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Migrant men and European women

The myth of common-law marriage

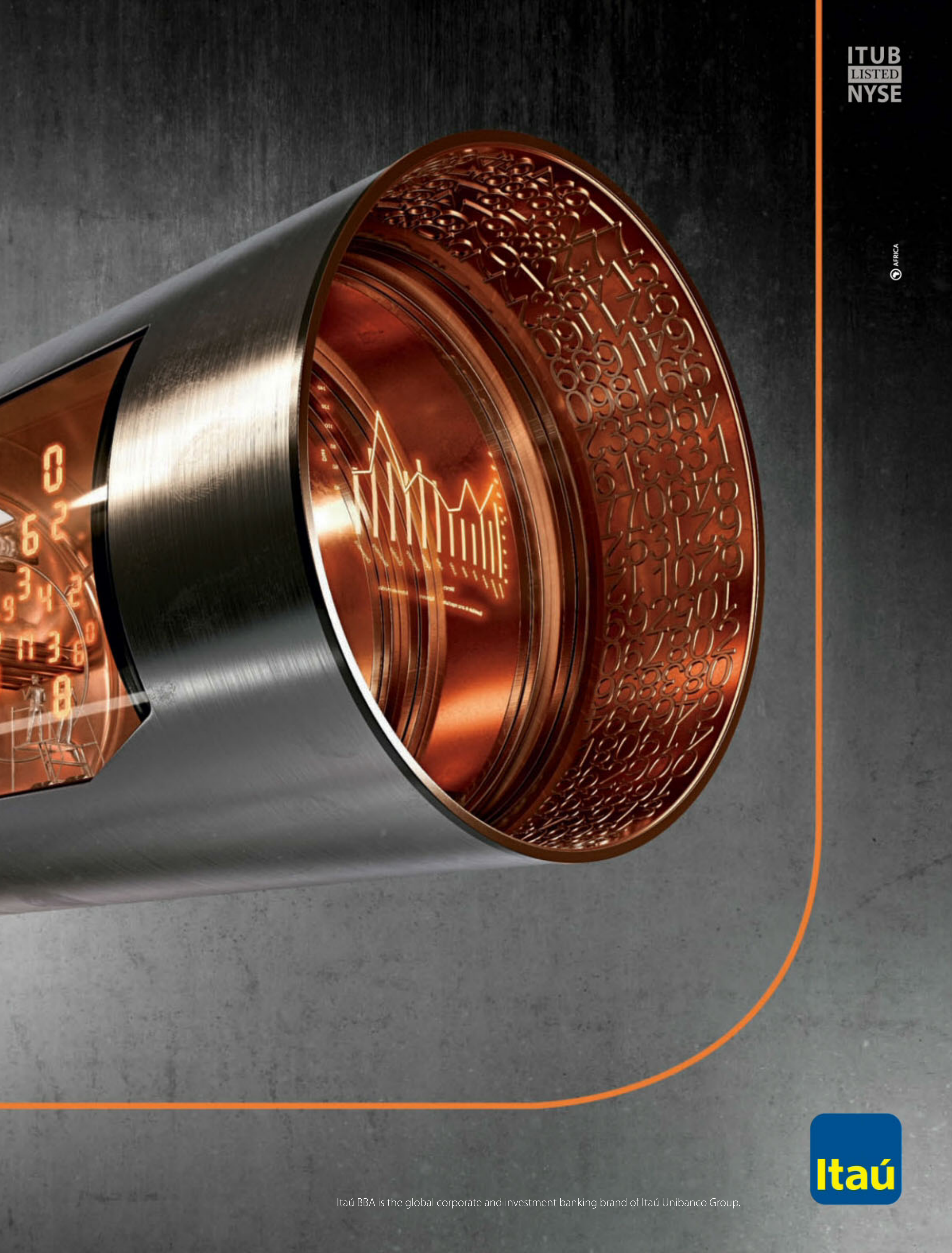
Free food and misery: the life of a techie

The scramble for lithium

Starman Jones: oddity and hero

Everything's under control

China, the yuan and the markets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Politics

Mexican marines recaptured Joaquín Guzmán, also known as El Chapo (Shorty), the boss of the Sinaloa drug gang, who had escaped from a high-security prison last July. Security forces raided a house, fought a gun battle in which five people died and tracked down Mr Guzmán after he had slipped away through a tunnel. Mexican officials said a meeting in October between El Chapo and Sean Penn, an American film star, in a jungle hideout had helped them trace the fugitive.

Venezuela's Supreme Court ruled that actions by the National Assembly, the first with an opposition majority in 17 years, will be "absolutely null" because the legislature had sworn in three opposition MPs in defiance of an earlier court judgment. The three MPs duly stood down, reducing the opposition's majority to below the two-thirds needed to summon a convention to rewrite the constitution.

Meanwhile Venezuela's president, Nicolás Maduro, reshuffled his **cabinet**. Luis Salas, a left-wing sociologist who does not think that printing money causes inflation, will be in charge of economic policy.

The first of 8,000 **Cubans** stuck on Costa Rica's border with Nicaragua resumed their journey to the United States. Under an agreement, 180 migrants were flown to El Salvador and will proceed north by bus. In November Nicaragua, a friend of the Cuban government, blocked the migrants' progress.

The man who fell to earth

Barack Obama used the last state-of-the-union speech of his presidency to lament the rise of political bickering and to call on his successor to build a "clear-eyed, big-hearted" America. He also defended his domestic record, pointing to the 14m jobs that have been created since he took office in 2009 at the outset of the financial crisis.

The Supreme Court overturned Florida's system of letting juries advise a judge about whether murderers should be sent to death row, ruling that under the constitution the jury itself must impose the **death penalty**.

Iran arrested ten American sailors who had strayed into its waters in two boats. They were rapidly released, thus averting any threat to the deal between Iran and six world powers over its nuclear weapons. The UN is expected soon to certify that Iran has dismantled its programme, leading to a relaxation of sanctions.

Changes

Tunisia's moderate Islamist Ennahda party became the biggest in parliament after lawmakers in President Beji Caid Essebsi's secular party resigned over the role of his son in the party. The secular party, Nidaa Tounes, rules in coalition with Ennahda.

Ten people were killed in an attack by two female suicide-bombers on a mosque in **Cameroon**. The attack in a town near the border with Nigeria is thought to have been orchestrated by Boko Haram, a jihadist outfit.

A UN aid convoy reached the **Syrian** town of Madaya, where 40,000 people have been cut for the second time from food supplies for months.

It ain't easy

In **China** police detained a Beijing-based Swedish human-rights activist, Peter Dahlin. He is thought to be the first foreigner arrested in China in a crackdown that has seen about 300 defence lawyers and human-rights experts apprehended since July. Several are said to have been charged with "subversion".

A group of gunmen attacked **Jakarta**, also setting off bombs in a shopping district close to the presidential palace. Security forces battled the attackers in the streets, shooting several of them dead. Islamic State had recently threatened to carry out an assault on the Indonesian capital.

Pakistan said that it had arrested several Islamist militants from Jaish-e-Mohammad, believed by **India** to be responsible for a deadly recent assault on an air base in the Indian state of Punjab, in which seven troops were killed. India may view the arrests as a conciliatory gesture by Pakistan to revive fledgling peace talks between the two.

Sorrow

Germany said it would make it easier to deport asylum-seekers who commit criminal acts, after hundreds of women reported being sexually assaulted by migrants in Cologne on New Year's Eve. The city's police chief was sacked over his forces' failure to intervene and for reporting that the festivities had been "relaxed". Some 1.1m asylum-seekers entered Germany in 2015, and similar numbers are expected in 2016.

A suicide-bombing near Istanbul's Blue Mosque killed ten German tourists. Turkish authorities said it had been carried out by an IS terrorist recently arrived from Syria. **Turkey** has stepped up its participation in NATO operations against IS. In a move likely to further hurt Turkish-Russian relations, Turkey arrested three Russian citizens it said were linked to IS.

The European Union launched an investigation into whether new laws in **Poland** that aim to muzzle the media and the courts are legal under rules introduced in 2014 to protect the EU's values. The prime minister in the recently elected government headed by the conservative Law and Justice party insisted that "democracy is alive and well" in Poland.

Artur Mas stepped down as president of **Spain's** Catalonia region, after five years in the job during which he pushed for independence. His successor is Carles Puigdemont, an even more ardent secessionist who refused to swear allegiance to Spain's constitution.

In **Britain** junior doctors walked out in a dispute over new contracts, which are intended to improve out-of-hours care for patients. The health minister has threatened to impose the new terms if no agreement is reached. It was the first strike by doctors in 40 years and was supported strongly by the public, according to polls. The disruption led to the cancellation of one in ten operations scheduled on the day and many more before and after the strike.

The leader of **Northern Ireland's** Democratic Unionist Party, Arlene Foster, was confirmed as the new first minister, replacing Peter Robinson following his resignation. She is the youngest person to hold the province's most senior political job, and also the first woman.

Business

Anxiety over the global economy weighed heavily on world **stockmarkets**, which have not had a good start to the year: the S&P 500 is down by more than 7% since January 1st. Market volatility in China is the source of much of the concern; the People's Bank of China has heavily intervened to prop up the yuan in the offshore market. Officials gave assurances that the financial system was stable, after a circuit-breaker mechanism that automatically halts trading when stockmarkets plunge was abandoned just a week after it was introduced.

China's exports fell by 1.4% in December from the same month in 2014 and imports dropped by 7.6%. The figures were less bad than had been expected, though at $4 trillion, total trade for all of 2015 was 8% lower than in 2014.

Under pressure

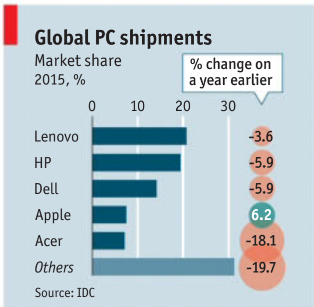
Oil prices touched 12-year lows of $30 a barrel, which also soured market sentiment. With oil-industry margins under strain, BP shed another 4,000 workers. Petrobras, Brazil's state-owned oil company, which is mired in a corruption scandal, cut its five-year investment programme by 25%. One analyst forecast that oil would drop to $10 a barrel. Nigeria's oil minister called on OPEC to hold an emergency summit. But the energy minister for the United Arab Emirates said there was no need for a meeting, as OPEC's strategy is working.

Having relied on oil exports for a big proportion of its revenue, **Russia's** government was reportedly reworking its budget to reduce spending by a further 10% and ordering state departments to carry out "stress tests" in which they assume a further fall in oil prices.

GoPro, a maker of wearable action-cameras and a wannabe media company, reported disappointing quarterly results following disastrous sales of its Hero4 Session camera, the price of which has been slashed by half. As its share price nosedived, GoPro said it was cutting 7% of its workforce.

Golden years

Five months after it launched a hostile bid, **Shire** secured a deal to buy **Baxalta**, for $32 billion, the latest big acquisition in the drugs industry. Last year the value of takeovers in the health-care industry amounted to $673 billion.



Shipments of **personal computers** fell to 276m last year, the first time the figure has dropped below 300m since 2008, according to IDC. PCs are losing out to mobile devices, but the strong dollar and a slowing Chinese market were two other factors that hurt sales in 2015. The bright spot was **Apple**, which this week also said that 10m people have signed up to the music-streaming service it launched six months ago. It took Spotify six years to attain that number of subscribers.

Airbus took 1,036 in net orders for aircraft last year, beating **Boeing's** tally of 768. But following several years of robust growth, orders were down significantly compared with 2014 for both companies. Although it trailed in sales, Boeing delivered more jets to customers: 762 to Airbus's 635.

In its latest broadside against **"sweetheart" tax deals**, the European Commission ordered Belgium to recoup €700m ($760m) in illegal tax breaks given to at least 35 companies. One of them is Anheuser-Busch InBev, a global brewer which has its headquarters in Belgium and is in the process of taking over SABMiller. Last October the commission ruled against the tax arrangements accorded to Starbucks in the Netherlands and Fiat in Luxembourg.

America's Treasury said that it will require title-insurance companies to identify the individuals behind all-cash purchases of **luxury homes** in New York and Miami made by shell companies. This is in response to reports that the upper reaches of the property market are awash with illicit foreign money.

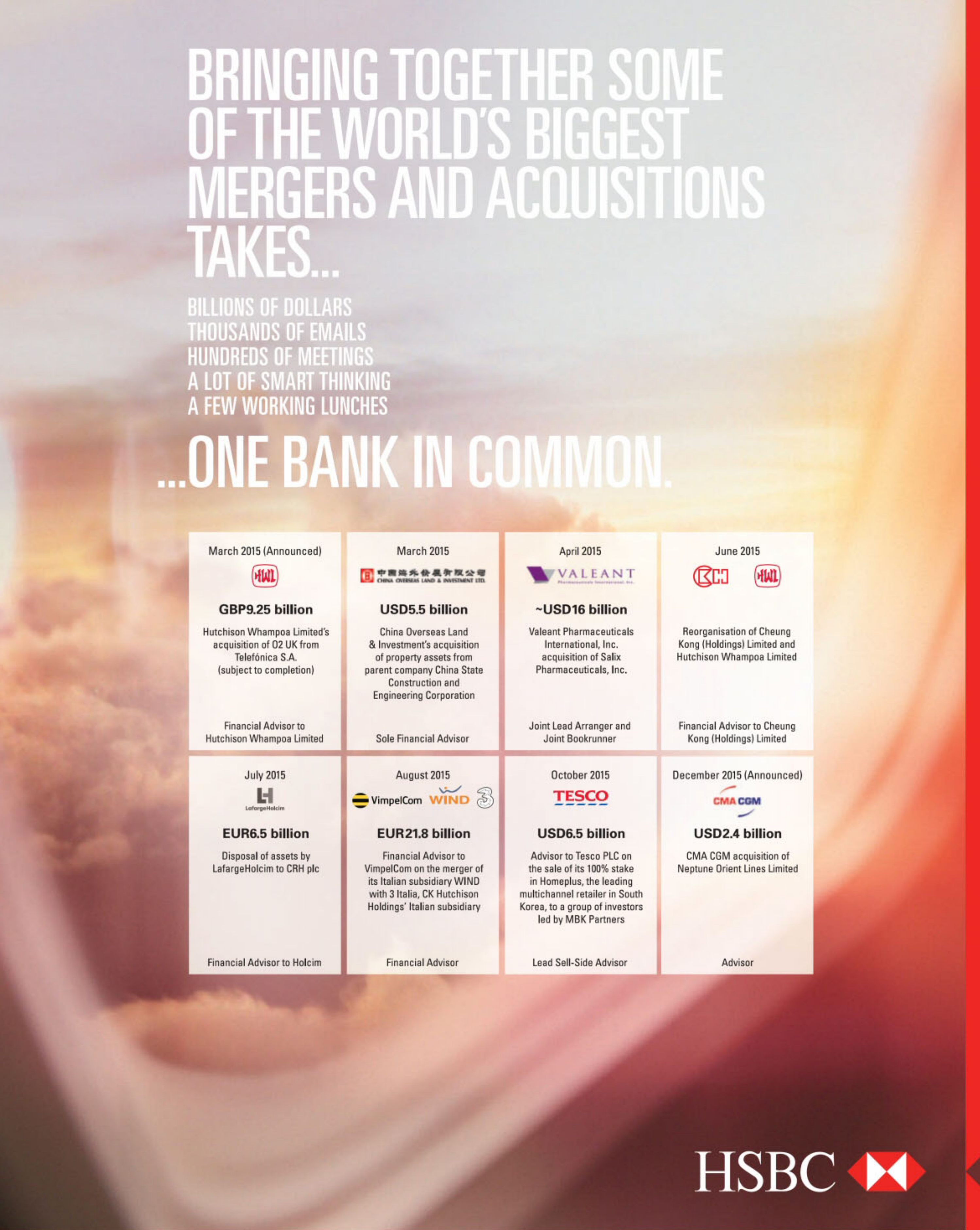
Greece recorded annual inflation of 0.4% in December (using the EU's calculations), ending 33 months of deflation.

Steven Cohen reached a settlement with the Securities and Exchange Commission over a charge of failing to supervise an employee at his hedge fund who was convicted of insider trading. Mr Cohen is barred from investing clients' money for two years, ending a lengthy government investigation. He neither admits nor denies wrongdoing.

Sound and vision

Proving that it is no dinosaur when it comes to snapping up American film companies, **Dalian Wanda**, a Chinese conglomerate, agreed to buy **Legendary Entertainment**, which produced "Jurassic World" and other recent box-office hits, for $3.5 billion. Later this year Legendary will release "The Great Wall", which was shot entirely in China with a budget of $135m.

Other economic data and news can be found on pages 95-96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VALEANT
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Joint Lead Arranger and Joint Bookrunner
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July 2015
LafargeHolcim
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Disposal of assets by LafargeHolcim to CRH plc
Financial Advisor to Holcim
August 2015
VimpelCom WIND
EUR21.8 billion
Financial Advisor to VimpelCom on the merger of its Italian subsidiary WIND with 3 Italia, CK Hutchison Holdings' Italian subsidiary
Financial Advisor
October 2015
TESCO
USD6.5 billion
Advisor to Tesco PLC on the sale of its 100% stake in Homeplus, the leading multichannel retailer in South Korea, to a group of investors led by MBK Partners
Lead Sell-Side Advisor
December 2015 (Announced)
CMA CGM
USD2.4 billion
CMA CGM acquisition of Neptune Orient Lines Limited
Advisor
HSBC

The yuan and the markets

Strains on the currency suggest that something is very wrong with China's politics

"WHAT if we could just be China for a day?" mused Thomas Friedman, an American columnist, in 2010. "...We could actually, you know, authorise the right solutions." Five years on, few are so ready to sing the praises of China's technocrats. Global markets have fallen by 7.1% since January 1st, their worst start to the year since at least 1970. A large part of the problem is China's management of its economy.

For well over a decade, China has been the engine of global growth. But the blistering pace of economic expansion has slowed. The stockmarket has been in turmoil, again. Although share prices in China matter little to the real economy, seesawing stocks feed fears among investors that the Communist Party does not have the wisdom to manage the move from Mao to market. The rest of the world looks at the debts and growing labour unrest inside China (see page 75), and it shudders. Nowhere are those worries more apparent—or more consequential—than in the handling of its currency, the yuan.

Faulty forex

China's economy is not on the verge of collapse. Next week the government will announce last year's rate of economic growth. It is likely to be close to 7%. That figure may be an overestimate, but it is not entirely divorced from reality. Nevertheless, demand is slowing, inflation is uncomfortably low and debts are rising. The bullish case for China depends partly upon the belief that the government can always lean against the slowdown by stimulating consumption and investment with looser monetary policy—just as in any normal economy.

Yet China is not normal. It is caught in a dangerous no-man's-land between the market and state control. And the yuan is the prime example of what a perilous place this is. After a series of mini-steps towards liberalisation, China has a semi-fixed currency and semi-porous capital controls. Partly because a stronger dollar has been dragging up the yuan, the People's Bank of China (PBOC) has tried to abandon its loose peg against the greenback since August; but it is still targeting a basket of currencies. A gradual loosening of capital controls means savers have plenty of ways to get their money out.

A weakening economy, a quasi-fixed exchange rate and more porous capital controls are a volatile combination. Looser monetary policy would boost demand. But it would also weaken the currency; and that prospect is already prompting savers to shovel their money offshore.

In the last six months of 2015 capital left China at an annualised rate of about $1 trillion. The persistent gap between the official value of the yuan and its price in offshore markets suggests investors expect the government to allow the currency to fall even further in future. And, despite a record trade surplus of $595 billion in 2015, there are good reasons for it to do so, at least against the dollar, which is still being propelled upwards by tighter monetary policy in America.

The problem is that the expectation of depreciation risks becoming a self-fulfilling loss of confidence. That is a risk even for a country with foreign-exchange reserves of more than $3 trillion. A sharply weaker currency is also a threat to China's companies, which have taken on $10 trillion of debt in the past eight years, roughly a tenth of it in dollars. Either those companies will fail, or China's state-owned banks will allow them to limp on. Neither is good for growth.

The government has reacted by trying to rig markets. The PBOC has squeezed the fledgling offshore market in Hong Kong by buying up yuan so zealously that the overnight interest rate spiked on January 12th at 67%. Likewise, in the stockmarket it has instructed the "national team" of state funds to stick to the policy of buying and holding shares.

One step back, two forwards

Yet such measures do nothing to resolve a fundamental tension. On the one hand, the state understands that the lack of financial options for Chinese savers is unpopular, wasteful and bad for the economy. On the other, it is threatened by the ructions that liberalisation creates. For Xi Jinping, the president, now in his fourth year in charge, that dilemma seems to crop up time and again (see pages 23-26). He needs middle-class support, but feels threatened by the capacity of the middle class to make trouble. He wants state-owned enterprises to become more efficient, but also for them to give jobs to the soldiers he is booting out of the People's Liberation Army (see page 45). He wants to "cage power" by strengthening the rule of law and by invoking the constitution, yet he is overseeing a vicious clampdown on dissent and free speech.

