the proposed manpower plan
- The proposed arrangements for adopting standard operating protocols, price transparency etc.

Preference shall be given to submissions that demonstrate exceptional value for money and operational innovation.

**3.0 SUBMISSION OF EXPRESSION OF INTEREST**

Parties may express interest for some or all of the services. The EOI submission should include;

- One (1) original copy and three (3) other copies of Expression of Interest to be delivered in a sealed envelope clearly marked "EOI – Medical Park Service" and delivered to the address below not later than **4th September, 2015** between the hours of 9.00a.m and 4.00p.m Monday –Friday.

**The Permanent Secretary  
Lagos State Ministry of Health  
The Secretariat  
Block 4  
Alausa, Ikeja. Lagos**

**Attention**

The EOI exercise is a prequalification exercise. Parties who therefore do not submit a response will be unable to participate in the subsequent procurement processes for the development of the subject site.

Furthermore, the submission of documents shall not entitle any of the interested parties to any claims against LASG and/or LSMH by virtue of such consortia having responded to the EOI invitation.

All costs incurred by respondents as a result of this Request for Expression of Interest and any subsequent requests for information shall be for respondent's account only.

**Economic data**

% change on year ago

	Gross domestic product			Industrial production latest	Consumer prices latest 2015†	Unemployment rate, %	Current-account balance		Budget balance % of GDP 2015†	Interest rates, % 10-year gov't bonds, latest	Currency units, per \$ Aug 19th	Year ago
	latest	qtr*	2015†				latest	% of GDP 2015†				
United States	+2.3 Q2	+2.3	+2.4	+1.3 Jul	+0.2 Jul	+0.4	5.3 Jul	-406.4 Q1	-2.6	-2.6	2.18	-
China	+7.0 Q2	+7.0	+6.9	+6.0 Jul	+1.6 Jul	+1.5	4.0 Q2§	+291.4 Q2	+3.0	-2.7	3.26§§	6.40
Japan	+0.7 Q2	-1.6	+0.9	+2.3 Jun	+0.4 Jun	+0.7	3.4 Jun	+97.1 Jun	+2.6	-6.8	0.38	124
Britain	+2.6 Q2	+2.8	+2.6	+1.5 Jun	+0.1 Jul	+0.2	5.6 May††	-180.5 Q1	-4.8	-4.4	1.96	0.64
Canada	+2.1 Q1	-0.6	+1.5	-4.1 May	+1.0 Jun	+1.1	6.8 Jul	-42.2 Q1	-2.7	-1.8	1.32	1.31
Euro area	+1.2 Q2	+1.3	+1.4	+1.2 Jun	+0.2 Jul	+0.2	11.1 Jun	+317.6 Jun	+2.5	-2.1	0.62	0.90
Austria	+0.4 Q2	-2.9	+0.6	+0.7 May	+1.2 Jul	+1.0	6.0 Jun	+6.5 Q1	+1.2	-2.1	0.94	0.90
Belgium	+1.3 Q2	+1.8	+1.3	+0.5 May	+0.5 Jul	+0.4	8.6 Jun	+12.1 Mar	+1.3	-2.6	1.02	0.90
France	+1.0 Q2	nil	+1.2	+0.6 Jun	+0.2 Jul	+0.3	10.2 Jun	-4.2 Jun‡	-0.9	-4.1	0.97	0.90
Germany	+1.6 Q2	+1.8	+1.7	+0.6 Jun	+0.2 Jul	+0.5	6.4 Jul	+283.1 Jun	+7.4	+0.7	0.62	0.90
Greece	+1.5 Q2	+3.1	+0.5	-4.3 Jun	-2.2 Jul	-1.0	25.0 May	+2.7 May	+2.6	-3.8	9.50	0.90
Italy	+0.5 Q2	+0.7	+0.6	-0.3 Jun	+0.2 Jul	+0.2	12.7 Jun	+45.6 Jun	+2.1	-2.9	1.80	0.90