It is easy to say so now, but China should have cleaned up its financial system and freed its exchange rate when money was still flowing in. Now that the economy is slowing, debt has piled up and the dollar is strong, it has no painless way out.

A sharp devaluation would wrong-foot speculators. But it would also cause mayhem in China and export its deflationary pressures. The poison would spread across Asia and into rich countries. And because interest rates are low and many governments indebted, the world is ill-equipped to cope.

Better would be for China to strengthen capital controls temporarily and at the same time to stop stage-managing the yuan's value. That would be a loss of face for China, because the IMF only recently marked the yuan's progress towards convertibility by including it in the basket of currencies that make up its Special Drawing Rights. But it would let the country prepare its financial institutions for currency volatility, not least by starting to scrub their balance-sheets, before flinging their doors open to destabilising flows. Mr Xi could embrace more complete convertibility later, when they were less vulnerable.

One reason the PBOC is rushing towards convertibility, despite the risks, is that it feels that it must seize the chance while it has Mr Xi's blessing. But better to retreat temporarily on one front than to trigger a global panic. That might also lead to some clearer thinking. There is a contradiction between liberalisation and party control, between giving markets their say and silencing them when their message is unwelcome. When the time is right, China's leaders must choose the markets. ■

Immigration and asylum

Migrant men and European women

To absorb newcomers peacefully, Europe must insist they respect values such as tolerance and sexual equality

FOUR months ago, the body of three-year-old Aylan Kurdi washed up on a beach in Turkey after he, his brother and his mother drowned while trying to reach Greece. A photograph of Aylan quickly became the defining image of the masses of refugees fleeing Syria's civil war. The picture helped cement a brief consensus that the Middle Eastern migrants risking death to get to Europe should be allowed in to apply for asylum. Angela Merkel, Germany's chancellor, announced that her country would accept asylum applications from any Syrians who reached its borders. Much of Europe seemed on the verge of joining the project.

But Europe never joined. The task of absorbing the migrants has been left to Germany and Sweden, with a bit of help from the Netherlands and a few other countries. German and Swedish eagerness to welcome so many refugees has gradually been worn down. Now the events of New Year's Eve in Cologne and other German cities may have buried it for good.

That night, gangs of young men, mainly asylum-seekers, formed rings around women outside Cologne station and then robbed and sexually assaulted them. More than 600 women reported to the police that they had been victimised. After Cologne, when Europeans think of refugees, many no longer picture persecuted families or toddlers. Instead they see menacing young men imbued with the sexism that is all too common across the Middle East and north Africa.

Sex and the citadel

Such fears, though overblown, are not absurd, and will not be allayed by pointing out that the alleged attackers in Cologne so far identified are mostly Moroccan or Algerian, not Syrian. There really is a cultural gulf between rich, liberal, secular Europe and some of the countries from which recent migrants come. It is impossible to conduct surveys in Syria right now, for obvious reasons, but a 2013 Pew poll of Muslims around the world makes sobering reading. More than 90% of Tunisians and Moroccans believe that a wife should always obey her husband. Only 14% of Iraqi Muslims and 22% of Jordanians think a woman should be allowed to initiate a divorce. And although Arab societies take a harsh view of sex crimes, women who venture alone and in skimpy clothing into a public space in, say, Egypt can expect a barrage of male harassment.

Migrants are no more likely to commit crimes than natives. But it would be otherworldly to pretend that there is no tension between the attitudes of some and their hosts. European women cherish their rights to wear what they like, go where they like and have sex or not have sex with whom they please. No one should be allowed to infringe these freedoms.

However, it does not follow from this that Germany was wrong to offer a haven to Syrian refugees. The moral imperative has not changed since Aylan washed up on that beach. Half of Syria's cities have been blasted to rubble, hundreds of thousands of people lie dead and tens of thousands are starving in towns under siege. Thousands more refugees arrive in Greece every week. Those who would shut them out must explain where they should go instead.

Rather than succumbing to moral panic, Europe needs to work out how to manage the flow of refugees and help them assimilate. A good place to start would be to insist that they obey the law. Police in Cologne clearly failed to take on the harassers. Perhaps they did not recognise what was going on quickly enough, or were afraid of being accused of racism. Or it may have been simple incompetence. Women have complained for years that German police are slow to stop sexual harassment in the drunken crowds at the Munich Oktoberfest.

Whatever the precise nature of the failure, it needs to be fixed. Security cameras in public places would make it easier to convict those who hide in crowds—Germans should overcome their queasiness about such surveillance. With luck, the police will learn from their mistakes and work out how to prevent such incidents. Molesters should be punished. Asylum-seekers who flout the law should face prison or deportation. No one can be sent back to Syria, but Mrs Merkel is right to argue that Morocco and Algeria are safe enough (see page 57).

Work and family

When it comes to assimilating new arrivals, Europe could learn a thing or two from America, which has a better record in this regard. It is not "culturally imperialist" to teach migrants that they must respect both the law and local norms such as tolerance and sexual equality. And it is essential to make it as easy as possible for them to work. This serves an economic purpose: young foreign workers more than pay their way and can help solve the problem of an ageing Europe. It also serves a cultural one: immigrants who work assimilate far more quickly than those who are forced to sit around in ghettos. In the long run most children of migrants will adopt core European values, but the short run matters too.

Migrants who take the most hazardous routes into Europe, for example by crossing the Mediterranean in leaky boats, are disproportionately young men (see page 58). Overall they make little difference to Europe's sex ratio, but in some areas and age brackets they may skew it. This is a problem—districts with more young single men than women are more prone to violence, especially if those men are jobless. That is why it is daft to restrict the ability of refugees to bring their spouses and other family members to join them, as Denmark's government is now doing.

The process of absorbing refugees will be neither quick nor easy, but it is the right thing to do and will ultimately benefit Europe. Ideally, all European countries would do their part. It is scandalous that so few have agreed to take more than a handful of Syrians, and that European governments have yet to agree on a beefed-up border agency to police the EU's external frontiers. Even in Germany, there is a risk that Mrs Merkel will be forced to abandon her policy of compassion. If she is to salvage it, she must take the lead again, spelling out how Germans can make *Willkommenskultur* work—and how the newcomers themselves must adapt to basic European values. ■

The Iran nuclear deal

Big day imminent; big problems ahead

Iran has complied with the nuclear undertakings that trigger a lifting of sanctions. That was the easy bit

IN HIS valedictory state-of-the-union address Barack Obama devoted only a few lines to his main foreign-policy achievement: the accord with Iran to restrain its nuclear programme. The words he chose, however, could almost be a summary of the Obama doctrine, if there is such a thing. Contrasting his record with that of predecessors who got bogged down fighting unwinnable wars, Mr Obama said that there was a "smarter approach" based on "patient and disciplined strategy" and mobilising "the world to work with us...that's why we built a global coalition, with sanctions and principled diplomacy, to prevent a nuclear-armed Iran."

Mr Obama is justified in hailing the Iran deal as a diplomatic triumph. Some time next week "Implementation Day" is almost certain to be declared. That is the moment when Iran is deemed to have complied with all its obligations in dismantling those parts of its nuclear programme that would soon have put it only weeks away from being able to build a bomb. All nuclear-related sanctions will be lifted or suspended (see page 51).

The speed with which Iran released two US Navy patrol boats and their crews, after they had unintentionally entered Iranian waters on January 12th, was a measure of how America's relationship with Iran has changed. A call from John Kerry, America's secretary of state, to his Iranian opposite number, Mohammad Javad Zarif, defused an incident that would once have escalated into an international crisis. The co-operation that Iran has shown in decommissioning its enrichment centrifuges, removing the core of its heavy-water reactor and shipping out most of its low-enriched uranium stockpile has surprised arms controllers.

Yet, just as critics of the deal are wrong to describe it as a disaster in which Iran got everything it wanted, its supporters (including this newspaper) need to be realistic about it, too. The smooth progress towards Implementation Day is largely because the president, Hassan Rohani, and Mr Zarif are desperate to get sanctions lifted. They want to see $100 billion of Iranian assets unfrozen before parliamentary elections next month, in which they hope their faction will oust some of the hardliners who oppose them. Although both back greater engagement with the West for economic reasons (and appear to have the conditional support of the supreme leader, Ali Khamenei), nothing else about Iran's behaviour shows the slightest sign of change. It still hangs gay people, locks up dissidents and stokes sectarian conflict around the Middle East, most destructively in Syria.

A dose of reality

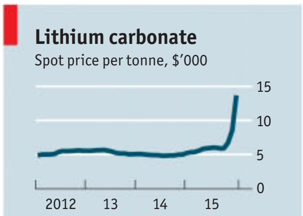
Supporters of the nuclear deal must also recognise that the smiling Mr Rohani sees it in purely transactional terms: by renouncing the pathways to a bomb, Iran gets cash and trade. Hardliners in the regime still loathe the deal. Iran remains committed to expanding its nuclear programme to "industrial scale", which it will be able to do, even if the agreement holds, after 15 years. It continues to lie about the military aspects of that programme, which lasted until 2009. And there is every chance that, with the $100 billion in its pocket, Iran will start to test the resolve of Mr Obama and whoever comes after him.

It is understandable that Mr Obama sees the deal with Iran as a vindication of his approach to foreign policy. At worst, it helped avoid a war and bought some time, though it is still unclear how much. At best, the deal may help strengthen forces in Iran that favour limited reform. But it will require constant policing and it is not a solution to the Iranian nuclear problem, let alone a reset of Iran's fraught relationship with the West. ■

The battery era

A plug for the battery

Virtual reality and artificial intelligence are not the only technologies to get excited about



IT IS more than two-and-a-half centuries since Benjamin Franklin grouped a number of electrically charged Leyden jars together and, using a military term, called them a "battery". It is 25 years since Sony released a commercial version of the rechargeable lithium-ion battery, which now sits snugly in countless smartphones, laptops and other devices. In an era of robots and drones, artificial intelligence and virtual reality, the lithium-ion battery lacks futuristic glamour. Its deficiencies are quotidian and clear: witness the scrum of people around charging stations at airports. Yet few areas of technology promise as great an impact in as short a time.

Increasingly, lithium-ion batteries are vaulting out of pockets into power tools, vehicles, homes and even power stations. Carmakers in America, China and Japan are rushing to secure supplies of lithium to prepare for a more electric future (see page 69). Such is the scramble, that the metal, used in small quantities in each battery cell, today is one of the world's only hot commodities. The price of lithium carbonate imported to China more than doubled in the last two months of 2015.

Until now, the limits on the use of batteries have been storage capacity, cost and recharging times. But large-scale production is overcoming these hurdles. The head-turner at this ▸▸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week's Detroit motor show was not a car but a battery—that of the 2017 Chevrolet Bolt, which General Motors' boss, Mary Barra, said had "cracked the code" of combining long range with an affordable price. Tesla, an electric-car maker, is promising to start mass production of lithium-ion batteries this year in a giant "gigafactory" in Nevada. BYD, a Chinese rival, is hot on its heels. In ten months last year Chinese firms sold more electric vehicles than Tesla has since 2008. A further emphasis on batteries is a big part of China's 2016-20 five-year plan.

Rising power

Electric cars are not the only source of demand. Batteries are also playing an increasingly important role in providing cleaner power on and off electricity grids. In South Africa, Australia, Germany and America, Tesla this year will start selling a $3,000 Powerwall for homeowners to store the solar energy from their roofs. Utilities are going even further. They are installing millions of lithium-ion battery cells into power plants to regulate supply at times of peak demand, and when it fluctuates because of intermittent wind and solar energy. California has ordered its electricity firms to offer 1.3 gigawatts (GW) of non-hydroelectric storage capacity within five years. That compares with total American power generation of more than 1,000GW, but is still more than double the 0.5GW of batteries plugged into grids around the world today. In 2016 a solar plant equipped with batteries will be installed in Hawaii, promising power after sunset at prices cheaper than diesel.

There is still a long way to go. As yet lithium-ion batteries do not have the capacity to store grid-scale power for more than a few hours. Costs are still too high; and the recent price spike in lithium will encourage researchers beavering away on other types of battery. Yet the more cells that are made, the more understanding and performance improve. Rising demand and higher prices will eventually also generate more lithium supply. Increasingly, lithium is becoming to batteries what silicon is to semiconductors—prevalent, even among worthy alternatives. In one form or another, the lithium-ion battery is the technology of our time. ■

Cohabitation and the law

When unmarried parents split

Family law has not kept up with the changes in families

IN MUCH of the world, ever fewer couples are marrying before having children. Two out of five births in the OECD club of rich countries—and two out of three in Latin America—are now outside marriage. The way the law treats the children of unmarried parents varies hugely. In some Islamic states they are turned into orphans when their mothers are executed for fornication. In China they enjoy so few rights (to public services or even an identity card) that nearly all are aborted. Even in countries that no longer discriminate directly against children of unmarried parents, laws that distinguish between married and cohabiting couples may harm them (see page 67).

Some places, such as England and much of America, offer couples a binary choice: get married or the law will treat the two of you as unrelated. Others, such as France and the Netherlands, allow couples to choose from a range of "marriage-lite" contracts that incorporate some aspects of marriage, such as tax breaks or asset-sharing after splitting up. In a third group, including Australia and New Zealand, couples are automatically given many of the rights and duties of marriage after they have lived together for a certain number of years.

The advantage of the first option is simplicity. Either you make a formal commitment to each other or you don't. The snag is that many people don't, and some are left high and dry if they split up or one partner dies. If one cohabiting partner dies intestate in England, for example, the other may inherit nothing. Any legacy will be subject to inheritance tax, unlike bequests between spouses. If only one partner's name is on the deeds of the family home, the other may be thrown out.

These problems suggest that option two—offering couples a wider choice of legal contracts—makes more sense. In France the *pacte civil de solidarité* is popular. It is much like a marriage but easier to end: either partner can dissolve it with a registered letter or by marrying someone else. Similarly, more than half of unmarried Dutch couples formalise their relationship with a "cohabitation agreement", which can be tailored to specify how assets and expenses will be shared after a break-up.

Alas, even in countries with several marriage-like options, many couples pick none. If they split up or one dies, they are then treated as legal strangers, just like unmarried English couples. So some governments plump for option three: if a couple lives together long enough, the law treats them almost as if they were married—unless they explicitly choose another option. When a long-term cohabitation ends in Australia or New Zealand, rules for alimony, property-sharing and inheritance mirror those when a marriage is dissolved.

Pushing people into a contract without their consent sounds troublingly illiberal. Unfortunately, many cohabiting couples are oblivious to the risks when they fail to regularise their union. In countries where long-term cohabitation confers none of the rights and duties of a marriage, many people mistakenly believe that it does. Polls suggest that more than half of Britons believe that long-term cohabitees are in a "common-law" marriage; no such institution exists. Many Americans think that seven years together gives a relationship legal standing; it does not.

Children have rights, too

Where no children are involved, the state should not second-guess the decisions—or non-decisions—of adults. But to avoid harming children, it is reasonable to set a default that offers more stability. So couples should be allowed to choose from several options to suit their circumstances. If they make no choice, and there are children, the default should change. This paper would treat long-term cohabiting parents like married ones for the purposes of inheritance and post-breakup maintenance and asset-sharing—unless they explicitly opt out. ■

Free speech on campus

Judges have long ruled that the First Amendment of the American constitution protects many forms of hateful speech. So the official at the University of Missouri who thinks that "the First Amendment does not give people a free pass to go around saying hateful things" is mistaken ("Of slavery and swastikas", January 2nd). In 1973 the Supreme Court ruled against the official's very own university in *Papish v University of Missouri Curators*. In that case it overturned the university's disciplining of a graduate student for using profane language and depicting policemen raping the Statue of Liberty.

The court declared that the "dissemination of ideas, no matter how offensive to good taste, on a state university campus may not be shut off in the name alone of 'conventions of decency'." In 1993, a federal appeals-court ruling applied this principle to overturn the punishment given to a fraternity at George Mason University for a racist, sexist "ugly woman" skit. It decided that the First Amendment generally protects even racist speech on college campuses.

HANS BADER
Senior attorney
Competitive Enterprise Institute
Washington, DC

The First Amendment gives the right to the Westboro Baptist Church to say hateful things at the funerals of troops killed in action. And the Ku Klux Klan to rally in Atlanta. What is not protected is incitement to violence or threatening speech.

PATRICK O'LEARY
Wayne, Pennsylvania

Faster is not better

Envying South Korea's 100 megabits per second (Mbps) internet connections when talking about the future of broadband in Britain is an irrelevant distraction ("Battle of the wires", December 12th). There is no economic benefit to superfast broadband over a basic 10Mbps service. The only advantage is that a high-definition film can be downloaded in two minutes instead of 20. It is a luxury.

But living in areas in Britain where the connection is slower than 5Mbps is, these days, like not having access to reliable running water. It makes people's lives difficult and distorts the housing market, as no one wants a house with slow internet. Areas with broadband of 10Mbps or more should not be upgraded until everyone else has reached this basic level of service. Until then, the only decision to make is whether it would be better value for rural areas to leapfrog straight to fibre-to-the-home, or whether a cheaper fibre-copper hybrid would benefit more people more quickly. Only then can we truly reap the benefits of the information age. The movement of people into cities could reverse as people leave overcrowded and expensive cities to live and work in an interconnected countryside.

KIERAN MADDEN
Milton Keynes, Buckinghamshire

Christians in Israel

"And then there were none" (January 2nd) quoted a pastor in Bethlehem who claimed that the Israeli occupation "hurts Christians far more than persecution by Muslims". Yet when the Palestinian Authority retained control of the area, thousands of Arab Christians applied for Israeli citizenship. When Israel pulled out of southern Lebanon in 2000 it granted refuge to Christian Maronites, saving them from Hizbullah militants.

Some 160,000 Israelis are Christian. They live in a democratic country, free to worship as they please and with equal rights to non-Christian Israelis. Father Gabriel Naddaf, a prominent Christian Arab, encourages Christian youth to join the Israel Defence Forces. During the second intifada in 2002, Palestinian terrorists fired at Israeli troops from within Bethlehem's Church of the Nativity. That same year, a Muslim mob attacked churches and Christian shops in Ramallah.

There may be some Orthodox extremists in Israel who burn churches, but they are fewer in number than anti-Christian Palestinians.

DMITRI SHUFUTINSKY
Philadelphia

Existence and being

My one criticism of your essay on animal minds ("Animals think, therefore...", December 19th) is that it did not mention the many new studies showing sentience and theory of mind in the animals whom we commonly consume—the chickens, pigs and cattle. We extend our wonder and interest to iconic wild species, but perhaps it requires more honesty and courage to admit that the steak or bacon on one's plate comes from another sentient being.

Charles Darwin was open to the emotional capacities of a vast range of creatures. Science is catching up. Let's hope human interactions with domestic and farmed animals catch up too.

JOYCE D'SILVA
Ambassador for Compassion in World Farming
Godalming, Surrey

For several years the Nonhuman Rights Project has been bringing this new understanding of animals into the courtroom in its quest to win legal personhood and fundamental rights for chimpanzees, among other species. In most legal systems one can be either a "person" or a "thing". Animals are considered to be things, but so have many humans in the past (slaves, women, children, indigenous peoples). On the other hand, entities such as corporations, religious idols and a river have been declared persons.

The Nonhuman Rights Project does not demand human rights for animals. Rather, it wants chimpanzee rights for chimpanzees, orca rights for orcas, elephant rights for elephants. As we learn more about the cognitive capacities of animals, we cannot simply go on regarding them as mere "things". To fail to grant them rights would disregard scientific reality and make a mockery of our evolving notions of justice.

KEVIN SCHNEIDER
STEVEN WISE
Nonhuman Rights Project
New York

The impressive exploits of an African grey parrot named Alex, after the Avian Learning Experiment, are not unique. During my time on HMS *Lancaster* during the late 1990s, I became acquainted with a marvellously vocal African grey parrot called Jenny who lived in the officers' mess. Trained by members of the crew over the years, her repertoire consisted mainly of foul-mouthed expletives and the opening bars of the theme from "The Great Escape". Such was the concern over a visit by the queen that Jenny was strangely absent for the lunch.

She was particularly fond of the dashing navigating officer. Sadly, the relationship came to a sticky end when Jenny made a dash for freedom and was promptly set upon by two of Portsmouth's finest seagulls and ended up in the harbour, no doubt spluttering her last four-letter tirade.

The navigator's vain attempt to rescue her, the call out of the local search-and-rescue, the delay to the sailing of an aircraft-carrier, the headlines in a national tabloid newspaper and her replacement (Sunny), are another story.

COMMANDER JEFF SHORT
Muscat, Oman ■

Letters are welcome and should be addressed to the Editor at
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Women are strongly encouraged to apply. All qualified candidates are invited to submit their CV and cover letter to Ms. Aurée de Carbon, Managing Director, CARRHURE Consulting at: adecarbon@carrhure.com.

The closing date for receipt of applications is 12th February 2016

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Geneva, Switzerland

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REQUIREMENTS
- Hold a university degree preferably in a field relevant to the mission of the Secretariat
- Have at least 15 years' professional experience, of which preferably 10 years in multilateral diplomacy/international organisations/relevant academic institution or from practical cooperation in the Baltic Sea region
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Applications are due on **February 19, 2016**

A crisis of faith

In their response to wobbly markets, China's leaders reveal their fears

THERE should be something comforting, during uncertain times, in the sight of the boss solidly seated behind his desk, working away at the business of the day. And that was the image China's official state media presented when broadcasting Xi Jinping's annual new-year message to the Chinese people on December 31st—though it has to be said, if that impressive expanse of wood really is the presidential desk, Mr Xi must find it hard to reach his impressively red but implausibly far-off telephones.

From this confidence-inspiring position Mr Xi told his audience that 2016 was going to mark "the beginning of the decisive phase" of the country's efforts to build a "moderately prosperous society", a goal that the Communist Party says it hopes to reach by the end of the decade. Not mentioning that the economy's rate of growth was at a quarter-century low, he maintained that the country's future prospects were "encouraging".

Recent events, however, suggest that Mr Xi's managerial confidence is not widely shared. Jitters emanating from China's equity and currency markets have exposed widespread fears that the way ahead will be rocky indeed—and that Mr Xi and his colleagues are ill-equipped to navigate it. Evidence from their handling of a broad range of political and economic policy suggests that the worriers may prove right.

Four days after Mr Xi's broadcast, the Shanghai stockmarket reopened after a new-year break. With 90 minutes to go before the close of business, transactions were halted for the rest of the day: the index had fallen by 7% and a newly introduced "circuit-breaker" kicked in. The sell-off has deepened since then: the index is now down by about 15% so far in 2016, its worst-ever start to a new year. At the same time, China's once-placid currency has turned stormy. The central bank believed it could nudge the yuan down, offering a little help to weary exporters without grave repercussions. Instead, it has triggered an exodus of capital and alarmed investors around the world, who braced themselves for bigger falls. As fears of a meltdown in China rippled across global markets, the government scrapped the ill-conceived circuit-breaker, and scrambled to shore up the yuan and the markets by telling its banks and brokers to buy.

Panic about China's ability to maintain steady growth is unwarranted. True, its debt is worrisome: government and private debt was about 160% of GDP eight years ago and now stands at more than 240% (about $25 trillion). But the government still expects the economy to grow by an average of 6.5% a year for the rest of the decade. That may be difficult, and it could entail a lot more wasteful investment. But it should be achievable.

The problem is thus not an economic one, per se. It is that a government once widely thought of as all-powerful—even over markets—may be losing its grip. The recent ructions, after all, are not the first mess of this sort; the markets went haywire last August (see chart 1). China's leaders are now grappling with hugely complex reforms of their financial system, their currency policy and of their state-owned enterprises and, apparently uncertain how to proceed, they are thrashing around and making mistakes. At home and abroad, people risk losing faith in them; such a loss would be felt well beyond the markets.

Mr Xi and his colleagues appear frightened of losing their grip on the economic levers that they have used to help keep the party in power. Party bosses like state- ▸▸

In unsteady hands? 1

Chinese stockmarket volatility index (CHIX)
Percentage points

Source: Bloomberg

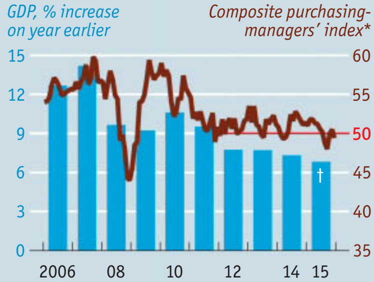
owned banks: they can be relied on to direct lending to favoured companies and loyal officials' projects. They worry about loosening the party's grip on the state-owned industries that control vital areas of the economy such as energy, transport and telecommunications—can anyone but party loyalists be trusted to run them?

If the party drags its feet on reform, though, China will fall back on unsustainable stimulus measures, and may eventually slide into economic stagnation, as Japan did in the 1990s. That would bring with it the risk of social and political turbulence. A full-blown economic crisis cannot be ruled out. Once admired by authoritarian governments elsewhere, not to mention some commentators in the West, for its canny balancing of free markets and party control, China's style of leadership may be about to lose its shine.

Though he may lack a sophisticated understanding of how to handle stockmarkets, Mr Xi was quick to grasp the dangers facing China when he took over in 2012. Some foreign commentators were still, even then, mesmerised by what they regarded as a winning combination of a technocratic government with a good sense of the country's needs and how to fulfil them, and a disdain for the endless debates that can bog down good policy in democracies. But Mr Xi and his colleagues realised that the foundations of the model that the late Deng Xiaoping began to develop in the late 1970s, and that in the 1990s came into its own, was in need of an overhaul.

Not what it was 2

China



*Based on a survey of purchasing executives. A reading above/below 50 indicates manufacturing is generally expanding/contracting compared with previous month †Estimate

Sources: IMF; Markit

Trouble at the top

The model's surge of success had been sustained by two forces: the rapid spread of prosperity and, since the bloody suppression of the Tiananmen Square protests in 1989, an unusually protracted truce among the often fractious party elite. Consistent growth underlay both, providing fabulous dividends for the elite as well as prosperity for hundreds of millions of people. But in 2012 China's GDP was growing at its slowest pace in 13 years (see chart 2). To make matters worse, Mr Xi's assumption of power occurred amid the most vicious struggle within the leadership that China had seen since Tiananmen. Not content with enriching his family to a phenomenal degree, Bo Xilai, the party boss of Chongqing, a south-western region, also made a bid for a job at the very top. Mr Xi resented this; other powerful politicians backed it. Mr Bo is now serving a life sentence for corruption and abuse of power.

Although economic growth and peace at the pinnacle of the party kept the country stable, they did not keep it static. Under Mr Xi's predecessor, Hu Jintao, the middle class grew phenomenally (see chart 3 on next page). And its desire for a stable environment in which to get ever better off was a vital bulwark of party rule. But some of its members were increasingly fed up with the party's caprices and its manifest corruption. What was more, this middle class had a powerful new weapon: information.

The rapid spread of the internet opened up a nationwide forum for dissent. Sina Weibo—China's equivalent of Twitter—was founded just three years before Mr Xi took office; but by that time it had 46m daily users. Social media allowed the party to monitor public opinion and identify problems before they became threats to the party's grip on power. But they also spurred the development of a civil society: NGOs, house churches and independent legal firms ready to take up the cases of the downtrodden and dispossessed in their battles with officialdom all made extensive use of social media. Groups independent of party control—albeit small and scattered—sprang up everywhere.

Events abroad seemed to underscore the instability of authoritarian states. The Arab spring began unfolding in 2011, a year before Mr Xi took over, and though it hardly amounted to a democratic breakthrough—far from it—it showed that authoritarian governments could prove unexpectedly brittle. The police in China worked hard to prevent any copycat unrest. At the same time, the Tibetan plateau and Xinjiang, which cover about 40% of China's land area, were seething with anti-party sentiment following the government's ruthless response to unrest in 2008 and 2009.

A demographic crisis was also beginning to loom. Plunging birth rates were stripping China of the surplus of working-age people that had constituted its "demographic dividend": it was fast growing old. Young people were beginning to worry about a future weighed down by the burden of caring for the elderly—not to mention sky-high property prices and, among graduates, rising unemployment. To cap it all an environmental catastrophe was unfolding: the industrialisation that had brought growth was choking cities with smog; one-fifth of rivers were too toxic for human contact, let alone to drink from.

Even party leaders had taken to describing China's economic model as "unstable, unbalanced, unco-ordinated and ultimately unsustainable".

Faced with a need to reshape, or even fundamentally restructure, China's economic and political model, Mr Xi has tried to present himself as a reformer in the mould of Deng Xiaoping. He has acquired more power than any leader since Deng, putting himself in charge of all the most important portfolios and abandoning the system of "collective leadership" Deng brought in. Indeed in many ways Mr Xi's grip on the country's mechanisms of control appears stronger than Deng's was, and second only to that of Mao Zedong.

Thus empowered Mr Xi talks of reform that goes yet further than Deng's did—as when, in 2013, he asked a meeting of the party's 370-member Central Committee to endorse his call for market forces to be given a "decisive" role in the economy. (It did.) Recently Mr Xi has taken to calling for "supply-side reform", implying that structural changes in the economy, rather than massive state-led investment, are to be the new order of the day. The party's main mouthpiece, the *People's Daily*, calls these reforms the "China Model 2.0 Edition".

A crucial aim of this approach is to ensure that the middle class remains on side, even as what Mr Xi likes to call a "new normal" of slower growth sets in. Hence his signature exhortations to build the "Chinese dream". It is an ambiguous term, partly designed to evoke thoughts of American-style middle-class prosperity, and of a life unfettered by interfering government. But the slogan was also designed to foster patriotic pride, including a "dream of a strong army". Mr Xi's revamped China model leans even more heavily on nationalism than earlier models did.

Constitutionally inept

Mr Xi's style of rule, though, has proved an impediment to his ambitions. His anti-corruption campaign—the longest and most far-reaching of its kind since the party seized control in 1949—has been welcomed not just by the middle class but also among those less well off, who feel that China's economic miracle has unfairly rewarded the powerful. But along with specific injunctions not to question party policy the anti-graft drive has made officials even more afraid than usual to take the risks needed to carry out reform.

In the political realm Mr Xi talks of making the legal system fairer and more effective. Just a month after he took over, he took up a cause that had long been dear to liberal intellectuals: that of giving the constitution more clout. "No organisation or individual has the privilege to overstep the constitution and the law," he said. He was trying to instil some discipline into the authoritarian model, reining in abuses of

power and privilege within the party that had enraged the middle class and people aspiring to join it.

Those who saw this as licence to push for deep reform, though, were quickly disabused. When a party-controlled newspaper in Guangdong province, *Southern Weekend*, tried to argue the case for constitutional government in an editorial titled "The Chinese Dream: A Dream of Constitutionalism", the censors shut it down. Journalists at the paper went on strike; dissidents gathered outside its offices in Guangzhou. Tolerated for a couple of days, the sight of crowds on big-city streets listening to speeches calling for freedom of the press and even a multiparty system proved too much. The police rounded up the dissident orators. Late last year three of them were sentenced to terms of between two-and-a-half and six years in jail. The episode ushered in a crackdown on civil society of greater duration and intensity than any since the dark days that followed the Tiananmen protests.

Mr Xi still talks up the constitution. At a meeting in 2014 the party's Central Committee decided to make officials swear loyalty to it, ordered schools to teach students about it and decreed that December 4th would be celebrated henceforth as Constitution Day. But Mr Xi's talk of constitutionalism rings hollow to liberals, just as his talk of reform fails to calm markets. And its impact within the party remains unclear.

One way Mr Xi hopes to prolong the party's life is by proving that it can govern effectively. His anti-corruption chief, Wang Qishan, raised eyebrows in September when he said that "the legitimacy of the ruling party" rested partly on "the mandate of the people". It was the first public use of the word legitimacy by a Chinese leader in connection with the party's rule, and seemed to imply a recognition that the party could not take it for granted.

Mr Xi has built on a system, developed by his post-Deng predecessors, of grading officials according to their fulfilment of "responsibility targets". In the past the targets that mattered most were those seen as maintaining social stability and promoting economic growth. Now the environment is getting a much higher billing. In 2012 the government made the reduction of PM2.5 air particles, the worst kind, a "hard target" in Beijing and other heavily polluted cities. State media have reported that the mayor of Beijing, Wang Anshun, has been ordered—metaphorically—to "submit his head" if he fails to meet this target.

Sensing that China's development has entered uncharted territory, China's leaders are turning to foreign gurus. In November Mr Xi met Francis Fukuyama, an American political scientist whose claim to fame is a thesis that would seem to run against everything Mr Xi wants to protect: that the march to liberal democracy is an unstoppable one. Mr Fukuyama has tweaked this "end of history" line somewhat since first espousing it, emphasising that, even in the absence of democracy, a state's ability to enforce laws and provide basic services such as education, health and infrastructure can matter a lot.

Harder tasks

Can Mr Xi's model—with all the flaws in its implementation—continue to keep the end of the party's history at bay? David Shambaugh of George Washington University, a career-long observer of China, was an early champion of the idea that the party had learned useful lessons from the collapse of the Soviet Union and changed its methods of ruling accordingly. It had, for example, allowed the development of NGOs that could help fill in the cracks of an overstretched welfare system. It had recruited more businesspeople into its ranks and experimented on a small scale with elections for party posts.

But in a forthcoming book, Mr Shambaugh says he has changed his mind; he thinks the reforms of which he spoke have run their course and a new era of "hard authoritarianism" has begun. And he points out that there has been no example of an authoritarian country making the transition to high-income status that Mr Xi seeks without at least a partial democratisation.

The 100th anniversary of the party's founding will come in 2021, just before Mr Xi's years in power are due, if he follows the example of his predecessors, to come to an end. If China's reforms continue to disappoint over the next few years, it is unlikely to be the joyous celebration Mr Xi must be hoping for. Nationalist chest-thumping may help to rally some support for the party. But it comes with risks—China's history since the 19th century is studded with examples of nationalist fervour turning against the government because of leaders' perceived failings.

Mr Xi may feel inclined to step up economic pressure on Taiwan, which is likely to elect an independence-leaning president on January 16th after eight years of rule by one who favoured closer ties with China. But there is little sign of public appetite for a return to the military tensions of the mid-1990s, when China lobbed unarmed missiles close to the island.

There is every reason, therefore, for Mr Xi to worry. Job losses in manufacturing will stoke tensions among blue-collar workers, which is why the party has started rounding up labour activists (see page 75). The loyalty of the middle class, long accustomed to unremitting growth, will become increasingly difficult to secure as growth slackens further. Both the middle class and the equally large cohort of rural migrants that dreams of joining it are vital to the country's economic success, and both are capable of mobilising regime-threatening opposition. Mr Xi talks a good reform, but has yet to follow through, and has shown that his preferred way of dealing with any threat is to resort to time-honoured tactics of cracking down ever harder. Chinese authoritarianism has been at times surprisingly deft. Just now, it does not look so. ■

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Barack Obama

A voice in the wilderness

WASHINGTON, DC

The president's final state-of-the-union showed his virtues and his weakness

TO HEAR most of the contenders for this year's presidential election tell it, America is in a horrible state. Republicans both mainstream and whacko, from Jeb Bush to Donald Trump, describe a country enfeebled militarily, ailing economically and culturally corrupted by seven years of Democratic rule; on the left, Bernie Sanders describes an economy rigged against ordinary Americans. In his last state-of-the-union message to Congress on January 12th, Barack Obama delivered a rebuke to that miserabilism—and to the ugly nativism it is fuelling among voters.

During his first presidential campaign, Mr Obama promised Americans a lot of change they would like. In what is likely to be his last major speech before the process of electing his successor begins in Iowa on February 1st, he talked more of the historic change globalisation is making, to the workplace, pay packets and complexion of American society, in turn creating much of the anxiety and resentment his would-be successors are pandering to. "It's change that promises amazing medical breakthroughs, but also economic disruptions that strain working families," he said. "It promises education for girls in the most remote villages, but also connects terrorists plotting an ocean away."

It is not certain that America will master the turbulence. "Progress is not inevitable," he warned, disabusing those conservative critics who accuse him of holding a Pollyanna-ish view of history. "It's the result of choices we make together. And we face such choices right now. Will we respond to the changes of our time with fear, turning inward as a nation…? Or will we face the future with confidence in who we are, in what we stand for?"

This was genre-busting stuff. The annual presidential address to Congress is traditionally a wishlist of legislative business for the coming year, with, in the final year of a presidency, an additional trumpeting of the incumbent's record. Mr Obama's speech contained some of that. He exhorted Congress to approve the recently concluded Pacific trade agreement, pass legislation to authorise the ongoing American operations in Syria and Iraq and work on criminal-justice reform, one of the few remaining causes that has bipartisan support. He also noted many of his achievements; in presiding over impressive job creation, health-care reform and America's first national effort at mitigating carbon emissions, for example. Yet the main thrust of his speech was in a way more audacious: an effort to stake out, ahead of Iowa, the ground for legitimate debate in a civilised society.

America has not, Mr Obama ventured to suggest, gone to the dogs. Its economy is the envy of the world. Its armed forces are unrivalled. So is its global leadership. "When it comes to every important international issue, people of the world do not look to Beijing or Moscow to lead—they call us." On that basis alone, anyone promising extreme solutions to America's problems should be mistrusted. And where they threaten the principles of fairness and rule of law, the basis of America's strength, they must be disdained. "We need to reject any politics that targets people because of race or religion," said Mr Obama, in a nod to Mr Trump's promise of mass deportations and a blockade of Muslims. "This isn't a matter of political correctness. It's a matter of understanding just what it is that makes us strong."

The job of politics is to settle finer debates, about the role of the state in apportioning wealth ("The American people have a choice to make") and the exercise of America's undimmed power. It was in this didactic spirit that Mr Obama defended his record. On the state, he argued that it was reasonable to worry about overburdening business with regulation, but illogical to reduce welfare payments, as most Republicans want, at a time of wage stagnation and rising insecurity for millions of workers. On national security, he protested, in a tacit response to his many critics, that escalating the wars in which America is already embroiled will not make it safer; "That's not leadership; that's a recipe for quagmire…It's the lesson of Vietnam; it's the lesson of Iraq."

This was vintage Obama, disdainful of the tribal emotions that have subsumed American politics, cerebral, unrelentingly reasonable. No doubt, it reminded many of his critics, who represent around half of Americans, why they abhor him. Mr Obama said the one big regret of his presidency was that partisan divisions had got worse during the course of it; but America is in no mood for healing. Sitting behind Mr Obama, Paul Ryan, the Republican Speaker of the House of Representatives, ▸▸

wore the impassive expression of a man who dared show no flicker of approval for a president his party despises—even when Mr Obama denounced the business-throttling red tape it should hate even more. When Mr Obama claimed that America was not enfeebled militarily, many Republican congressmen emitted a scandalised gasp. Yet mainstream Republicans candidates such as Chris Christie and Mr Bush, none of whom has denounced Mr Trump's vile politics half as effectively as Mr Obama, must quietly hope Republican voters imbibe his moral lesson, and reject the rabble-rousers. While he himself must pray that Democratic voters, 30-40% of whom are currently tempted to vote for Mr Sanders, will instead rally to Hillary Clinton who, because more electable, is much likelier to protect his legacy.

That, in turn, points to Mr Obama's weakness, the other political context in which he spoke. The president's decision not to recite the customary legislative to-do list—as notable by its absence as the victims of gun violence symbolised by a seat left empty next to Michelle Obama—was partly enforced. After a burst of bipartisan co-operation last year, including the overdue passage of a federal budget, he can expect little additional help from Congress. Whatever extra measures he hopes to burnish his record with, for example, to equalise pay between the sexes or increase the modicum of gun control he attempted this month, will probably have to be enacted by executive decree.

Wite-Out and the White House

So were many of his existing achievements, including changes to how laws on immigration are enforced. Although Mr Obama has not used his presidential powers half as profligately as his critics claim—his immediate predecessors, George W. Bush and Bill Clinton, both issued many more orders—his inability to get much legislation passed since the Democrats lost control of the House in 2010 has made his record unusually dependent on them. And given that most Republicans candidates vow to erase many of those orders, his legacy is one bad election result away from looking rather thin.

In his peroration, Mr Obama alluded to that frailty. In the absence of much enthusiasm for electoral reform in Congress, he promised to "travel the country" making his case for it. That desirable change, which he himself once promised to bring about, "will only happen when the American people demand it", he concluded. As so often, he is right and admirable in his diagnosis. Still, it is hard not to be dismayed by the image he left hanging in the divided House, of the president, once the change politician, reduced to wandering America like a mendicant preacher, appealing forlornly to its better nature. ■

Vice-presidential contenders

Haley's comet

ATLANTA

The governor of South Carolina auditions for the Republican ticket

THE most instructive part of Nikki Haley's memoir, "Can't is Not an Option"—beyond the fact of its publication, a tell-tale sign of national ambitions—is not the oft-cited anecdote about a beauty pageant in Bamberg, South Carolina: Mrs Haley and her sister, the daughters of Indian immigrants, confounded the judges' plan to pick black and white winners, and were disqualified. It is rather the passage about how she kept the books of her mother's shop from the age of 12. Like Margaret Thatcher, another shopkeeper's daughter and an acknowledged influence, Mrs Haley's upbringing bequeathed an extreme watchfulness about overheads and a sharp aversion to government intrusion.