Netherlands	+1.6 Q2	+0.3	+2.0	+3.6 Jun	+1.0 Jul	+0.4	8.8 Jun	+91.4 Q1	+9.6	-1.8	0.84	0.90
Spain	+3.1 Q2	+4.1	+2.9	+7.4 Jun	+0.1 Jul	-0.3	22.5 Jun	+15.8 May	+0.7	-4.4	1.97	0.90
Czech Republic	+4.0 Q1	+3.6	+3.1	+8.0 Jun	+0.5 Jul	+0.3	6.3 Jul§	+0.8 Q1	-0.1	-1.8	0.87	24.3
Denmark	+1.5 Q1	+2.0	+1.8	+10.6 Jun	+0.7 Jul	+0.6	4.7 Jun	+21.4 Jun	+6.7	-2.9	0.84	6.71
Norway	+1.5 Q1	+1.0	+0.7	+5.7 Jun	+1.8 Jul	+1.6	4.3 May‡‡	+39.3 Q1	+9.3	+6.0	1.46	8.30
Poland	+3.7 Q1	+3.6	+3.4	+3.7 Jul	-0.7 Jul	+0.2	10.1 Jul§	-1.0 Jun	-1.4	-1.5	2.76	3.76
Russia	-4.6 Q2	na	-3.6	-4.6 Jul	+15.6 Jul	+14.8	5.3 Jul§	+68.7 Q2	+5.0	-2.8	11.12	66.6
Sweden	+2.9 Q2	+4.0	+2.5	+1.2 Jun	-0.1 Jul	+0.2	8.5 Jun§	+38.1 Q1	+6.1	-1.2	0.66	8.52
Switzerland	+1.1 Q1	-0.8	+0.7	-0.5 Q1	-1.3 Jul	-1.0	3.3 Jul	+53.7 Q1	+6.7	+0.2	-0.19	0.97
Turkey	+2.3 Q1	na	+2.9	+7.4 Jun	+6.8 Jul	+7.4	9.3 May§	-44.7 Jun	-4.6	-1.6	10.25	2.93
Australia	+2.3 Q1	+3.8	+2.4	+2.8 Q1	+1.5 Q2	+1.7	6.3 Jul	-41.9 Q1	-3.1	-2.4	2.74	1.36
Hong Kong	+2.8 Q2	+1.5	+2.3	-1.6 Q1	+3.2 Jun	+3.1	3.3 Jul‡‡	+5.9 Q1	+2.8	nil	1.75	7.75
India	+7.5 Q1	+11.0	+7.6	+3.8 Jun	+3.8 Jul	+5.4	4.9 2013	-27.5 Q1	-1.2	-4.1	7.74	65.1
Indonesia	+4.7 Q2	na	+4.9	+5.8 Jun	+7.3 Jul	+6.3	5.8 Q3§	-21.6 Q2	-2.6	-2.0	8.54	13,798
Malaysia	+4.9 Q2	na	+5.5	+4.4 Jun	+3.3 Jul	+2.6	3.1 May§	+8.8 Q2	+3.4	-4.1	4.28	3.16
Pakistan	+5.5 2015**	na	+5.7	+3.9 Jun	+1.8 Jul	+4.1	6.0 2014	-2.3 Q2	-0.6	-5.1	9.20†††	102
Philippines	+5.2 Q1	+1.2	+6.6	-3.6 Jun	+0.8 Jul	+2.6	6.4 Q2§	+14.5 Mar	+4.1	-1.9	4.24	46.3
Singapore	+1.8 Q2	-4.0	+3.1	-4.4 Jun	-0.3 Jun	+0.4	2.0 Q2	+69.5 Q2	+21.3	-0.7	2.61	1.40
South Korea	+2.2 Q2	+1.2	+2.8	+1.2 Jun	+0.7 Jul	+1.0	3.7 Jul§	+102.2 Jun	+7.6	+0.4	2.31	1,184
Taiwan	+0.5 Q2	-6.6	+3.4	-1.4 Jun	-0.7 Jul	+0.2	3.8 Jun	+72.4 Q1	+12.8	-1.1	1.19	32.6
Thailand	+2.2 Q4	+7.1	+3.5	-8.0 Jun	-1.0 Jul	+0.8	0.8 Jun§	+16.1 Q1	+2.4	-2.0	2.39	35.5
Argentina	+1.1 Q1	+0.8	-0.2	+1.0 Jun	— ***	—	6.6 Q2§	-6.0 Q1	-1.4	-3.3	na	9.27
Brazil	-1.6 Q1	-0.6	-1.7	-3.2 Jun	+9.6 Jul	+8.7	6.9 Jun§	-93.1 Jun	-4.1	-5.8	13.75	3.49
Chile	+1.9 Q2	nil	+2.9	+1.6 Jun	+4.6 Jul	+3.8	6.5 Jun‡‡	-0.3 Q2	-1.3	-2.0	4.51	695
Colombia	+2.8 Q1	+3.3	+3.3	+1.5 Jun	+4.5 Jul	+4.2	8.2 Jun§	-20.7 Q1	-6.6	-2.1	7.31	3,023
Mexico	+2.5 Q1	+1.6	+2.6	+1.4 Jun	+2.7 Jul	+3.0	4.4 Jun	-25.5 Q1	-2.4	-3.4	6.02	16.6
Venezuela	-2.3 Q3	+10.0	-4.2	na	+68.5 Dec	+76.4	6.6 May§	+10.3 Q3	-1.8	-16.5	11.43	6.31
Egypt	+4.3 Q4	na	+4.2	-0.5 May	+8.3 Jul	+9.9	12.7 Q2§	-10.2 Q1	-1.4	-11.0	na	7.83
Israel	+1.9 Q2	+0.3	+3.4	+5.0 Jun	-0.3 Jul	-0.2	5.2 Jun	+11.7 Q1	+4.8	-2.9	2.23	3.87
Saudi Arabia	+3.5 2014	na	+2.7	na	+2.2 Jul	+2.7	5.7 2014	+39.7 Q1	-2.4	-12.1	na	3.75
South Africa	+2.1 Q1	+1.3	+2.0	-1.0 Jun	+5.0 Jul	+4.9	25.0 Q2§	-18.7 Q1	-5.3	-3.8	8.32	12.9