Those instincts—developed, in Mrs Haley's case, on the shop floor rather than in a think-tank or boardroom—have guided her stint as governor of South Carolina, in which recruiting jobs and businesses has been her main preoccupation. Debt and spending, taxes and big government, duly featured as villains in her response to Barack Obama on behalf of the Republicans on January 12th. But she alluded, too, to the racist massacre at a church in Charleston last June, in which nine people were killed. Though she modestly omitted her own role, Mrs Haley's subsequent leadership led to the lowering of the Confederate flag in the statehouse grounds, a gesture that was emulated across the South. In a different sort of compromise, she acknowledged in her speech that Republicans shared the blame for America's political dysfunction.

That combination—fiscal ferocity and a capacity for conciliation—has led to chatter, now intensifying, about Mrs Haley as a contender for vice-president. Then there is the potential of her biography. She is South Carolina's first female governor, and first from an ethnic minority; five years into her tenure, she is still the country's youngest (she will be 44 on January 20th). If the Democrats plump for Hillary Clinton, Mrs Haley could attack her in ways that might seem ungallant for a male nominee. She might help salve the rebarbative xenophobia of the Republican primary.

To her opponents at home, all this is somewhat ironic. Her burgeoning reputation for sensitivity would be better deserved, they say, if she had aided struggling South Carolinians by expanding her state's Medicaid coverage under Obamacare (a programme she dutifully whacked this week). Hers is plainly the sort of up-by-the-bootstraps immigrant story that leaves little patience for special pleading: her family's mantra was "Deal with it". But another way of putting that is that Mrs Haley is, at heart, an orthodox, even hardline, Republican. For example, like many Republican governors, she has resisted the resettlement of Syrian refugees in her state. She once posted a snap of the Beretta she got for Christmas on Facebook.

Indeed for someone who, by her own account, was unsure which party to represent when she first stood for political office, she picked up the art of positioning quickly. In 2010, when she first ran for governor, she saw off three better-known rivals with the backing of the then-surging Tea Party, which liked her excoriations of some pork-happy Republicans as insufficiently conservative. Mitt Romney supported her, as, in her most prized endorsement, did Sarah Palin. So did the outgoing governor, Mark Sanford, then mired in the scandal that introduced "hiking the Appalachians" to the lexicon of political euphemism; Mrs Haley ▸▸

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SANCTUARY HOTEL
RIVER COURSE AND SASANQUA SPA
OCEAN PARK
HISTORIC CHARLESTON

herself faced down unsubstantiated allegations of adultery, plus innuendos about her religion (she grew up Sikh but converted to Christianity).

The Tea Party connection points to a potential weakness: an outlook that, beneath the patina of tolerance, can seem both doctrinaire and parochial. Her views on international issues are less assured than those on business taxes. She is a formidable campaigner, but her toughest fights have been against members of her own party: hers is a state in which, for would-be governors, the main challenge is the Republican primary, rather than, as in a presidential contest, persuading waverers.

The Hippocratic oaf

If Donald Trump is the nominee—which the primary in South Carolina on February 20th will help to determine—he is unlikely to choose Mrs Haley. She previously called his plan to keep out Muslims "absolutely un-American"; her speech this week, with its plea for resistance to "the angriest voices", was a response to him as well as to Mr Obama. It is hard to see Ted Cruz enlisting her, either. But another nominee would probably not be deterred by her limitations, since most voters, when they tune in, would register the basics of Mrs Haley's background, her graceful handling of the flag issue, and little else.

For the requirements of a presidential running-mate are rudimentary. Ideally he or she might capture a constituency, demographic or geographical, which the candidate struggles to reach. But that is only an aspiration—Paul Ryan failed to deliver Wisconsin for Mr Romney in 2012—and the main task is a simpler, Hippocratic one: not to damage the campaign, as, four years earlier, Mrs Palin's gaffes hurt John McCain's. Mrs Haley did no harm this week, certainly not to her own prospects—unlike, say, Bobby Jindal, the former governor of Louisiana and once the country's most starry Indian-American politician, who botched the same job in 2009. Except among those Republicans for whom any hint of moderation is anathema, her turn was widely applauded. On this evidence, voters would not recoil at the idea of her sitting a missed heartbeat from the Oval Office.

Even Mrs Haley's critics concede that she has grown into her governorship, performing robustly during South Carolina's recent floods. But they complain that she is more opportunistic than decisive. She tolerated the Confederate flag for years, they say, while others agitated for its removal; her vaunted record of job-creation owes as much to the wider economic recovery as to her leadership. Likewise her name might not be touted for the ticket were it not for the complexion of the race. On the other hand, in politics, seizing your moment is more a talent than a form of cynicism. Timing, after all, is everything. ■

New York's grands projets

Thinking big

NEW YORK

New York's governor has imperious plans for his state

IT WAS demolished more than 50 years ago, but New Yorkers still miss the old Penn Station. The beaux-arts style building boasted vaulted glass windows 46 metres high and a waiting room inspired by the Roman Baths of Caracalla. It was replaced by a soulless high-rise and Madison Square Garden, a sports arena and theatre neither square nor verdant. Since then commuters from Long Island and New Jersey and passengers using Amtrak's regional rail lines have had to navigate an outdated, cramped, subterranean labyrinth. Now Andrew Cuomo, New York's governor, has a plan to give America's busiest transit hub a belated makeover.

The $3 billion scheme builds on one first proposed by Daniel Patrick Moynihan, a senator who died in 2003. It involves moving Amtrak across the road to a near empty, but very grand, post office. The two buildings would be connected underground. Penn station's 650,000 daily passengers would enjoy decreased congestion, increased train capacity and natural light. Mr Cuomo says most of the work for the new "Empire Station" would be paid for by private developers.

The expanded station is one of more than a dozen proposals Mr Cuomo announced in the run-up to his combined State of the State and budget address on January 13th. They ranged from the badly needed (a new line for the Long Island Railroad) to the fanciful (a tunnel under the Long Island Sound connecting New York to Connecticut). They also include redesigning 30 subway stations, a $1 billion expansion of Manhattan's Javits convention centre and upgrades on buses and trains. The governor intends to revitalise several airports as well as investing $22 billion in bridges and roads upstate. He has pledged $5 billion toward a new train tunnel under the Hudson River, the first new rail tunnel connecting New York and New Jersey in a century. Altogether the plans will cost around $100 billion.

Growing the empire

New York infrastructure projects

Selected

Projects by Robert Moses (bold)	Year completed/*proposed*
Manhattan street grid	*1811**
Erie Canal	1825
Central Park	1873
Brooklyn Bridge	1883
Subway (first line)	1904
Jones Beach	1929
Triborough Bridge†	1936
United Nations building	1952
Shea Stadium	1964
Verrazano-Narrows Bridge	1964
World Trade Centre	1973
PlaNYC	*2007*
Hudson Yards	2015-18‡

*Design plan adopted †Now the Robert F Kennedy Bridge ‡Completed in stages

Source: *The Economist*

"It was Christmas in January," says Doug Muzzio, a political scientist at Baruch College. Mr Cuomo is yet to specify where all the money will come from, but if that small detail is settled the plans would amount to the biggest statewide investment in infrastructure in decades. Tom Wright of the Regional Plan Association, a think-tank, reckons that, while not all the ideas are good, it is both novel and welcome to have a governor planning on this scale. Since Nelson Rockefeller, who began the original World Trade Centre in the 1960s, New York's governors have largely been timid developers. Before then, New York had a long history of thinking big and building for the future (see table). Manhattan's street grid was designed for 1m people at a time when the population barely topped 100,000. The subway began operating a century ago when much of the city was still farmland. More recently, Michael Bloomberg, a former mayor, introduced PlaNYC, a 25-year blueprint for enlarging the city, in 2007. Under his watch, more than a third of the city was rezoned (ie, reallocated for alternative uses).

The infrastructure plan comes at a time when only half of voters view Mr Cuomo favourably. He has been in a public fight with Bill de Blasio, New York's mayor, for months. He was under federal investigation for over a year. Mr Cuomo had set up an anti-corruption panel staffed by prosecutors that was supposed to look into the abuse of expense accounts by local politicians. Before this body had done its work, Mr Cuomo shut it down, a move that attracted the interest of the feds. On January 11th Preet Bharara, New York's federal attorney, announced that he would not be prosecuting the governor.

Mr Cuomo wants to leave a lasting impression, says Nicole Gelinas of the Manhattan Institute, a think-tank, "but there's a danger in announcing too many things at once." The splurge could raise construction costs and mean skimping on maintenance. Existing projects, such as the Second Avenue subway line need funding; the replacement for the Tappan Zee Bridge is not yet complete. Mr Cuomo has lately taken to invoking the spirit of Robert Moses, a planner who both shaped and scarred 20th-century New York. One of Moses's talents was an ability to find money for his schemes. Mr Cuomo needs some of that. ■


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Fitbit's IPO raised more than $841 million, including primary and secondary proceeds, after exercise of the underwriters' option to purchase additional shares, as per Fitbit's press release dated June 23, 2015.
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The Supreme Court

Labour pains

WASHINGTON, DC

The justices are poised to deliver a blow to public-sector unions

THE labour movement in America has seen better days. In the 1960s, about a third of American workers were union members. Today, with "right-to-work" laws in place in 25 states, the figure hovers at 10%. In June, when the Supreme Court issues a decision in *Friedrichs v California Teachers Association*, the decline may well accelerate. Rebecca Friedrichs, a public-school teacher in California who left a union she disagreed with, is challenging a rule that says non-members must pay "fair-share fees" to cover the costs of collective bargaining. It violates the First Amendment right to freedom of speech, she and nine other teachers say, to be forced to subsidise an organisation whose politics they reject. Since unions form an important part of the Democratic coalition, the ruling will resonate beyond the world of union members and their bosses.

In 1977, in *Abood v Detroit Board of Education*, the court ruled that while unions could not charge non-members for political activities, states could allow unions to collect compulsory fees to support negotiations over workplace matters like wages and benefits. In oral arguments on January 11th Michael Carvin, the plaintiffs' lawyer, argued that negotiating teachers' contracts is an essentially political endeavour, because they involve controversial questions of "public concern". The fair-share or "agency fee" model forces his clients to espouse an "ideological viewpoint which they oppose", and violates "basic speech and association rights".

The tenor of the hearing suggested that a majority of the justices are keen to abandon *Abood* and end the mandatory fees—freeing Ms Friedrichs and millions of public-sector workers from the duty of writing cheques to the unions who negotiate on their behalf. Justice Samuel Alito sent strong hints of this willingness in two recent cases, calling *Abood* "something of an anomaly" in 2012. This view earned the apparent endorsement of Justice Anthony Kennedy, who noted that, under the current regime, teachers who oppose seniority-based salaries must nevertheless fund a union's "public-relations campaign to protest merit pay". It "makes no sense", Justice Kennedy complained, to tell teachers who "strongly, strongly disagree with the union position on teacher tenure, on merit pay, on merit promotion, on classroom size" that they must pay to support those positions but are otherwise "free to go out and argue against" them.

The defence of *Abood* by the court's left wing had the ring of a somewhat desperate rearguard action. Justice Stephen Breyer suggested that the plaintiff's complaint is "pretty far removed from the heart of the First Amendment", since employees "can say what they want" outside the bargaining room. For Justice Elena Kagan, the disgruntled teachers have a "heavy burden" in "ask[ing] us to overrule a decision" as "there are tens of thousands of contracts with these [agency-fee] provisions" affecting "millions of employees". Justice Breyer wondered "what happens to the country thinking of us as a kind of stability" if the court votes to "overrule a compromise that was worked out over 40 years".

That point may have been designed to appeal to Chief Justice John Roberts who, according to Elizabeth Wydra of the Constitutional Accountability Centre, "cares about the public's perception of the court and does not want it to be seen as an institution easily swayed by changing political winds". But if Mr Roberts is to be the fifth vote to save agency fees, he masked that well. Allocations to public education always compete with other budget areas such as "public housing [and] welfare benefits", he said. "It's all money."

What would happen if agency fees disappear? The unions, along with a host of agency-shop states, including California, argue that their membership rolls would thin and finances would wither. This is not necessarily the case: several European countries with higher rates of union membership than America do not allow unions to compel non-members to pay dues. Even if the ruling against California Teachers did accelerate the decline of unions, that would not necessarily be bad for Democrats. Unions can exercise a disproportionate influence on candidate selection, particularly in House and statehouse races. A party in which they had less influence might succeed in adopting more popular positions on subjects like merit pay and charter schools. In the long run, those alarming right-wing justices may just end up doing the left a favour. ■

Detroit's public schools

Of rats and debts

LANSING, MICHIGAN

The school system needs bailing out

SOME schools have black mould creeping up the walls; at others, mushrooms sprout from them. At Palmer Park Preparatory Academy, pieces of the ceiling are falling on pupils' heads while rats run around. Jerry L. White Centre High School has no heating. Western International High School does not have enough books for its pupils, who are crammed into classes of up to 45 children. One reason for this is that of the $7,450-per-pupil grant the school district will receive this year, $4,400 will be spent on debt servicing and benefits for retired teachers, according to the Citizens Research Council, a Michigan think-tank.

Listening to the complaints of Detroit's public-school teachers, it is hard not have some sympathy for those who staged a "sickout" (calling in sick) on January 11th, closing 64 schools. Galvanised by the ▸▸

School-free drug zone

teachers' strike, Mike Duggan, the mayor of Detroit, visited some public schools and admitted that he was disturbed by what he saw in some of them, which included four-year olds sitting in their coats in a classroom because it was so cold. Mr Duggan implored lawmakers in Lansing, Michigan's state capital, to do something.

Michigan is different from other states, such as neighbouring Illinois, where the largest single source of funding is local property taxes. Since 1994 it has funded its state schools mainly through state sales and income taxes. This gives the state a big say on how schools are run. Detroit's public schools have been on life-support since 2009, when the state appointed the first of four emergency managers. The latest one, Darnell Earley, is now battling with a Detroit Public Schools (DPS) debt of over $3.5 billion, which includes nearly $1.9 billion in employee legacy costs (such as unfunded pension liabilities) and cash-flow borrowing, as well as $1.7 billion in multi-year bonds and state loans. For the fourth time since 2009, the DPS last year ranked last among big cities for fourth- and eighth-graders (children aged 8-9 and 13-14) in the National Assessment of Educational Progress, a school-evaluation programme mandated by Congress.

The school system has been haemorrhaging pupils at an alarming rate. Pupil numbers fell from 141,000 in 2005 to 46,000 this year. Many of them have moved to charter schools: the majority of Detroit's schoolchildren now attend state-funded but privately managed charter schools. With its students leaving in droves, the DPS cut staff from 15,700 in 2005 to 6,000 last year and closed scores of schools. But the system's fixed costs remain high because of its former size. With its monthly debt-service payments about to jump by millions, Michelle Zdrodowski of the DPS recently warned that the system will run out of cash in April.

Lawmakers in Lansing have failed to agree on a rescue plan. Governor Rick Snyder, a Republican, has a draft bill that would create a debt-free DPS, run by a board appointed mainly by him, and a shell that assumes the debt. He also wants to shut down poorly performing charter and traditional schools. His plan has not been popular with bail-out-weary lawmakers, as it would come at a cost of at least $715m. And the governor's fellow Republicans in Lansing are not keen on his plans to mess with charter schools. Michigan's constitution proclaims primary and high-school education to be a right: 50,000 children are about to find out what that actually means. ■

Subsidising NFL teams

Sacking the taxpayer

NEW YORK

The Rams' move to Los Angeles does not mean the boondoggle is over

LOS ANGELES is by far the biggest market missing a team from one of America's three major sports: football, baseball and basketball (see chart). Having gone 21 years without a National Football League (NFL) team, it has suddenly been graced with three suitors: the St Louis Rams, the San Diego Chargers and the Oakland Raiders, though it will have to settle for just two. The Rams and Raiders used to call it home, but left in 1995 when the cities of St Louis and Oakland offered them taxpayer money to help cover their stadium costs, an act of generosity they must now be regretting. On January 12th the NFL announced that the first team headed for Los Angeles would be the St Louis Rams.

According to The Tax Payers Protection Alliance, an NGO, 29 out of 31 NFL stadiums have received public subsidies to help cover construction and renovation costs since 1995. NFL teams argue that this is justified because their presence drives consumer spending, but the academic literature says otherwise: economists argue that in the absence of sports teams, consumers would simply spend their money on other forms of entertainment. Any public subsidies for football stadiums are effectively transfers of wealth from taxpayers to NFL owners and athletes. Professional football teams don't need the help: according to *Forbes*, a magazine, the average NFL team makes $76m a year in profit, with a very healthy 22% operating margin.

One tactic commonly used by NFL owners to extort local governments is threatening to move to another city. That a city as desirable Los Angeles was without a football team made the threats all the more credible. One team, the Minnesota Vikings, managed to extract $500m of taxpayer money to build a new stadium based in part on such methods. Because the NFL has a fixed number of teams, cities wishing to serve as hosts have had to bend over backwards to accommodate them.

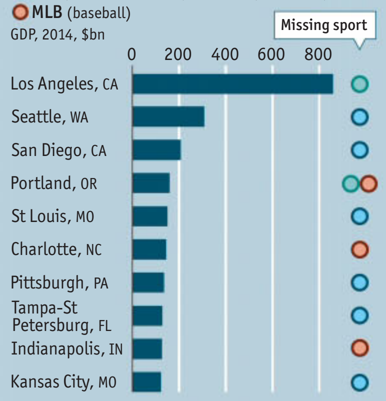
That was certainly the case with the city of St Louis, which tried to entice the Rams to stay by offering $477m of public money towards building a new stadium. What was different this time around was that the Rams never had any intention of staying. Stan Kroenke, the Rams' owner, has made far more ambitious plans, purchasing 300 acres of land in Los Angeles. In addition to a new football stadium, Mr Kroenke also plans to build a hotel, housing, retail and office spaces, all without taking public money.

The Rams' privately funded move to Los Angeles is a positive sign for those worried about wasteful public spending, and certainly reduces the amount of leverage that NFL owners will have over city governments in future. It does not, however, signal an end to the ruse. Neil deMause, co-author of "Field of Schemes", notes that large, rich markets like Los Angeles are few in number. Smaller cities have less leverage. Assuming the Chargers decide to join the Rams in Los Angeles, the Raiders will be left in the lurch. Will they move to another city like San Antonio, or will they shake down Oakland city government?

Lost balls

Largest city economies lacking a team in either the NFL (American football), NBA (basketball) or MLB (baseball)

GDP, 2014, $bn



Sources: Bureau of Economic Analysis; *The Economist*

Lexington | The centre cannot hold

Two moderate members of Congress explain why they are leaving

MOST Americans do not hate government. Nor do they trust it to reverse all misfortunes. Instead, suggests Richard Hanna, a centrist Republican in the House of Representatives, they want government to be like their plumber. "They just want the damn toilet to flush. You know: 'I don't want to marry you, I don't want to see you, I just want your bill and then go home'."

Congressman Hanna's pragmatism is a good fit for his district, an unflashy swathe of upstate New York, best known for factories that make Remington guns and Chobani yogurts, and which has split its votes 49-49% between the two main parties in recent presidential elections. A successful builder before his election to Congress in 2010, Mr Hanna worries about the national debt and the over-regulation of business. He likes the Republican focus on personal responsibility (Democrats are all about victimhood, he grumbles). But he is not anti-government. Unlike many party colleagues, he supports federal investment in crumbling roads and bridges, expanded early-childhood education for the poor and policies to tackle climate change. In 2015 he was one of just three House Republicans to defend federal funding for Planned Parenthood, a health-care organisation that offers abortions. He backs gay marriage: a Catholic of Lebanese descent, he cites Jefferson's tolerance of moral and religious beliefs that "neither pick my pocket nor break my leg".

Trumpeting his willingness to work across party lines ("Compromise is not treason," he likes to say), Mr Hanna won re-election rather handily in 2012. He looked so safe in the 2014 general election that Democrats did not run a candidate. Yet this year he will retire from Congress. His reasons are partly personal: he is about to turn 65 and has two young children. Mostly, he is discouraged by how little his centrist voice counts in Congress—not least because his party has moved "far to the right".

Musing in his Capitol Hill office—a fridge of Chobani samples humming in one corner—Mr Hanna blames several forces. First, gerrymandering: the drawing of district boundaries by both parties to create a House in which more than nine in ten members glide to re-election. Then comes such technology as micro-targeting, giving campaigns the ability "to reach into everybody's mind and figure out exactly what it takes to get them down to the polls"—rather than craft policies with broad appeal. Lastly comes "crazy" campaign spending, notably by anonymously funded outside groups that "carpet bomb" candidates with attack ads.

Mr Hanna is not, as it happens, a martyr to this system. In 2014 he beat off a primary challenge by a Tea Party hardliner with the help of a gay-rights group that spent hundreds of thousands of dollars on his race. Throwing fairness to the winds, that group, American Unity PAC, ran ads falsely calling Mr Hanna's rival a high-tax lefty. It worked, even after conservative talk-radio stars endorsed Mr Hanna's challenger: the congressman narrowly won a primary in which just 30,000 party loyalists voted.

Nonetheless, Mr Hanna regrets what the system has wrought. Too many Republicans and Democrats have safe seats, so fear only primary contests, in which activists select party candidates for the general election. And with deep-pocketed ideologues on the loose, he charges: "Local communities don't elect their representatives sometimes. These outside groups come in and do it."

Though Mr Hanna is not a big fish, his decision set off ripples. On January 5th a centrist Democrat, Steve Israel, announced that he is retiring after eight terms representing a district stretching from the New York borough of Queens to affluent suburbs on Long Island. Mr Israel caused a splash: he is a former chairman of the Democratic Congressional Campaign Committee, overseeing House races nationwide. Mr Israel says he is leaving to write novels—he earned acclaim for his first book, "The Global War on Morris", a satire in which Morris Feldstein, a timid Long Island nebbish, is mistaken for a terrorist. But he admits to frustration at the "relentless grind" of fundraising, and a lack of colleagues open to cross-party deals. In that, he was influenced by the departure of Mr Hanna, "one of the last moderate Republicans".

The flight from the District

Like Mr Hanna, Mr Israel sees a system that disenfranchises the moderate middle. He calls money "corrosive" to democracy. He is good at fundraising, collecting nearly $20m for Democrats over the years. He spent thousands of hours dialling for dollars from stuffy cubicles a few blocks from Congress (federal property may not be used for fundraising), working from call-sheets with personal details about his prey: past donations, their spouses' names, or where he last met them. A single House race may now easily cost $1.5m. The effects are straightforward: politicians must devote time and access to special interest groups, donors and lobbyists when they should be serving constituents.

Gerrymandering is not inevitable. Mr Israel notes that his state has many swing districts after non-partisan maps were imposed on New York by a court in 2012. The old campaign chief adds a partisan point about unintended consequences. Once a decade state legislatures redraw most congressional districts. Republicans set out to control that process in 2010. It was a plan they carried out "almost to perfection", he concedes. But he argues that Republican success has come to haunt them, as incumbents in super-safe seats spend time warding off primary challenges from the right, with policies that he calls "largely irrelevant to swing voters". Lurking within his partisan jibe is a nugget of wisdom for both parties. Lots of Americans worry more about paying bills and their children's futures than ideological purity. Parties can grow by wooing them.

Congress used to be full of members like Mr Hanna and Mr Israel: moderates who reflected the middle-class, middle-of-the-road districts that elected them. They are an endangered species, and worth heeding. Congress will not be saved without them. ■

Cuban migrants

Also in this section

38 El Chapo recaptured, again
Bello is away

The last wave

HAVANA AND LA GARITA, COSTA RICA

The urge to leave is strong, but the opportunity is diminishing

"HE'S probably the youngest Cuban in Costa Rica," reckons Elisabet, as her son nuzzles close for an afternoon feed. With some 8,000 Cubans in the country, many camped near the border with Nicaragua, that would be quite a distinction. She and her husband are typical of the throng. They flew from Havana to Quito in February 2015 when she was six months pregnant. When their son was strong enough, they journeyed north by bus, lorry and boat. Nicaragua, a friend of Cuba's communist government, blocked their further progress. Now Elisabet, who would not give her surname, waits with about 100 compatriots in the village of La Garita—watched over by three laid-back policemen and a couple of horses—for news of how and when they can resume their journey to the United States.

It should not be much longer. On January 12th 180 Cubans were flown from Liberia in northern Costa Rica to San Salvador, the capital of El Salvador. They are to proceed by bus to Mexico, and thence to the United States (see map). This disjointed itinerary is the result of an agreement among several Central American countries and Mexico to allow the migrants through while discouraging new arrivals.

If the first trip goes well, the rest of the Cubans in Costa Rica will be airlifted out. A similar arrangement may be made for about 1,000 stuck in Panama after Costa Rica shut its southern border in December. Future arrivals will get no such help, say the countries involved.

The journey of Elisabet and her fellow migrants is the latest in a series of exoduses that began with the Cuban revolution in 1959. More than 43,000 made it to the United States in the year to September 2015, a rise of 80% over the previous 12 months. The latest wave could be the last big one.

Two forces propel them. The first is Cuba's well-known deficit of prosperity and freedom, which in some ways is getting worse. Most Cuban workers are still employed by the government, which pays an average salary of about $30 a month. Even with nearly-free housing, education and health care, "*el salario no alcanza*" (the pay's not enough), Cubans are wont to say. The *libreta* (ration book) once gave families access to enough food, drink and tobacco; now it covers less than a quarter of their basic needs. In a lucky month a sliver of chicken or fish may appear in the *bodegas* where the ration books are accepted. In December Raúl Castro, Cuba's president, gave a speech warning Cubans to brace for more hardship in 2016.

Cuba's modest economic liberalisation and the unfreezing of relations with the United States since December 2014 have provided some with the wherewithal to leave. The government recently allowed citizens to sell their homes, enabling some to pay the $7,000 or so needed for tickets, bribes and transport to the United States. Others have money from American families and friends. Such high costs mean that most of the recent migrants are better off than average. An exodus of doctors prompted the government in December to reimpose a requirement that they ask for permission to leave the country.

The second push factor is the fear that, as relations improve with the United States, the American welcome to émigrés will cool. The Cuban Adjustment Act of 1966 gives Cubans a one-year route to residency in the United States. Many have taken up the offer. In 1980 125,000 Cubans joined the mass evacuation known as the Mariel boatlift, after the harbour where the voyages started. A later agreement with the Cuban government introduced the "wet foot/dry foot" policy, under which Cubans reaching American soil may stay, but those picked up at sea are sent back.

The Cubans parked on the Nicaraguan ▸▸

border fear that door may soon close. With reason. The American government has no plans to change the policy. But, points out Marc Rosenblum of the Migration Policy Institute, a think-tank, attitudes are hardening. Cubans who came in earlier waves were seen as refugees from tyranny. Newcomers flourishing Green Cards travel back and forth between the two countries, taking advantage of looser restrictions on travel introduced by Barack Obama. The contrast with the rejection of migrants from countries such as Honduras and El Salvador, who are fleeing appalling crime and poverty, is becoming harder to defend.

Cuba's neighbours are slamming their doors. In December Ecuador, bowing to pressure from Cuba's government, imposed a visa requirement on Cubans, in effect closing off the most popular route to the United States. The decision triggered rare protests by hundreds of Cubans near the Ecuadorean embassy in Havana. Costa Rica cracked down on people-smugglers in November; Nicaragua repelled border-crossers with truncheons and tear gas.

The airlift to San Salvador is supposed to clear out the last group of migrants, not encourage new ones. The $555 they will have to pay the company arranging the trip would cover the cost of plane tickets directly to the United States. But no country wants to make things easy for people passing through their territories without valid visas. Those who cannot afford the fare say they expect help. Costa Rica's foreign ministry has said their poverty will not be an obstacle, but warns that it will send new arrivals back home.

Once the Cubans arrive at Guatemala's border with Mexico they are on their own. They will be regarded as "illegal foreigners", says Mexico's National Institute of Migration, just like migrants from El Salvador and Honduras. In practice, they will be treated very differently. To reach the southern state of Chiapas Cubans cross the Suchiate river openly by bridge; those from Central America swim furtively across. The difference, say Mexican officials, is that Central American governments demand their citizens' return, whereas Cuba does not. Another reason, no doubt, is that the United States lets the Cubans in but turns away the others. The Cubans will be given 20 days to leave Mexico, plenty of time to reach the border.

Those awaiting passage in Costa Rica doubt they are among the last. "If America changes its law," says Generoso Machado, who was caught by Costa Rican agents after trying to cross the frontier illegally, "Cubans will go somewhere else." At midnight on New Year's Eve it is customary for Cubans to walk about their neighbourhoods carrying suitcases, a sign of yearning to travel in the year ahead. As long as Cuba stays poor and despotic, the tradition will thrive. ■

Crime in Mexico

From Penn to pen

MEXICO CITY

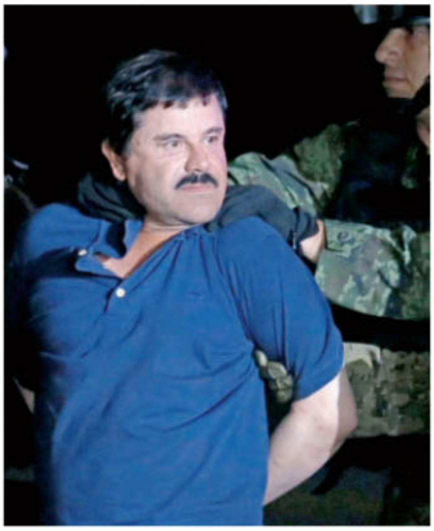
El Chapo's recapture heralds closer co-operation with the United States

ON THE evidence of Sean Penn's interview with him, published in *Rolling Stone* magazine, Joaquín Guzmán, Mexico's most successful exporter of narcotics to the United States, is not a thoughtful man. If he were, he would reflect on the many ironies that attend his recapture on January 8th, after two escapes in 15 years from high-security prisons.

Mr Guzmán knew he had a good story to tell, which is why in October he met Mr Penn, a Hollywood actor, in his jungle hideout in Mexico's drug-producing "Golden Triangle". His first escape, in 2001, was reportedly in a prison laundry cart; his second, in July 2015, was through a mile-long tunnel, built by engineers whom he had sent to Germany to learn the craft, he told Mr Penn. Between relatively brief spells in prison Mr Guzmán, better known as El Chapo (Shorty), bloodily built his Sinaloa drug gang into Mexico's most powerful. He was apparently hoping that his showbiz contacts would lead not just to an article but to a film.

In an unintended plot twist, El Chapo's contacts with Mr Penn and Kate del Castillo, a Mexican actress, helped the Mexican authorities get a fix on his position. Eventually, they closed in on him in a safe house in Los Mochis, a coastal town. Five of his henchmen were killed in a shootout with marines. Mr Guzmán fled the fight through another tunnel, but was apprehended on the town's outskirts. That will make for an even better movie.

Mexico's president, Enrique Peña Nieto, and American law-enforcement authorities, which are keenly interested in El Chapo, must now decide how to make the most of his downfall. The signs are that they will do so together.



Unfree at last

Mr Guzmán's second escape, not much more than a year after his recapture, was a low point for Mr Peña. It came after the president's tone-deaf response to the killing of 43 students from Ayotzinapa, in the southern state of Guerrero, and allegations of a conflict of interest, denied by the president, connected to a house purchase by his wife. His approval ratings fell to levels lower than those of any recent president. The officials in charge of the prison from which Mr Guzmán escaped were arrested; Mr Peña's security chief lost his job.

The recapture in Los Mochis will help accelerate a revival of the president's fortunes that was already under way. The government has avoided disasters recently. Mr Peña's economic reforms are beginning to help ordinary people. Mobile-phone charges have fallen thanks to measures to increase telecoms competition, for example. His poll ratings are climbing.

El Chapo's arrest should also encourage closer co-operation between Mexican and American law-enforcement authorities. That relationship suffered after Mr Peña became president in 2012. He drastically scaled back his predecessor's policy of extraditing drug bosses to the United States, and imposed centralised control on contacts between Mexican law-enforcement agents and American ones.

After El Chapo's second escape, Mr Peña changed tack. Extraditions were stepped back up. Among the deportees was Edgar "La Barbie" Valdez Villarreal, who is nearly as notorious as Mr Guzmán. He pleaded guilty to narcotics charges in a court in Atlanta this month. The two countries' attorneys-general, both appointed last year, are co-operating. Mexican authorities say El Chapo will be extradited to the United States, beyond reach of his collaborators and Mexico's corruptible prison guards, although it could take years.

For most Mexican crime victims the drug lord's capture will not provide much relief. The influence of the Sinaloa gang, a traditional drug-distributing operation, may well wane. But that is likely to open opportunities for more dangerous groups, such as the Zetas and the Jalisco New Generation gang, which make their money largely from extortion and kidnapping, says Alejandro Schtulmann of EMPRA, a political-risk consulting firm. El Chapo was an American obsession, but the priority for Mexican authorities should be groups that terrorise the locals, he says.

Mr Peña, who tweeted "mission accomplished" after Mr Guzmán was nabbed, deserves his moment of celebration. Now he must press ahead with the fight against lawlessness and corruption. ■

Higher Education Forum

FORGING INNOVATIVE PARTNERSHIPS

On October 22nd during The Economist Events Higher Education Forum, leaders from institutions of higher education and the private sector gathered for a panel on how universities can work effectively with industry partners to provide highly relevant degrees that will prepare students for the workforce.

Partnerships between universities and private companies are redefining the American education landscape, and they will be key to helping schools meet the growing global demand for education in the digital age. Increasingly, institutions of higher education are working closely with employers to reach more students with their offerings—something they would not be able to do on their own.

Stephanie Bell-Rose TIAA-CREF Institute
Matthew Bishop The Economist Group

Partnerships with technology companies like Google are especially important when it comes to expanding. Rather than doing everything in-house, universities can lean on partners for their technological expertise and upgrade their capabilities.

Other types of partnerships are driven by a need for more STEM graduates. AT&T University created its degree programme with Georgia Tech (a correspondence certificate programme with online learning platform, Udacity) because the company needs to fill jobs in fields like front-end and back-end web development, data analytics and iOS and android development. The curriculum is designed to be more technical than a traditional four-year degree, yet broader than a trade-school education. "We are looking for the 'light-blue-collar worker'," said Nate Edwards, vice-president of AT&T University.

In addition to making education more accessible to a wider range of students, innovative degree programmes can teach universities about how to operate in the future. Arizona State University (ASU) collected data about how students were progressing through the Starbucks College Achievement Plan, which grants thousands of Starbucks employees online access to a degree from ASU. The university then developed "success coaching" to help first-generation and non-traditional college students navigate common challenges. "When we think about innovations like ASU Online or our latest foray with the Global Freshman Academy, each of these is about empowering faculty members to reach students at the next levels of scale," said Adrian Sannier, chief academic technology officer for ASU.

In terms of future partnerships, Stephanie Bell-Rose, senior managing director of the TIAA-CREF Institute, emphasised the importance of monitoring innovation to determine return on investment. "We're [working to help] institutions find opportunities to cut costs while remaining very focused on mission and delivering innovation," she said.

Nate Edwards AT&T University
Adrian Sannier Arizona State University

All panelists agreed that effective partnerships are indispensable in order to accelerate the pace of innovation in higher education. Not only can industry partners exert pressure on institutions of higher education to develop more efficient processes and procedures, but they can also bring direct knowledge and skills for the jobs they are hiring for. Panelists recommended that higher education leaders focus on the core competencies of their institutions, and then work with partners to fill in the gaps in areas outside their expertise.

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Vietnam's Communist Party

Changing of the guard—but then again, perhaps not

HANOI

The country is in a hurry; its leaders less so

THE sign above the door at Cong Caphe, a hip coffee shop in downtown Hanoi, the Vietnamese capital, bears a bright-red communist star. Inside, the brick walls are covered in memorabilia from the era of the Vietnam war: rusty canteens, an old transistor radio and snapshots of Viet Cong soldiers trudging off to fight the Americans. Yet the aesthetic is not so much patriotic as a cheeky send-up of communist ideology. The 20- and 30-something Vietnamese who drink here, spending the fruits of an increasingly capitalist economy, feel far removed from the hardships suffered by their parents and grandparents, while they applaud ever-closer ties with America.

With its scooter-driving young and an economy growing at nearly 7% a year, Vietnam seems like a country in a hurry. In many ways, the ruling Communist Party is trying to keep up. Not far from the coffee shop, windows the size of a cathedral's illuminate the new building housing the National Assembly, Vietnam's parliament. Sunbeams pour from skylights into the marble foyer. In a one-party state where symbols matter, the building's airiness suggests that the rulers are trying to project an image of modernity and transparency. Yet as Nguyen Vu Nam, a manager at Cong Caphe, points out, young Vietnamese do not pay much heed to who runs the party. Personnel changes among a generally grey and faceless collective leadership have never seemed to matter much.

This month party bigwigs will make a fresh bid for relevance. On January 20th they convene for a five-yearly congress, the highlight of Vietnam's political calendar. More than half of the 16-member Politburo, the party's ruling council, are meant to retire, to be replaced by younger officials. The country's three most senior jobs—of state president, prime minister and party general secretary—are all up for grabs. That so much remains mysterious so close to the event suggests that this year's negotiations are unusually tense.

The man to watch is Nguyen Tan Dung, Vietnam's prime minister for ten years and probably its shrewdest and least uncharismatic politician. At 66, Mr Dung is past the party's usual retirement age. But he is said to want to remain in high office by taking the role of party secretary, while perhaps relinquishing his current office to an ally. Mr Dung would doubtless reinvigorate a job which has lately begun to look dusty. He may wish to carve out an authority that begins to approach the dominance enjoyed by Xi Jinping in China. But such a move would be unusual. It would rattle a political system which, until now, has discouraged domineering personalities and has valued consensus.

Mr Dung's backers say that Vietnam's present challenges call for strong and consistent leadership. The economy is much mended after bad debts from cosseted state enterprises threatened the banking system. The country stands to gain from a sheaf of trade agreements negotiated in 2015, including the American-led Trans-Pacific Partnership. Yet progress towards many essential reforms, including the privatisation of state firms, has been slow. The economy is overdependent on commodities, especially coffee and rice, as well as on foreign investors. It will be essential to broaden and deepen Vietnam's economy before its biggest present advantage, a young and cheap workforce, is spent.

As for politics, managing the country's tricky relations with China is the biggest challenge. Vietnam is economically dependent on its northern neighbour, with which it has a big and growing trade deficit. At the same time, China's assertive claims to islands and underwater resources in contested parts of the South China Sea have outraged even moderate Vietnamese. Those born since the country ditched its planned economy in the 1980s are growing more outspoken, for example on social media. Vietnam cannot afford to have bad relations with China, but at the same time its leaders must be seen to be defending Vietnamese territory.

Fighting ferrets

Most intellectuals paying attention to the party congress would like to see Mr Dung retain some authority, since he has been the strongest voice against Chinese bullying. He is also the clear choice among local and foreign business folk, though for different reasons. They see Mr Dung as behind the flurry of trade deals and recent efforts to lift caps on foreign ownership. They say ▸▸

he is unusually knowledgeable about industry, well-advised by Western-educated staff and knows what investors want to hear.

Yet whiffs of cronyism taint the prime minister as much as they do other comrades. His son's political career has seen suspiciously swift advancement, while a flashy Vietnamese-American son-in-law owns the country's McDonald's franchise. Scandals have sprouted at state enterprises that Mr Dung had championed. Nor do civil libertarians think that he is more inclined than other leaders to unshackle the censored press or end the thuggish treatment of dissidents.

As the party congress approaches, its outcome appears ever less certain. Mr Dung was once thought a shoo-in for party leader. Yet a loose-knit faction opposed to him may even manage to oust him entirely from the leadership.

The fighting springs partly from competing networks of patronage, and partly from modest ideological differences between conservatives and the prime minister's relatively reformist pals. Some officials worry that Vietnam's growing chumminess with America will only make China more confrontational. A handful of them even seem to fret that Mr Dung's liberalising instincts could end up threatening the party's hold on power. But that would be conjecture. For all the light streaming into the new parliament building, Vietnam's Communist Party remains a dark sack full of ferrets. ■

Feral cats in Australia

Felicitous felicide

SYDNEY

To save the numbat and other native mammals, Australia culls cats

MOST Australians have heard of wombats, but few could place the numbat. Both marsupials are among 315 mammal species that roamed Australia at the time of the first European settlement in the late 18th century. The wombat has thrived. The smaller numbat, once widespread, clings on in only a few colonies in Western Australia. There it is listed as endangered, because of predation by feral cats. At least it survives. Australia has one of the world's highest rates of mammal extinctions—29 have been recorded over more than two centuries. Feral cats are reckoned to be culprits in 27 of those disappearances: among them the desert bandicoot, the crescent nailtail wallaby and the large-eared hopping mouse.

Cats probably arrived in Australia on British ships carrying convicts. Unlike the convicts, their descendants have grown wilder and more menacing. The feral-cat population today is estimated at between 4m and 20m, most of them prowling outback habitats. They are often huge, weighing 15 kilograms. And they eat perhaps 75m Australian animals a day.

A parliamentary inquiry and a scientific report on mammals called for governments to step in. Last year Greg Hunt, the federal environment minister, launched a "threatened species strategy" to stop mammals' decline. Fire, loss of habitat and foxes, another alien predator, have played a part. But, Mr Hunt says, feral cats are "the number-one killers".