Source: Haver Analytics. \*% change on previous quarter, annual rate. †The Economist poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ¶New series. \*\*Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. \*\*\*Official number not yet proven to be reliable; The State Street PriceStats Inflation Index, July 27.18%; year ago 37.89%. ††Dollar-denominated bonds.

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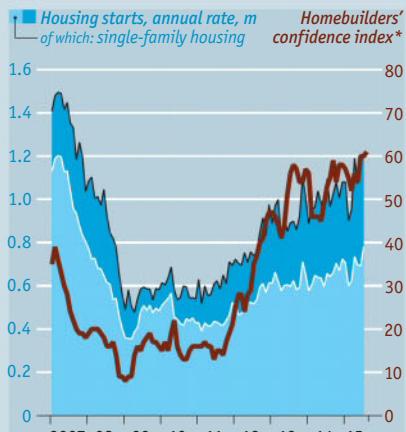


## Markets

	% change on			
	Index Aug 19th	one week	Dec 31st 2014 in local currency terms	in \$
United States (DJIA)	17,348.7	-0.3	-2.7	-2.7
China (SSEA)	3,975.0	-2.4	+17.3	+13.8
Japan (Nikkei 225)	20,222.6	-0.8	+15.9	+11.8
Britain (FTSE 100)	6,403.5	-2.6	-2.5	-2.1
Canada (S&P TSX)	14,036.6	-2.1	-4.1	-15.4
Euro area (FTSE Euro 100)	1,139.7	-1.4	+9.9	+0.4
Euro area (EURO STOXX 50)	3,429.8	-1.6	+9.0	-0.4
Austria (ATX)	2,443.7	+1.2	+13.1	+3.4
Belgium (Bel 20)	3,597.4	-1.1	+9.5	nil
France (CAC 40)	4,884.1	-0.8	+14.3	+4.4
Germany (DAX)*	10,682.2	-2.2	+8.9	-0.5
Greece (Athex Comp)	675.3	-2.3	-18.3	-25.3
Italy (FTSE/MIB)	22,975.3	-0.1	+20.8	+10.4
Netherlands (AEX)	469.2	-1.7	+10.5	+1.0
Spain (Madrid SE)	1,093.5	-1.0	+4.9	-4.2
Czech Republic (PX)	1,020.2	-0.2	+7.8	+1.0
Denmark (OMXCB)	888.6	+2.5	+31.6	+19.9
Hungary (BUX)	22,120.3	-0.4	+33.0	+23.7
Norway (OSEAX)	648.7	-2.1	+4.7	-5.9
Poland (WIG)	52,452.9	-0.2	+2.0	-4.1
Russia (RTS, \$ terms)	794.2	-4.5	+10.6	+0.4
Sweden (OMX30)	1,553.5	-1.4	+6.1	-3.2
Switzerland (SMI)	9,251.6	+0.7	+3.0	+5.3
Turkey (BIST)	75,299.6	-3.7	-12.2	-30.1
Australia (All Ord.)	5,379.8	-0.1	-0.2	-10.3
Hong Kong (Hang Seng)	23,167.9	-3.1	-1.9	-1.8
India (BSE)	27,931.6	+1.5	+1.6	-1.6
Indonesia (JSX)	4,484.2	+0.1	-14.2	-23.2
Malaysia (KLCSE)	1,582.4	-1.7	-10.2	-23.4
Pakistan (KSE)	35,461.6	-1.2	+10.4	+8.9
Singapore (STI)	3,041.3	-0.7	-9.6	-14.8
South Korea (KOSPI)	1,939.4	-1.8	+1.2	-6.1
Taiwan (TWI)	8,021.8	-3.2	-13.8	-16.1
Thailand (SET)	1,379.1	-2.1	-7.9	-14.8
Argentina (MERV)	10,954.2	-5.9	+27.7	+16.9
Brazil (BVSP)	46,588.4	-3.7	-6.8	-29.2
Chile (IGPA)	18,457.2	-1.0	-2.2	-14.7
Colombia (IGBC)	9,478.2	-3.6	-18.5	-36.0
Mexico (IPC)	46,588.4	+5.8	+8.0	-3.7
Venezuela (IBC)	14,908.4	-3.0	+286	na
Egypt (Case 30)	7,240.8	-8.5	-18.9	-25.9
Israel (TA-100)	1,493.3	+1.0	+15.9	+16.5
Saudi Arabia (Tadawul)	8,197.0	-5.9	-1.6	-1.6
South Africa (JSE AS)	50,140.9	-0.8	+0.7	-10.0