Ten cat-free sanctuaries are planned across Australia over the next four years. The Australian Wildlife Conservancy, an NGO, is to start fencing 650 square kilometres (250 square miles) in April to create the biggest one at Newhaven, in the desert in Northern Territory. Atticus Fleming, the outfit's head, calls this region the "epicentre of the extinction crisis". His colleagues aim to reintroduce several threatened mammals there, including the mala, a winsome creature resembling a tiny wallaby, which disappeared from mainland Australia 25 years ago. The project will also give jobs to the local Ngalia Warlpiri aboriginal clan. Its senior women, says Mr Fleming, are "extremely good cat hunters".

The government wants 2m feral cats culled across Australia by 2020. It is funding trials on cat-specific baits, as well as an app allowing humans who venture into the outback to report cat sightings. Mr Hunt insists the baits would work "humanely". If they eventually killed even half the cat population, "it would be the most important action for Australian wildlife in 100 years."

The planned felicide has greatly upset some cat people, notably Brigitte Bardot, a French former sex goddess, and Morrissey, a miserable British singer. But conservationists say killing cats and fencing enclosures have already saved several species from extinction, including the Gilbert's potoroo in Western Australia and the bridled nailtail wallaby in New South Wales. Mr Fleming admits an Australia free of feral cats is a long way off: "But the fence strategy can buy time until a silver bullet is found."

Whose side are you on?

North Korea's awful economy

A Kim in his counting house

SEOUL

The regime suffers none of the consequences of its misrule

A POWERFUL army usually depends on a strong economy. Not in North Korea. Per head, the country has more soldiers than any other: 1.2m out of a population of 25m. As well as a huge conventional arsenal, it also has a dozen nuclear warheads and spends perhaps $3 billion a year on a nuclear programme that involves rocket launches and nuclear tests—the latest took place last week, the fourth since 2006. Yet the performance of the economy over the past four decades has been little sprightlier than that of the Great Leader, Kim Il Sung, since he was embalmed in 1994.

North Korea suppresses most economic data. But as far as we know, from the 1950s to the 1970s its economy outgrew capitalist South Korea, as a Stalinist state marshalled all resources towards production. Today the North's per capita GDP is only one-40th of the South's—a wretched $600 a year or so, by UN estimates. The blame rests squarely with the Kim dynasty's ruinous policies. Yet the regime of Kim Jong Un, the third Kim on the throne, pays no penalty for the people's suffering. Rather, it funnels money to itself, the elites and the nuclear programme.

In a recent paper for South Korea's Asan Institute, Nicholas Eberstadt of the American Enterprise Institute in Washington, DC tries to estimate the scale of North Korea's economic catastrophe. Given the paucity of data, Mr Eberstadt used "mirror statistics": estimates of the country's trade divined from other countries' records. He then made adjustments for population growth and inflation. It is no straight proxy for output, but useful nonetheless.

Mr Eberstadt found that North Korea's

per-capita exports last year were no higher than at their peak in the late 1970s, while per-capita imports were two-fifths lower. North Korea's economic underperformance is remarkable for a country that is neither a failed state nor at war, he says.

What went wrong? The collapse of the Soviet Union, upon which the North had long relied for cheap machinery and oil, certainly hit it hard in the 1990s. Weakened by bad weather, centrally run agricultural production collapsed in the 1990s, leading to a famine in which hundreds of thousands of people died. International sanctions in response to North Korea's nuclear bomb-testing have also hurt.

But the biggest problem, Mr Eberstadt argues, is that North Korea has the worst business environment of any functioning state: worse even than Cuba, Venezuela or Zimbabwe. It has no property rights or rule of law, no legal private trade and a currency prone to confiscation: in 2009 the government wiped out small traders' savings by declaring old banknotes invalid and swapping only a few for new ones.

A striking feature of the North's economic decline is the quantities of foreign aid that accompanied it. North Korea has a long history of shaking down donors—first the Soviet Union, then, after 1991, America and South Korea, and most recently China. The total amount of transfers is impossible to quantify. But Mr Eberstadt estimates the sum from the North's two biggest historical backers, Russia and China, by taking its balance of trade deficits with each of them as an approximation of net resource flows into the North—assuming that the surplus is a debt that will not be repaid. That surplus amounts to $45 billion, in today's money, between 1960 and 2013.

The money seems to have helped the Kims live like god-kings and still have enough left over to pay the army, the secret police and various suppliers of nuclear materials. Yet Rüdiger Frank, an economist at the University of Vienna, thinks that increased supplies of hard currency may also have helped the informal markets for food and basic supplies that burgeoned as a response to the famine. These black markets are the single most benign transformation in North Korea in the past few years. Most North Koreans now depend on them for their livelihoods. The state usually turns a blind eye, since its central planning system, which is supposed to apportion goods, has broken down. Besides, the elites demand their cut.

Some see in such markets the seeds of deeper economic reform. And Mr Kim seems keener than his father to promise prosperity to his people, and even a modicum of leisure. North Korea's capital, Pyongyang, now boasts a dolphinarium and a water park, and even a ski resort to its east. As high rises go up, the capital's fashionable sip espressos in upmarket bars.

Another day in the People's Paradise

Yet the regime's old habits are unchanged. Anecdotal evidence suggests that the state is squeezing the *donju*, North Korea's new successful class of traders. According to DailyNK, a news source with informants in the North, *donju* are worried that they will be forced to hand over hard-currency savings to make up for the "massive dollar bomb"—ie, the expensive nuclear test—that was detonated last week.

In the absence of direction from the top, there are limits to how much can change. A new policy that seems to have been quietly rolled out from 2013 allowed farmers to retain 30% of a new production target, plus any excess over the target, to sell on informal markets. Yet local officials are not distributing the promised shares, perhaps to make up a shortfall at co-operatives, according to a report by Radio Free Asia.

Meanwhile, the few foreign investors brave enough to enter North Korea must contend with an unpredictable and predatory state. In November the biggest such, Orascom, an Egyptian telecoms company that set up the North's first 3G mobile network, said that it thought it had lost control of its joint venture, and has not been able to repatriate its profits.

China remains North Korea's lifeline. Most products for sale in the North's informal markets are from China. Last year North Korea sold over $1 billion of minerals to China, chiefly coal. As China's economy slows and the price of coal falls, the North will suffer. But the regime has a solution: putting its scant resources into military power. This serves as a "battering-ram for international extortion", as Mr Eberstadt puts it. Alas, it seems to work. ■

Urban pollution in India

Particular about particulates

DELHI

A bold experiment has improved Delhi's air. But Indians want more

IF A fine powder combining arsenic, black carbon, formaldehyde, nickel, sulphur dioxide and nitrogen oxide sounds unpleasant, imagine how it would be if 200 tonnes of it were dumped on your town every day. Imagine, too, that it was proved to be cancerous, with most of it coming in the shape of particles small enough to lodge in the deepest, most tender parts of your lungs. Such is the woe of India's capital. With a count of "respirable suspended particulate matter" that is roughly double that of China's notoriously smoggy capital, Beijing, Delhi is ranked by the World Health Organisation (WHO) as the world's most polluted big city. Several other Indian cities are nearly as atrocious (see table on next page).

Perhaps 25,000-50,000 of greater Delhi's 25m people die prematurely every year because of air pollution. The number is growing: admissions for respiratory ailments at a busy teaching hospital soared fourfold between 2008 and 2015 according to an investigation by the *Indian Express*, a newspaper. And the trouble is not confined to the capital. In the country as a whole the number of early deaths caused by toxic air could exceed 600,000 a year. The largest cause is not cars or factories: it is smoke from home cooking, while in northern India stubble-burning in the countryside is also a factor. But vehicles play a big part, and it is to this source that the keenest attention is now being paid.

Ashes to Ashes

On January 15th Delhi wrapped up a drastic two-week experiment to reduce car emissions by restricting road use to odd- or even-numbered licence plates on alternate days (a method occasionally used in Beijing, São Paulo and a dozen other cities). When the local government announced the scheme in December, many predicted failure. Proud car-owners would ignore it. Police would be too few or too corrupt to enforce compliance. And anyway, in a city with 2.9m cars but some 7m motorbikes and motorised rickshaws, and with many exempt from the ban such as taxis and other public vehicles, the effects would be minimal.

Yet it seems to have been a striking success. With teams of volunteers manning corners to shame would-be shirkers into parking their cars, and police out in force to slap on fines, few flouted the ban. Nor can anyone now claim to be unaware of a problem to which residents had become so inured that it has hardly featured in elections to date. Public transport was more crowded, but passengers were delighted to find traffic markedly lighter.

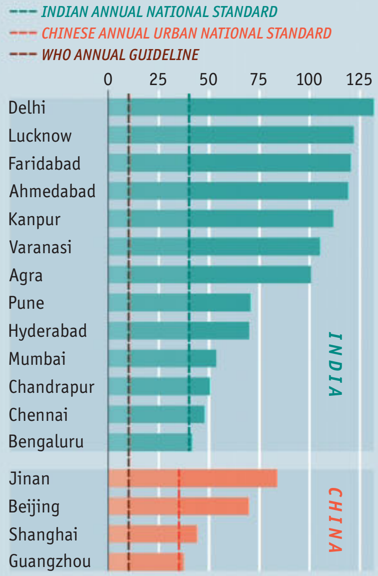
True, by the measure of the nastiest element in Delhi's toxic cocktail, ultrafine particles, the drop in emissions was not drastic. The first days of the new year even saw a discouraging spike in concentrations of PM10 and PM2.5, as the diameter of two sizes of particles are commonly defined in thousandths of a millimetre. In parts of the city, PM2.5 (the more harmful of the two sorts, because it penetrates the lungs more deeply) exceeded 500 micrograms per cubic metre. That is 20 times the WHO's guideline for safe air.

Still, notes Anumita Roychowdhury of the Centre for Science and Environment, a think-tank in Delhi, those highs were largely due to winter weather, and were lower and shorter-lasting than previous peaks. The odd-even test not only showed that such emergency measures can limit dangerous pollution; it showed how much more efficient public transport can be when road space is freed up to let it move.

The positive response has jolted politicians and India's courts into action. In December the country's Supreme Court slapped a citywide ban on the registration of luxury diesel cars. Soon afterwards, the national government declared that it

India now overshadowing China

Average PM2.5 concentration, micrograms per m³
July-November 2015



Source: Greenpeace

would speed up the introduction of stricter emissions standards for new passenger cars. It is now considering a similar move for two- and three-wheelers. The government is also hurrying to improve the quality of fuel.

If both new sets of regulations come into effect by 2020, as is planned, new vehicles will emit only a fraction of the pollution they do today. Other initiatives include the expansion of Delhi's metro, measures to maintain roads better (the dust kicked up from these accounts for a big proportion of breathable particulates), restrictions on lorries entering the city, and plans to enforce the replacement or retrofitting of older vehicles. If all this is done, Delhi may get acceptable air in a few years' time.

It is not the first time the central government has acted against air pollution. Over a decade ago it introduced a battery of pollution controls, such as requiring most buses, taxis and auto-rickshaws to convert to natural gas. It banned the burning of rubbish and shut down heavily polluting industries as well as power plants. Those measures worked too, getting rid of the coarsest grit. People noticed that their shirt collars were no longer dirty, says Sumit Sharma of Delhi's Energy and Resources Institute, another NGO. "They thought the problem was solved."

Wild is the Wind

Two things then intervened to undermine progress. One was a tripling of the number of vehicles on India's roads between 2002 and 2013. The other was misguided government policy. By subsidising diesel in a bid to woo farmers who rely on it to power water pumps and tractors, successive governments encouraged a massive shift in Indian vehicle markets. Between 2000 and 2013 the proportion of new cars with diesel engines rose steeply, from one in 20 to one in two.

California's environmental regulatory agency—the body that recently exposed cheating on diesel emissions tests by the German car firm Volkswagen—says diesel exhaust poses the highest cancer risk of any toxic air contaminant it has evaluated. Luckily, the Indian government's mistake has already been corrected. In October 2014 it scrapped diesel subsidies; sales of diesel vehicles have already dropped. This month a supreme-court judge had this to say to lawyers from a carmaker who argued against the ban on diesel-guzzlers: "So are your vehicles emitting oxygen?" The horrors of Delhi's air are sinking in. ■

India Gate: one day your children may be lucky enough to see it

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Military reform

Xi's new model army

BEIJING

Xi Jinping reforms China's armed forces—to his own advantage

CHINA'S biggest military shake-up in a generation began with a deliberate echo of Mao Zedong. Late in 2014 President Xi Jinping went to Gutian, a small town in the south where, 85 years before, Mao had first laid down the doctrine that the People's Liberation Army (PLA) is the armed force not of the government or the country but of the Communist Party. Mr Xi stressed the same law to the assembled brass: the PLA is still the party's army; it must uphold its "revolutionary traditions" and maintain absolute loyalty to its political masters. His words were a prelude to sweeping reforms in the PLA that have unfolded in the past month, touching almost every military institution.

The aim of these changes is twofold—to strengthen Mr Xi's grip on the 2.3m-strong armed forces, which are embarrassingly corrupt at the highest level, and to make the PLA a more effective fighting force, with a leadership structure capable of breaking down the barriers between rival commands that have long hampered its modernisation efforts. It has taken a long time since the meeting in Gutian for these reforms to unfold; but that reflects both their importance and their difficulty.

The PLA itself has long admitted that it is lagging behind. It may have plenty of new weapons—it has just started to build a second aircraft-carrier, for instance—but it is failing to make effective use of them because of outdated systems of command and control. Before any substantial change in this area, however, Mr Xi felt it necessary to strengthen the party's control over the PLA, lest it resist his reforms and sink back into a morass of money-grubbing.

The reforms therefore begin with the main instrument of party control, the Central Military Commission (CMC), which is chaired by Mr Xi. On January 11th the CMC announced that the PLA's four headquarters—the organisations responsible for recruiting troops, procuring weapons, providing logistics and ensuring political supervision—had been split up, slimmed down and absorbed into the commission. Once these were among the most powerful organisations in the PLA, operating almost as separate fiefs. Now they have become CMC departments.

Power to the party

The political headquarters was the body through which the party kept an eye on the ranks and ensured they were up to speed on Maoist texts and the party's latest demands. The loss of its autonomous status may suggest that the party's role is being downgraded. Far from it. Now the party's CMC (there is also a state one, which exists only in name) will be better able to keep watch. The body's 15 new departments will include not only departments for politics but also for logistics, personnel management and fighting corruption. Mr Xi has already turned his guns on graft, imprisoning dozens of generals.

The second reform has been to put the various services on a more equal footing. The land forces have hitherto reigned supreme. That may have been fine when the PLA's main job was to defend the country against an invasion across its land borders (until the 1980s the Soviet Union was considered the biggest threat). But now China has military ambitions in the South China Sea and beyond, and wants the ability to challenge American naval and air power in the western Pacific. A recent editorial in the *Liberation Army Daily*, a PLA mouthpiece, berated the armed forces for their "army-centric mindset".

In addition to those for the navy and air force, a separate command has now been created for the army, which had previously run everything. On December 31st the CMC also announced the formation of a command responsible for space and cyberwarfare, as well as one for ballistic and cruise missiles (previously known as the Second Artillery Force, part of the army). There is also a new joint command with overall control of the various services, a little like America's joint chiefs of staff.

Big changes are also afoot in regional command structures. China used to be divided into seven military regions. These were powerful and relatively self-contained; sharing or swapping troops and equipment was rare. Now, according to reports in the *South China Morning Post*, a newspaper in Hong Kong, the number will be reduced to five. Troops will be recruited and trained by the various services before regional deployment. This will ensure greater central control over the regions.

China has been talking about military reform for decades, but change has been glacial. Opposition within the armed forces has been intense. "If [reform] is not done properly," wrote Sun Kejia and Han ▸▸

Xiao of the PLA National Defence University last month, "it could affect the stability of the armed forces or even all of society." (The article was promptly removed from the *Liberation Army Daily* website.) Demobbed soldiers could make trouble—Mr Xi wants the number of troops to be cut by 300,000. State firms have been ordered to reserve 5% of jobs for laid-off veterans.

The recent reforms are more extensive than most Western observers had expected after the Gutian conference. But even so, they are incomplete. The army still holds sway over some appointments (all five chiefs of the new regional commands are army generals, for instance). The PLA has traditionally given higher status to combat units than to those providing communications, logistics, transport and the like, a misplaced emphasis in an age when information and communications are crucial in warfare. The reforms do little to correct that bias. Moreover, many details about them remain unclear. No one knows, for example, where the troop cuts will come from or what units will go into the new space and cyberwarfare command.

The first result of the reforms is likely to be confusion in the ranks, until the new system settles down. Dennis Blasko, an American observer of the PLA, says no one can be sure of the results until they are tested in battle. Amid the murk, only one man clearly seems to have got his way: Mr Xi. ■

Confucian cuisine

Just add sage

BEIJING

The regime is trying to preserve a cuisine few people have heard of

A GIANT wooden bust of Confucius greets visitors to the Luweifang restaurant in Beijing, where diners may feast on "literary ginkgo", braised hog rectum and other delicacies said to be part of a centuries-old culinary tradition developed by the ancient philosopher's family. The restaurant, set up in 2011, is one of dozens across the country purporting to offer such delights. Now China is preparing to bid for UNESCO to register Confucius's family cuisine as part of the "intangible cultural heritage of humanity".

China has already logged Mongolian throat singing, mathematical calculations on the abacus and a form of puppetry with UNESCO, as well as more prominent arts such as Peking opera and acupuncture. Confucian cookery would not be the first culinary entrant: *washoku*, traditional Japanese cuisine, attained this status in 2013, and North and South Korea have each separately listed kimchi, the seasoned, fermented vegetables beloved on both sides of the demilitarised zone. Even the "Mediterranean diet" is catalogued.

Great brain, great prawns

Confucian gastronomy was included in China's list of cultural treasures in 2011 (joining Chinese yo-yos, some folk tales and roast duck). Yet even within China Confucian fare is rarely considered distinctive. Foodies variously divide Chinese cookery into four, eight or ten regional schools, but the philosopher's tradition is not among them. "The Analects", a book of his sayings, praises the scholar who "does not seek the gratification of his appetite" and abjures indulgent banquets. The culinary tradition reportedly emerged from entertaining visiting emperors and high-ranking officials to the sage's birthplace—rather than feeding his own gluttony.

Registering Confucius's family tradition coincides with a wider attempt to standardise national cuisine. Last summer the government in Inner Mongolia, a northern province, published the official method for cooking 100 local dishes. Xi'an, home to the famous terracotta warriors (a UNESCO world heritage site), wants to publish recipes for the city's five most famous foods, to guard against distasteful rip-offs. They follow a 19th-century tradition for codifying French haute cuisine.

The appeal of Confucian fare is more political than gastronomic. Mao vilified the sage as a reactionary, but Communist Party leaders have since rehabilitated him. President Xi Jinping has stressed Confucius's emphasis on order and hierarchy. But the culinary tradition—whatever its provenance—may prove of limited use. Since Mr Xi's anti-corruption campaign has choked the demand for fancy banquets and pricey delicacies, Confucius's disciples could yet again fall on the wrong side of history. ■

Lego lets go

Lego produced its first interlocking bricks in 1949, the year the Chinese Communist Party founded the People's Republic. While the former has generally inspired creativity, the latter is typically more fearful of it. But last year Ai Weiwei (pictured), a Chinese artist, accused Lego of censorship when it refused his large order because it could not approve of using bricks "for political works". He planned an artwork on dissidents. On January 12th Lego backed down, saying it would no longer query a buyer's purpose. The reversal comes too late for Mr Ai: members of the public have already donated millions of bricks, many of them dropped into second-hand BMWs set up by the artist as collection points. He must have enough by now to build a Great Wall.

Banyan | Two-systems failure

China's promise of autonomy for Hong Kong is ringing hollow

THE lugubrious Leung Chun-ying, Hong Kong's chief executive, was never the man to cheer you up. This was a handicap as he made his fourth annual policy address to the Legislative Council (Legco) this week. The mood in the chamber and the territory as a whole was sour. Business frets about the slowdown in China. Political life remains scarred by the failure of the pro-democracy "umbrella" movement of 2014. To protests, Mr Leung plodded through a speech on economic issues, with a special emphasis on China's regional plans. He did not even try to allay rekindled fears that Hong Kong's freedoms are in jeopardy.

Looked at in a certain light, such fears can seem overblown. Hong Kong still debates politics with no holds barred. Groups banned elsewhere in China freely proselytise. And any perceived encroachment on the territory's freedoms provokes loud protests. Yet the alleged abduction since October of five Hong Kong residents by the Chinese authorities has cast a dark shadow. Three vanished in mainland China and one in Thailand. The disappearance on December 30th of the fifth man, Lee Bo, has caused particular alarm. He appears to have been snatched from Hong Kong itself and spirited across the border to the mainland, without his travel documents or any record of his leaving. His fate remains unknown. Like the other four, he was associated with a publisher and bookshop specialising in one of Hong Kong's more esoteric niche businesses: scurrilous tales of intrigue, infighting, corruption and sex among China's Communist leaders. A forthcoming title purports to uncover the love life of President Xi Jinping. Many have assumed that the Communist Party's displeasure with the firm's output explains the mysterious disappearances. China has not denied it.

The implications would be grim. Under the Joint Declaration of 1984 with Britain over Hong Kong's future, China promised that "one country, two systems" would apply after China resumed sovereignty over the territory: ie, that Hong Kong would enjoy autonomy in all but its defence and foreign relations. Hong Kong's mini-constitution, the Basic Law, guarantees among other things freedom of speech and judicial independence. The suggestion that Hong Kong's people, should they displease the sovereign master, might simply be kidnapped makes a nonsense of this.

A torrent of outrage has gushed from China's usual critics in Hong Kong: Martin Lee, a veteran barrister, legislator and pro-democracy campaigner, called the apparent kidnapping "the most worrying thing" to have happened in Hong Kong since British rule ended in 1997. Even the Communist Party's loyalists in Hong Kong are at a loss. The local government usually sees its role as justifying the central authorities' ways to Hong Kong, rather than the other way round. Yet this week the justice secretary, Rimsky Yuen Kwok-keung, called the fears the incident had evoked "totally understandable". Legco's president, Jasper Tsang Yok-sing, founding chairman of the biggest pro-Communist party, insisted that China should reassure Hong Kong about its autonomy. And many businessmen, even those who usually advocate placating the central government in the interests of political stability, think that extrajudicial rendition would cross a red line.

China also faces international scrutiny. Britain, hoping to position itself as China's best friend in Europe, did little to show support for the pro-democracy protesters in 2014. But the missing Mr Lee holds a British passport, and Philip Hammond, Britain's foreign secretary, has said that his abduction to the mainland would be an "egregious breach" of the Joint Declaration. Gui Minhai, who vanished in Thailand, is a Swedish citizen; the European Union has called the events "extremely worrying". They were also widely watched in Taiwan. China hopes that island will also eventually accept Chinese sovereignty under the promise of "one country, two systems", but Taiwan is likely on January 16th to elect an independence-leaning president.

Since the disappearances look disastrous for China's image, many in Hong Kong believe that they cannot have been a deliberate policy by the central leadership. They speculate that lower-level officials overstepped the mark, or even that Communist Party factions hostile to Mr Xi are trying to embarrass him. China is left with a headache. It will have to cook up some plausible-sounding explanation for the mystery and coax, cajole or coerce the missing men into playing along. That, the theory goes, explains the prolonged silence.

For pessimists, however, the snatching of Mr Lee is just the most outrageous instance of the mainland's increasing interference in Hong Kong. They see other examples, including the purchase of the *South China Morning Post*, Hong Kong's main English-language newspaper, by Alibaba, China's e-commerce goliath; and the decision by Mr Leung to appoint a pro-government ally to chair Hong Kong University's governing council, rather than the university's own nominee.

Notes from the underground

Pessimists also point out that China has wielded enormous influence in Hong Kong since long before 1997. Bizarrely, though, the Communist Party is even now an underground organisation there. The secrecy may encourage subterfuge, rumour-mongering and even lawlessness. Some officials may well sanction illegal snatch-squads, to show that Hong Kong's autonomy does not extend to anti-party activity. That this also proves the emptiness of the "one country, two systems" promise would be a small price to pay. Presumably having nothing useful to say on the issue, Mr Leung ignored it in his speech. A legislator from the pro-democracy camp, Lee Cheuk-yan, was expelled from the chamber for interrupting him to demand information about the Lee Bo case. Later he accused the chief executive of trying "to turn Hong Kong into the mainland". Nearly two decades after its reversion to China, few in Hong Kong want that. ■

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Water politics

Sharing the Nile

CAIRO

The largest hydroelectric project in Africa has so far produced only discord

WHEN Egyptian politicians discussed sabotaging the Grand Ethiopian Renaissance Dam in 2013, they naturally assumed it was a private meeting. But amid all the scheming, and with a big chuckle, Muhammad Morsi, then president, informed his colleagues that their discussion was being broadcast live on a state-owned television channel.

Embarrassment apart, it was already no secret that Egypt wanted to stop the largest hydroelectric project in Africa. When Ethiopia completes construction of the dam in 2017, it will stand 170 metres tall (550 feet) and 1.8km (1.1 miles) wide. Its reservoir will be able to hold more than the volume of the entire Blue Nile, the tributary on which it sits (see map). And it will produce 6,000 megawatts of electricity, more than double Ethiopia's current measly output, which leaves three out of four people in the dark.

This boon for Ethiopia is the bane of Egypt, which for millennia has seen the Nile as a lifeline snaking across its vast desert. The river still provides nearly all of Egypt's water. Egypt claims two-thirds of that flow based on a treaty it signed with Sudan in 1959. But even that is no longer enough to satisfy the growing population and sustain thirsty crops. Annual water supply per person has fallen by well over half since 1970. The UN warns of a looming crisis. Officials in Egypt, while loth to fix leaky pipes, moan that the dam will leave them high and dry.

Herodotus, an ancient Greek historian, called the fertile land of Egypt the Nile's gift. Countless Egyptian leaders have rattled their sabres in defence of the water supply. This has soured relations with the eight other countries that share the Nile basin. Most of them have agreed to co-operate with each other, dismissing another old treaty which, Egypt claims, gives it a veto over upstream projects.

Only recently has the Egyptian government adopted a more conciliatory tone. In March of last year Abdel-Fattah al-Sisi, who ousted Mr Morsi in a coup, joined Hailemariam Desalegn, Ethiopia's prime minister, and Omar al-Bashir, Sudan's president, to sign a declaration that tacitly blesses construction of the dam so long as there is no "significant harm" to downstream countries. The agreement was affirmed in December, when the three countries settled on two French firms to study the dam's potential impact.

That step is long overdue. The impact studies were meant to be completed last year, but bickering over the division of labour, and the withdrawal of one firm, caused delays. Many Egyptians believe that Ethiopia is stalling so that the dam becomes a fait accompli. Already half-finished, experts worry that it may be too late to correct any problems. Representatives of the three countries are now meeting to discuss "technical" issues. The contracts for studying the dam are not yet signed.

A sense of mistrust hangs over the dam's ultimate use. Ethiopia insists that it will produce only power and that the water pushing its turbines (less some evaporation during storage) will ultimately come out the other side. But Egypt fears it will also be used for irrigation, cutting downstream supply. Experts are sceptical. "It makes no technological or economic sense [for Ethiopia] to irrigate land with that water," as it would involve pumping it back upstream, says Kenneth Strzepek of the Massachusetts Institute of Technology.

A more reasonable concern is over the dam's large reservoir. If filled too quickly, it would for a time significantly reduce Egypt's water supply and affect the electricity-generating capacity of its own Aswan Dam. But the Ethiopian government faces pressure to see a quick return on its investment. The project, which is mostly self-funded, costs $4.8 billion.

Some experts say filling the reservoir could take seven years. But "having a fixed time to fill it may not be the best way to do it, because there can be extremely dry years and extremely wet years," says Kevin Wheeler of Oxford University. He recommends releasing a fixed amount of water from the dam each year, leaving the reservoir to fill at a pace set by nature.

A potential wild card in the negotiations is Sudan, which long sided with Egypt in opposition to the dam, some 20km from its border. But as the potential benefits to Sudan have become clear, it has backed Ethiopia.

Short on energy itself, Sudan will receive some of the power produced by the dam. By stabilising the Nile's flow, it will also allow Sudan to prevent flooding, consume more water and increase agricultural output (once old farming methods are updated). Currently much of the country's allocation of water under the 1959 treaty is actually consumed by Egyptians. To their chagrin, the river will no longer gush past their southern neighbours during monsoon season and end up in Lake Nasser, the huge reservoir behind the Aswan Dam.

How much water Sudan uses in the future, and other variables such as changes in rainfall and water quality, should determine how the dam is operated. That will require more co-operation and a willingness to compromise. Disagreement between Egypt and Sudan over such things as the definition of "significant harm" bodes ill. But all three countries will benefit if they work together, claims Mr Strzepek, citing the dam's capacity to store water for use in drought years and its potential to produce cheap energy for export once transmission lines are built.

The Renaissance Dam is merely the latest test of countries' willingness to share water. There may soon be more difficulties. Ethiopia plans to build other dams on the river, which could further affect downstream supply. Sudan has promised foreign investors an abundance of water for irrigation. If Egypt is made to feel at the mercy of its neighbours, it may not have finished rattling its sabre. ■

Botswana

Losing its sparkle

GABORONE

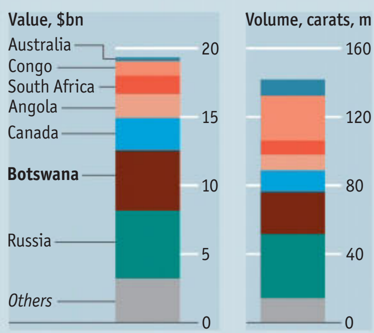
Africa's exemplar of good governance faces rockier days

TWO gleaming new towers rise from the dry savannah of Gaborone, Botswana's capital. The country's tallest buildings are billed by their developers as offering the city's residents "their first true glimpse into the benefits of inner-city dwelling". No doubt these stylish apartments make comfortable pads—particularly for the mistresses of wealthy businessmen who are installed in quite a few—but building upwards rather than outwards seems rather odd: at four people per square kilometre, Botswana is one of the world's least densely populated countries. Yet Gaborone's small city centre—originally designed for 20,000 people, a tenth of the current number—is hemmed in by communally owned tribal land that is almost impossible to buy and develop. It must grow up or not at all.

Botswana's wider economy and polity are similarly constrained by outmoded traditions and laws, even though at first blush the country is doing astoundingly well. Since its independence from Britain in 1966, Botswana has been one of Africa's most stable and prosperous democracies. Elections are so peaceful, fair—barring a little gerrymandering—and boring that the country is held up as a model for Africa. The Ibrahim Index of governance, for instance, ranks it third among African states.

Diamond dogs

Rough diamond production by main producing countries, 2014



Source: De Beers

More impressive is that this was achieved in the face of a potential "resource curse" from diamonds, which were discovered in 1967. Instead of perverting politics, the riches Botswana has gathered as the world's second-largest diamond producer (see chart) have paid for infrastructure and development. Income per person has quadrupled over 35 years and the country has tackled challenges including one of the world's highest HIV rates.

Yet Botswana's complacency is being sorely tested. In the short term it faces the worst market in "living memory", in the words of one *diamantaire*. Diamond mining accounts for a quarter of Botswana's economy and it is being hurt by a sharp downturn in demand almost everywhere—particularly in China, where a clampdown on corruption has curbed public displays of wealth. Analysts reckon that De Beers, which digs up most of Botswana's gems through a joint venture with the government, and Alrosa, a Russian firm, have slashed sales of rough diamonds by as much as half. Despite this brake on supply, diamond prices have still fallen by close to 30%. Botswana's economy, which has expanded by 5% a year over the past decade, probably grew by half that rate in 2015 and is unlikely to do much better than 3% this year. Having balanced its books for the previous four years, the government ran a small deficit in 2015 and will probably do so again this year.

This economic shock, mild as it may be, is but a taste of the adjustments that will have to be made as the country runs out of diamonds. That is likely to happen within the next 15-20 years, analysts reckon. Diamond mines are not forever.

Botswana has made some progress in diversifying its economy, about half of which was directly tied to mining in the early 2000s. Much of this growth has come from poorly-paid service industries, but Botswana manufactures almost nothing and exports little other than diamonds. It needs not only to create manufacturing jobs to reduce an official unemployment rate of almost 20% but also to find new sources of export earnings.

Yet its efforts to promote new industries are hobbled by labour policies that are meant to promote the employment of locals. Bosses complain that it is almost impossible to get work permits for skilled foreigners. Some talk of firms having to close because their expatriate founders could not renew permits.

Another test will be for the Botswana Democratic Party (BDP), which has run the country for five decades. In national elections in 2014 it lost its outright majority for the first time, though it was still able to form a government because the opposition was divided. If its rivals were to unite, the BDP could be pushed out of government in 2019, not least because it has failed to deal with water and power shortages in the capital. As its grip on power is weakening, the BDP is beginning to dabble with repression. Journalists complain of arrests and harassment, while the independence of the judiciary is under attack.

With its well-educated people, Botswana could live up to its promise as a model that combines democracy and good governance. But if it falters, it will struggle to attract the investment it needs to put the sparkle back in its economy. ■

The nuclear deal with Iran

The end of the beginning

Sanctions are about to be lifted

ACCORDING to America's secretary of state, John Kerry, "Implementation Day" for the Iran nuclear accord could be just "days away if all goes well". He was not expecting two US Navy patrol boats and their crews to be seized by Iranian Revolutionary Guards on January 12th after unintentionally entering Iranian waters near an island naval base. But with both sides determined to smooth things over, the boats and the sailors were released the following day.

As long as there are no new shocks, the big day looks set to be announced in the next few days—sooner than was expected when the deal was struck last July. Iran will be judged to have complied with all its obligations in dismantling those parts of its nuclear programme which offered a path to building a bomb. In return the UN, America and the EU will drop or suspend all their nuclear-related sanctions. At the same time, Iran will apply the Additional Protocol of its safeguards agreement (subject to ratification by its parliament, the Majlis) with the International Atomic Energy Agency, a measure which gives the agency's inspectors access to materials and sites beyond declared nuclear facilities.

Iran is very near to completing the removal of some 14,000 uranium-enrichment centrifuges. The core of the Arak heavy-water reactor, which had the potential to produce plutonium, was reportedly taken out on January 11th and is being filled with cement. Most of Iran's stockpile of low-enriched uranium was sent to Russia and Kazakhstan in late December. Nuclear proliferation experts are amazed at the speed with which Iran has acted. Iran's foreign minister, Mohammad Javad Zarif, and the head of its Atomic Energy Organisation, Ali Akbar Salehi, have appeared determined to navigate all obstacles, even supposed red lines drawn by the supreme leader, Ayatollah Ali Khamenei, to get the job done.

A priority for them was to get the sanctions lifted before Majlis elections on February 26th. After more than two years in office, President Hassan Rohani will cite the achievement as evidence that his policy of engagement with the West has worked, ending a crisis that had left Iran's economy in ruins. He will urge voters to back moderate candidates who support him and to weaken hardline factions that were opposed to the negotiations.

Yet there are still important players in the regime, such as the Revolutionary Guards, who remain hostile to the deal and are prepared to test the West's commitment to it. The IAEA received minimal cooperation in preparing its report, published in early December, on the possible military dimensions of Iran's nuclear programme. It concluded that Iran had a parallel clandestine weapons programme until 2003 and that some aspects of it continued until 2009. But there was no admission of this by Iran and no access to the scientists the agency wanted to talk to. It was also unable to carry out verification procedures at the Parchin military complex, where it believes there was an explosives chamber.

Western diplomats decided that Iran's obfuscations were predictable and it was time to move on. That raises questions about how much Iran may get away with in the future. Gary Samore, a former White House arms-control adviser now at Harvard, says that the Iranians' caginess about their past nuclear weapons-dabbling was a ▸▸

Political tweeting in Africa

What's trending in Tanzania?

NAIROBI

Poking fun at African leaders on social media

WITH his campaign slogan "work and nothing else", you might think John Magufuli, Tanzania's new president, would be a poor subject for satire. Yet austerity can provide a few laughs. In his first few weeks, the new president cancelled independence day celebrations, went litter-picking and turned up at the ministry of finance to make sure staff were actually coming to work. The result, on Twitter, was a hashtag, #WhatWouldMagufuliDo, full of pictures of money-saving ideas: a wooden cart acting as a wedding limousine; a vanity mirror attached with duct tape to a car to replace a broken wing mirror.

The joshing was mostly affectionate: Mr Magufuli's anti-corruption drive is popular. Kenya's president, Uhuru Kenyatta, comes off rather less well. The joke about Mr Kenyatta—who is known for his many foreign trips—is that when he is in Kenya, he is an important foreign statesman visiting. When the Pope visited Kenya in November, tweeters captioned pictures with jokes about the pontiff welcoming the president.

Twitter thus illustrates the fortunes of two of east Africa's rulers, at least in the view of the middle classes in their countries. And just as in the West, the internet is changing political conversations in Africa. Not all the hashtags are humorous. In Kenya anti-corruption campaigners have begun organising on Twitter. When they are arrested or mistreated by police, the world soon knows. The potential for influencing politics is enormous. In Tanzania's recent election, over 60% of eligible voters were under the age of 35; almost all sub-Saharan African societies are as young. In countries where age is revered, social media allow young people to make themselves heard.

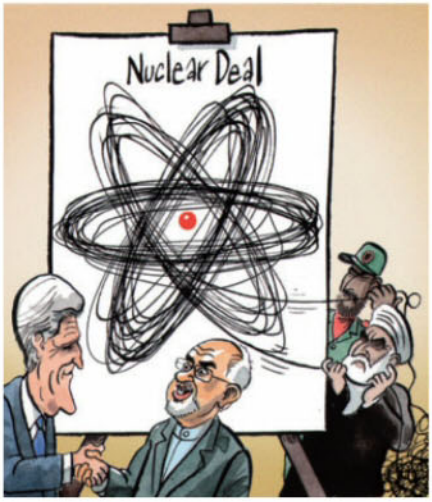
Sadly, change is not happening everywhere. In democratic Kenya, 37% of the population had access to the internet in 2014, according to the International Telecommunication Union. In autocratic Ethiopia, however, the figure was just 2%. When Barack Obama visited both countries in July, Kenyan Tweeters produced a flurry of commentary, much of it mocking their own government. Ethiopia's produced barely a trickle. Tweeple need connections to flourish.

All work and nothing else makes Magufuli hard to mock reminder that the deal was not a "strategic solution to the nuclear problem but something purely transactional".

The response to an Iranian test of a nuclear-capable ballistic missile in October that violated a UN Security Council resolution was also less than resolute. Mr Samore says that it was clearly intended by the Guards to provoke a reaction from America that would give Iranian critics of the deal the chance to stall or kill it. Persuaded by Mr Kerry, who had his ear bent by Mr Zarif, not to rise to the bait, Barack Obama flip-flopped over slapping on new sanctions, first indicating he would, but then withdrawing the threat.

As for the prospects of the deal holding, Mr Samore thinks the Iranians have an incentive to co-operate for the time being, as they will benefit by up to $100 billion from the unfreezing of assets. But if other benefits, such as increased oil revenues, are slow to come, this might not last.

A more immediate threat will come from whoever is the next American president. A Republican could choose to sabotage the deal with new sanctions, while even Hillary Clinton, says Mr Samore, will



need to show there is a new sheriff in town if Iran's behaviour in non-nuclear areas (missile tests, the unjustified imprisonment of American citizens, support for the Assad regime and abuse of human rights) does not change. Getting to Implementation Day has been surprisingly smooth. What comes after will be a lot harder. ■

The war in Yemen

Getting closer

NAJRAN

No end in sight for Saudi Arabia's southern adventure

FROM inside his headquarters in the southern Saudi city of Najran, Major-General Saad Olyan, the area commander, looks up at the craggy mountains looming over the city and wonders what Yemen's rebels on the plateau above will do next. They have pushed Saudi forces out of some border posts, and forced the evacuation of more than 7,000 civilians from Saudi villages near the ill-marked frontier.

Saudi artillery rhythmically thumps suspected rebel positions. But it has not prevented them from regularly rocketing Najran and other border towns, killing 80 people, 25 of them in Najran. One Katyusha rocket fell a few yards away from General Olyan's office; the windows were blown out, pitting his walls with shrapnel. Another blew out the glass front of a nearby hotel shortly before it was due to open. A banner with a picture of King Salman and his designated heirs declares forlornly: "We are all soldiers of the homeland."

Residents of the area have fled to safer parts of the city. Kindergartens and homes near the military base lie in ruins. Bar the Pakistani workers obliviously playing cricket, the streets feel like a ghost town.

Saudi Arabia's young defence minister, deputy crown prince and de facto ruler, Mohammed bin Salman, insists he is winning the war. His coalition has retaken Aden, Yemen's southern port, and 80% of the country, he claims. But many of Yemen's largest cities—Sana'a, Taiz and Ibb—remain in rebel hands. And with negotiations stalling (the resumption of talks set for January 14th has been indefinitely postponed), officials talk less of an early victory than a protracted war. "We're looking at conflict management, not resolution," says a confidant of the prince. "This problem can go on for years."

For all the bluster of Saudi generals who vow to lead their troops into Sana'a if necessary, the campaign now has more limited goals, says the confidant. Saudi Arabia wants to send Iran and its regional clients a message that it will resist their regional push. With Iran holding sway through its proxies in Baghdad, Damascus and Beirut, Saudi Arabia is loth to let a fourth capital, particularly one in its back yard, go Iran's way. But the campaign is now mostly about blunting the capabilities of the Houthis (a militia of Zaydis, a splinter Shiite sect concentrated in Yemen's north) and their ally, Ali Abdullah Saleh, who until Saudi Arabia engineered his removal in 2012 was the Arab world's longest-reigning ruler.