## US housing

Housing starts, a leading indicator of economic activity, have been on a steady upward trend in America. In July the number of privately-owned housing starts rose to 1.21m at an annual rate, the highest since October 2007 according to the US Census Bureau. Single-family housing starts, which account for 65% of the market, increased by 13% on the previous month to 782,000. Although permits for new buildings were lower than in June, they remain 7.5% higher than a year earlier. In other signs that America's housing market has come back to life, the National Association of Home Builders' sentiment index rose in August to its highest level in almost a decade, supported by a tightening labour market.



Sources: US Census Bureau; NAHB/Wells Fargo \*Scores over 50 indicate more homebuilders view sales conditions as "good" than "poor"

## Other markets

	% change on			
	Index Aug 19th	one week	Dec 31st 2014 in local currency terms	in \$
United States (S&P 500)	2,079.6	-0.3	+1.0	+1.0
United States (NAScomp)	5,019.1	-0.5	+6.0	+6.0
China (SSEB, \$ terms)	355.4	-2.3	+26.0	+22.2
Japan (Topix)	1,648.5	-1.0	+17.1	+13.0
Europe (FTSEurofirst 300)	1,506.6	-0.7	+10.1	+0.6
World, dev'd (MSCI)	1,744.2	+0.1	+2.0	+2.0
Emerging markets (MSCI)	848.1	-1.6	-11.3	-11.3
World, all (MSCI)	419.6	-0.1	+0.6	+0.6
World bonds (Citigroup)	869.0	-0.9	-3.7	-3.7
EMBI+ (JP Morgan)	696.7	-0.5	+0.7	+0.7
Hedge funds (HFRX)	1,224.8 <sup>§</sup>	-0.5	+0.5	+0.5
Volatility, US (VIX)	15.7	+13.6	+19.2 (levels)	
CDSs, Eur (iTRAXX) <sup>†</sup>	68.0	-1.3	+9.5	nil
CDSs, N Am (CDX) <sup>†</sup>	77.9	+2.5	+14.9	+14.9
Carbon trading (EU ETS) €	8.3	+2.3	+13.4	+3.6

Sources: Markit; Thomson Reuters. \*Total return index.

<sup>†</sup>Credit-default-swap spreads, basis points. <sup>§</sup>Aug 18th.

**Indicators** for more countries and additional series, go to: [Economist.com/indicators](http://Economist.com/indicators)

## The Economist commodity-price index

	2005=100		
	Aug 11th	Aug 18th*	% change on
	Aug 11th	Aug 18th*	one month
Dollar Index			
All Items	135.9	132.9	-6.4
Food	159.8	154.6	-3.3
Industrials			
All	111.1	110.2	-6.5
Nfa <sup>†</sup>	112.6	114.3	-4.0
Metals	110.4	108.5	-7.6
Sterling Index			
All items	158.7	154.4	-7.0
Euro Index			
All items	152.9	149.7	-7.3
Gold			
\$ per oz	1,109.7	1,116.0	+0.8
West Texas Intermediate			
\$ per barrel	43.3	42.4	-16.0

Sources: Bloomberg; CME Group; Cottlook; Darmenn & Curl; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Urner Barry; WSJ. \*Provisional

<sup>†</sup>Non-food agriculturals.

## DRUGS: WAR OR STORE?

"Drugs: War or Store?" takes a hard look at new kinds of drugs policy, from Portugal to Colorado



DRUGS: WAR OR STORE?



## DRONE RANGERS

"Drone Rangers" chronicles the day-to-day work of civilian drone operators in the fields of conservation, disaster recovery and construction



## Stone by stone

**Armando (Padre Pietro) Lavini, "God's builder", died on August 9th, aged 88**

WHEN the young St Francis knelt in prayer in the filthy, derelict church of San Damiano in Assisi, around 1206, the wide-eyed figure of Christ on the cross asked him to restore it. When Padre Pietro Lavini, already a Capuchin friar walking in Francis's footsteps, came for the first time to the ruined church of San Leonardo high in the Apennines, his experience was almost the same. The stones seemed to say: "Why don't you rebuild us?" Pushed by some mysterious force, he found himself answering: "Why not?"

It seemed impossible. What had been a beacon and a refuge on a busy pilgrim and herding route, along the high valleys of the Tiber and the Tenna between the Adriatic and Rome, was now a jumble of masonry overgrown by brambles. Only one half-fallen Romanesque arch gave a clue to its history. The Benedictines had built a monastery on a nearby mountain, surrendering the little church to another order. But after 40 years of privation those monks, too, had abandoned it. The only standing part had been used for centuries as a sheep pen, and a metre of compacted dung now formed the church floor.

Yet Padre Pietro seemed already to smell something else there: peace, goodness, love. The fallen stone on which he sat dreaming became a throne in the midst of

green beech woods and the encircling spires of the great peaks. The stone on which he spread out his bread was an altar. Alpine flowers starred the grass, and the air was loud only with the sound of birds and pure, ice-cold streams. He had found a corner of Paradise in which, just like *il poverello di Assisi*, as he always called Francis, he could labour with his hands to rebuild a site both materially, and in the spirit.

In 1971, having obtained permission from his superiors, he drove his old car to Rubbiano, the nearest town, and left it there. The rest of the way had to be on foot, pushing a cartload of pick, mattock, shovel and a few necessaries up a tortuous mule-track through the Gola dell'Infernaccio, the Gorge of Hell, where the towering limestone walls shut out almost all the light. He was frightened, but he had his wiry strength; and was so eager for a hermit's life, so trusting in God who made all things possible, that he brought no food with him except a loaf of bread.

Gathering the stones, chiselling them and cementing them, barehanded, one by one, would take almost 40 years. In 2000 the church of San Leonardo was ready to be reconsecrated, and in 2007 a bell was hung at last in the campanile. His rare visitors often asked, astonished, had he really done this all by himself, with no public

money? Well, he would reply, with his ready smile, "there were two of us": he was the workman, the *operaio*, but God was the *impresario* whose design he followed.

His tough upbringing had prepared him a little. His father had been a poor rope-maker in Potenza Picena on the eastern slope of the mountains, and his mother a frugal sort who had made him hoe the family plot in order to earn his supper. At nine, he had been handed over to the Capuchins; though what he recalled of childhood was not hardship, but his wonder at the way the sun would sink in the sea and rise again, and his longing to penetrate the mystery of the mountains. At his ordination in 1952 he naturally chose the name Pietro, "rock". It was part-adoration, part-stubbornness, part-folly that led him to tote 25-kilogram sacks of cement on his shoulders, to spend four years piping water from the nearest stream, and to sustain himself only on bread and cheese begged from shepherds and salad from his garden.

There were strokes of good luck, and there were obstacles. Luckiest of all was the moment, in 1969 when he was given title to the church and its land by the Albertini family, together with 50,000 lire for materials. (The Capuchin rule allowed him no worldly goods, so this was handled for him by some helpful Benedictines.) The next year he was granted all necessary consents by the local mayor. The obstacles, though, kept coming. Journalists harped away like crickets, especially when the surrounding mountains were made a national park, accusing him of acting illegally. Historians said the church was too large; conservationists claimed the bells would scare wildlife. He responded in a vigorous letter to *Il Messagiero* that his papers were in order; and that his was a work not of greed or pride, but love. The Vatican backed him, and the naysayers faded away.

### A glass of grappa

When pilgrims came to San Leonardo he would offer them—as the monks of old had done—a bed for the night, a share of his meagre dinner and a glass of the herb grappa he distilled himself. In the evening he would wander away both to pray, and to allow himself, twice a week, half an hour to pray with others on his mobile phone—for he was not entirely cut off from the traffic of the world.

In daylight hours he was seldom without a trowel or pair of pliers in his hands. There was always work to do. Some pointed out that he still had his own tomb to build, but his monument already stood around him. It would have suited him better to be laid, like St Francis at the end, on the bare ground: that mountain ground on which, the first time he had walked it, he had gone barefoot, the better to feel its holiness and its power. ■

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