Together the Houthis and Mr Saleh make a formidable force. Whereas the former are guerrillas who model themselves on Lebanon's Hizbullah, the latter commands Yemen's Republican army, which has been fighting wars (including against the Houthis) for 25 years. Together they wield an arsenal of tanks, ballistic missiles and, at one point, even the odd fighter-jet. Houthi fighters head to battle carrying charms, such as keys and visas to paradise. Their preachers on satellite television call for re-establishing Zaydi rule across the border, not just over the three border provinces the Al Sauds seized in 1934 but even over Mecca farther north.

That is implausible given Saudi Arabia's air power and network of allies. But some Saudis ask how their overfed armed forces would fare should battle-hardened Houthi fighters make even a limited push across the border. It says much about Saudi trepidation that General Olyan limits himself to defending Saudi territory; he says his troops make no attempt to attack the Houthi heartland of Saada governorate, just across the frontier.

Allies have offered help. Last month Kuwait sent a battalion to the Saudi side of the border. Pakistan has vouchsafed to come to the kingdom's rescue, should it come under attack. And at the back of Najran's airport, the Americans have provided a battery of Patriot air-defence missiles to knock out the score of incoming SCUDS that Mr Saleh has fired at the kingdom's southern cities.

But the costs for Saudi Arabia are mounting. Eroding his plans for cutting the budget deficit, Muhammad bin Salman is reinforcing his forces inside Yemen. Yemeni refugees, too, have been spilling into the kingdom, to the tune of over half a million. Cross-border smuggling and infiltration, perhaps of Houthi fighters, says a Saudi officer, is higher than ever. Yemenis do not constitute a fifth column, but they complain that Saudi Arabia is refusing them health care. Some mutter about turning the kingdom into a republic.

The air campaign in Yemen is denting Saudi Arabia's reputation. The death-toll of Yemenis is nearly 6,000, a "modest" number says a Gulf official, especially when judged against the carnage elsewhere in the region. Some recall that Yemen, like Afghanistan, has been a graveyard for many an invader. But prominent preachers from Saudi Arabia's religious establishment egg the Al Sauds to confront, not compromise with, the region's Shias. Salman al-Ouda, a critical cleric with a strong Wahhabi following, wonders what the point was of spending billions and taking thousands of dead "if it just left us where we started?" ■

The West Bank

The doomsday settlement

E1

Israel eyes a piece of land with alarming implications

THE desolate hills east of Jerusalem seem insignificant, a barren stretch of scrubland with few buildings or residents. Yet twice in the past few weeks Israel's supreme court has heard arguments over this small patch of territory. Diplomats have bluntly warned Israel not to build anything here. And thousands of Palestinians have found themselves at the centre of a long battle over the most controversial patch of the occupied West Bank.

The area in question, known as E1, sits between Jerusalem and the sprawling settlement of Maale Adumim, 7km (4 miles) to the east. Every Israeli prime minister since Yitzhak Rabin has dreamed of building a town on these hills. It would create a salient jutting almost halfway across the West Bank's narrow waist, slashing the route between Ramallah and Bethlehem, and further encircling Palestinian districts in East Jerusalem. One local activist calls it the "doomsday settlement", a deadly blow to the idea of a territorially contiguous future Palestinian state.

Any construction in E1 would oblige Israel to expel 18 Bedouin tribes who live in the area. Last spring several members of these tribes received an unwelcome visitor: an emissary from the Israeli army, calling himself Farid, who urged them to register for plots at a nearby "relocation site". It sits on the edge of a rubbish dump.

Forced moves in the past have already destroyed the itinerant lifestyle of the Bedouin. Starting in 1997, Israel evicted more than 100 families to make room for an expansion of Maale Adumim, which now houses 40,000 people. Their new plots of land had little grazing space; most were forced to sell their flocks, and now work for Israeli companies as labourers. Many are unhappy. "We're like fish in the water," said Abu Imad, a leader of the Abu Nawwar tribe. "Our lives are in the desert, and we will die if we're moved."

Yet the relocation is moving ahead, if slowly. The army destroyed at least 39 homes in the area last summer. It was the biggest wave of demolitions in three years. Several tribes are now appealing against their pending expulsions in the high court. Israel has also started paving a bypass road that would allow Palestinians to skirt a future settlement in E1. The highway would mitigate one of the consequences of building there—though it will inevitably become a bottleneck for the 1m Palestinians who live in Ramallah and the southern West Bank.

Nothing has been built yet in E1, which America's State Department publicly describes as "very sensitive" and privately talks of in much cruder terms. But fears remain rife. On December 28th an anti-settlement Israeli activist group, Peace Now, published a report claiming to have evidence that the housing ministry has quietly commissioned plans for 8,372 housing units in the E1 corridor. The government says nothing is decided, though Uri Ariel, the agriculture minister, visited the site on January 10th with a group of Knesset members and called for the building to start.

Israel's prime minister, Binyamin Netanyahu, heads a coalition that depends on support from the settler movement. He also fears the consequences of moving forward. The EU decided in November to slap labels on products made in the West Bank; a recent poll found that 37% of Americans support putting sanctions on Israel over the settlements. International pressure may yet forestall E1. But the issue is sure to keep festering. ■

Utilities in the Middle East

Sun and sea

JERUSALEM

An environmental proposal with political overtones

WIDE-OPEN deserts and sunshine for more than 300 days a year ought to have made countries in the Middle East centres for solar power. Yet with the world's largest oil- and gasfields nearby there has been little reason to develop renewable energy in the region. Still, much as fossil fuels are plentiful there is another liquid in short supply: fresh water.

Might the shortage of water now be alleviated through the abundance of sunlight? EcoPeace, a joint Israeli, Jordanian and Palestinian NGO thinks it just might. In December it presented an ambitious, if far from fully developed, $30 billion plan to build a number of desalination plants on the Mediterranean shore of Israel and the Gaza Strip. At the same time, large areas in Jordan's eastern desert would host a 200 square km (75 square mile) solar-energy plant, which would provide power for desalination (and for Jordan) in exchange for water from the coast. "A new peaceful economy can be built in our region around water and energy" says Gidon Bromberg, EcoPeace's Israeli director. Jordan and the Palestinian Authority are already entitled to 120 million cubic meters of water a year from the Jordan river and West Bank aquifers but this is not enough to meet demand, particularly in Jordan, which regularly suffers from shortages.

The main drawback to making fresh water from the sea is that it takes lots of energy. Around 25% of Jordan's electricity and 10% of Israel's goes on treating and transporting water. Using power from the sun could fill a sizeable gap, and make Palestinians less dependent on Israeli power. Renewables supply just 2% of Israel's electricity needs, but the government is committed to increasing that share to 17% by 2030. Jordan, which has long relied on oil supplies from Arab benefactors, is striving for 10% by 2020.

The plan to make water from sunlight is still at an early stage and similar grand designs in the past have foundered on the rocks of reality. Desertec, a German programme to generate solar energy in northern Africa for use in Europe, has stalled over concerns about the cost of transmitting the electricity over great distances, not to mention the problem of local political instability. Over the past 40 years there has been a series of plans to build a Red Sea-Dead Sea canal that would have irrigated the Jordan Valley and generated power, none of which have been built.

Beyond many logistical and financial obstacles, the plan's boosters also have to navigate a political minefield. Although Israel already supplies most of the Palestinian Authority's electricity, and pipes water from the Sea of Galilee to Jordan, many Arab countries have signed up to boycotts that prohibit them from connecting Israel to their power-grids. Diplomatic tensions could therefore easily stymie any comprehensive energy treaty. "The political problems are the main obstacle" says Yana Abu Taleb, the deputy director of EcoPeace in Jordan.

The relevant Israeli, Palestinian and Jordanian steering committees each have government representation; but the three committees have yet to hold a single joint meeting. Although regional instability may indeed deter foreigners and investors from backing the project, its authors hope that working together might lessen tensions. Addressing their shared environmental issues could bring the sides closer on other matters too. ■

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Refugees in Germany

Cologne's aftershocks

BERLIN

The ultimate victim of sexual assaults by migrants could be Angela Merkel's liberal refugee policy

FOR a brief moment at the turn of the year, Angela Merkel seemed to have recaptured control of Germany's careering debate over refugees. The chancellor's traditional New Year's Eve address was acclaimed for striking just the right note. For the first time ever it was broadcast with subtitles, in Arabic and English, so that refugees as well as Germans would get her message. Mrs Merkel reminded the 1.1m asylum-seekers who arrived in Germany in 2015 to respect German rules and traditions. She urged her German viewers not to let themselves be divided, and warned of "those who, with coldness or even hatred in their hearts, lay sole claim to be German and seek to exclude others".

Yet even as Mrs Merkel was speaking, about a thousand men, described by police as mainly migrants of north African or Arab origin, began massing between Cologne's railway station and cathedral, where fireworks were about to begin. Around midnight they broke into clusters and formed huddles around women who had turned out to celebrate. They then set upon the women, harassing and groping them, stripping them of clothing and valuables. One victim was raped. Of the more than 600 women who have since come forward, many described the ordeal as "running the gauntlet".

The news took four days to get out. Inexplicably, Cologne's police initially reported "relaxed" festivities. (On January 8th Wolfgang Albers, the local police chief, was suspended for this and other failings.) The public news networks were also slow to pick up the story, providing grist for the conspiracy mills of populists who denounce the mainstream media as a politically correct "liars' press".

But as the extent of the crimes became clear, it raised questions about Mrs Merkel's liberal response to the crisis in Syria and the wider Middle East. The chancellor has repeatedly told Germans: "We can handle this." Now her optimism is being hurled back at her with disdain. One of the Cologne offenders purportedly taunted police: "I am a Syrian, you have to treat me nicely—Mrs Merkel invited me!"

Growing numbers of Germans worry about the large influx of Muslims. In a survey by INSA, a pollster, 61% of respondents have become less happy about accepting refugees since the assaults; 63% think there are already too many asylum-seekers in Germany, and only 29% still agree with Mrs Merkel that the country can handle it. The sceptics are not only on the populist right. Alice Schwarzer, Germany's leading feminist, says that Germany is "naively importing male violence, sexism and anti-Semitism".

For now Mrs Merkel and her governing coalition have responded by talking tough. At a gathering of her centre-right Christian Democrats, she promised that the offenders will "feel the full force of the law" and suggested that more asylum-seekers who commit crimes would be deported. Even her centre-left coalition partners, the Social Democrats, want to crack down hard. Sigmar Gabriel, their boss, wants offenders to serve their prison time in their home countries to spare German taxpayers.

Yet the legal hurdles to increased deportation are daunting. First, it is not clear how many of the Cologne offenders can be identified. Second, German judges typically cannot deport criminals with sentences of less than three years; the sexual offences in Cologne mainly fell short of rape, and would carry lighter penalties than that. On January 12th the interior minister, Thomas de Maizière, and the justice minister, Heiko Maas, said they would expand the definition of rape (currently, an assault does not count as rape unless the victim fights back). They also promised to lower the deportation threshold, making it an option even for those on probation. But even with these changes, the Geneva conventions forbid deporting people to a country where they might be executed, tortured or harmed. Finally, home countries must co-operate; many don't. Mr Gabriel is musing about cutting aid to such states.

Playing into xenophobes' hands

Germany's legal reaction will therefore be slow and nuanced. But the transformation of its public debate has been swift and blunt. The assaults were a boon to Germany's xenophobic right—from a movement that calls itself Pegida (short for "Patriotic Europeans against the Islamisation of the Occident") to the new Alternative for Germany (AfD) party. Predictably, AfD has called on Mrs Merkel to resign. In social media and on the streets, the angry are more audible than the nuanced. In Cologne 1,700 anti-migrant demonstrators faced off against 1,300 pro-migrant demon- ▸▸

Migrant statistics

Oh, boy

Are lopsided migrant sex ratios giving Europe a man problem?

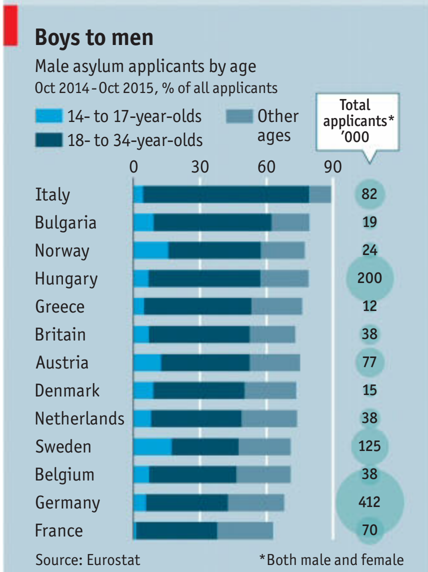
SINCE the attacks in Cologne several commentators have argued that Europe has a "man problem". Writing in *Politico Magazine*, Valerie Hudson, a political scientist, argued that "the sex ratios among migrants are so one-sided...that they could radically change the gender balance in European countries in certain age cohorts"—especially young ones. Is this the case?

More young men than young women have indeed been coming to Europe. Of the 1.2m asylum applicants in the last 12 months of available data, 73% were men, up from 66% in 2012. Those men skew increasingly young: according to Eurostat, the proportion of male asylum claimants who were 18- to 34-year-olds was 40% in October 2015 (the latest available data), up from 35% in 2012. Males between 14 and 17 years old accounted for 11% of all asylum-seekers, up from 5% in 2012.

The numbers, however, differ by nationality. Around 60% of all male asylum-seekers from Algeria and Morocco were 18- to 34-year-olds. By contrast just 48% of the Iraqis, 38% of the Syrians and 31% of the Afghanis fell into this age group. Proportions of young males also differ by host country (see chart). Sweden took three asylum-seekers for every 1,000 inhabitants in the 12 months to September 2015. That is the highest ratio in Europe. Alongside this, it also has more young male asylum-seekers: in the past 12 months 17% were 14- to 17-year-olds, compared with only 6% in Germany.

This will alter the sex ratio for some age groups in Sweden. As Ms Hudson points out, the teenage population will become more male: currently there are 106 male 14- to 17-year-olds for every 100 women. If all asylum applications are granted, this will change to 116 men to 100 women, while for those aged between 18 and 34 the male-to-female ratio will go from 105:100 to 107:100. This is worrisome. Skewed sex ratios would mean lots of sexually frustrated young men, which is a recipe for trouble.

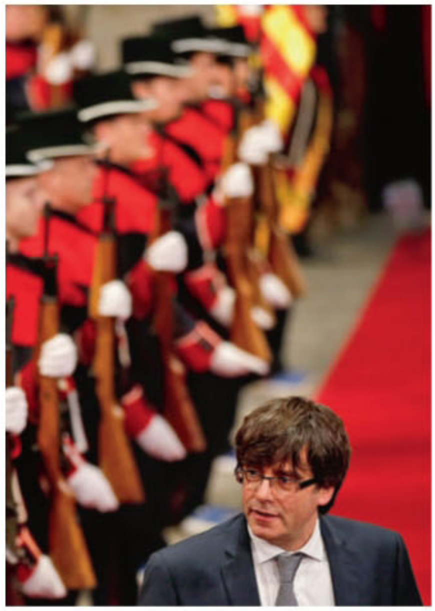
But the example of Sweden does not reflect what will happen across the whole of Europe. (Ms Hudson also conflates asylum applications with asylum granted. Not all of the 20,000 16- to 17-year-olds she says entered Sweden in 2015 will receive full refugee status; on current trends, around 17,000 will.) The countries that will be most affected are small, with populations under 10m. Sweden, Hungary, Austria and Norway would see the biggest sex-ratio changes (and only if they accepted all the asylum-seekers who applied). Germany has less to worry about. If it accepted all the young males who sought asylum in the year to October 2015, its sex ratios would go from 106:100 to 107:100 for 14- to 17-year-olds and from 105:100 to 106:100 for 18- to 34-year-olds. Europe does not have a man problem. Sweden may have.



strators until the police broke it up. Thugs roamed the streets attacking foreigners, injuring two Pakistanis and one Syrian.

Among the indirect victims of Cologne are the many migrants who would not dream of assaulting anyone, and who came to Germany seeking safety for themselves and their families. Four refugees have drafted an open letter to Mrs Merkel in which they express their support of women's rights and their shock at the assaults. They are handing the letter round to collect signatures. Many refugees and German Muslims fear being tarred with the same brush as the offenders.

In retrospect it is clear that Mrs Merkel's hopeful New Year's address coincided with the appearance of immigration's dark side on German streets, and that her warnings have not been heeded. Some refugees have not respected German rules and traditions. Germans are divided. Germany's neighbours, from Hungary and Poland to Switzerland and Denmark, have sneered at Mrs Merkel's "welcome culture". It now looks tenuous even at home. ■



Catalonia's new president

Rebel, Rebel

MADRID

A province edging away from Spain gets a radical secessionist leader

ARTUR MAS spent five years as president of Catalonia leading its drive for independence but, for the most part, he was a pro-business centrist who embraced the cause of secession because politics demanded it. When Mr Mas stepped down on January 9th after three months attempting to form a government, it was to make way for a more ideologically pure successor, Carles Puigdemont. In a speech in 2013 Mr Puigdemont said, quoting a Catalan journalist executed under the dictatorship of Francisco Franco, that "the invaders will be expelled from Catalonia"—referring to the Spanish government.

On January 12th Mr Puigdemont became the first Catalan president to take the oath of office while omitting the traditional vows of loyalty to Spain's constitution and king. Spain's interior minister looked on in stony silence.

It was Mr Puigdemont's long commitment to independence, which much of his centre-right Catalan Democratic Convergence (CDC) party has embraced only recently, that enabled him to form a government where Mr Mas had failed. It won him the trust of the far-left Popular Unity Candidacies (CUP) party, whose members thought Mr Mas a sleazy austerity-monger but apparently consider Mr Puigdemont a more trustworthy radical.

Three months after the elections, Catalonia's independence movement now has control of the region's government. But ▸▸

that control has come at a cost to the secessionists' image. For years, the separatist movement has successfully sold itself as cool, kind and progressive. Backers of continued union with Spain were scorned as reactionaries, or even the inheritors of Franco's legacy. Now senior members of the independence movement worry that it will be identified with the CUP, whose raised fists and chaotic assemblies frighten conservative, middle-class Catalans. Mr Puigdemont's CDC has traditionally stood for order. The small but newly powerful CUP represents radical change.

Separatism's squeaky-clean image has found its greatest expression in pro-independence demonstrations on Catalan national day, September 11th. For each of the past four years, at least 600,000 people, or around 10% of the population, have turned out to demonstrate. The good-natured protests pull in entire families, with small children holding grandparents' hands, banners in the red, gold and blue colours of the independence movement flying—"and not a single piece of litter on the street", claims Jordi Sánchez, president of the Catalan National Assembly, the group that organises the festivities.

Unionists complain that separatism's civilised facade hides an unpleasant sense of moral superiority. "I call it the Kumbaya factor," moans an anti-separatist Catalan economist. The movement's righteous aura is aided by the participation of several nuns. One radical crowd-pleaser is Teresa Forcades, a Benedictine with a master's degree from Harvard who is on leave from her convent on Catalonia's Montserrat holy mountain. Mr Mas liked to be seen with one of his greatest fans, a Dominican nun named Lucía Caram.

According to the coalition accord, Mr Puigdemont will now lead the Catalan government on an 18-month "road map" to independence. Yet Spain's constitution does not allow any move towards secession, nor are there plans for a referendum on it. The acting government in Madrid, led by Mariano Rajoy's conservative Popular Party (PP), has vowed to apply the full weight of the law as soon as it sees the constitution under threat.

The question is whether Catalans will support an avowedly confrontational government. Mr Mas billed the regional elections as the referendum on independence that Madrid had refused to call. His Together for Yes coalition and CUP, which both backed the road map, jointly won more than half the seats—but only 48% of the vote. Even many separatists doubt that is enough. The ugly infighting of recent weeks and the radical antics of CUP are unlikely to have boosted support any further.

The separatists' ranks have swollen dramatically over the past half-dozen years. This has been the result, in part, of Mr Rajoy's refusal to concede any Catalan demands for greater self-government. Most important, says Mr Sánchez, it is younger voters who are keenest on independence. That bodes well for the future of separatism. Much depends on how the central government in Madrid responds. Unfortunately, Spain's general election on December 20th left parliament so fractured that forming a government could take months, or require new elections. Catalonia may have a new president, but the question of its independence is not much closer to being resolved. ■

Poland and the EU

On the naughty step

WARSAW

A slap on the wrist for Poland is a big test for the European Union

POLAND is in trouble with Brussels. On January 13th the European Commission launched a formal assessment of whether changes to the constitutional tribunal and public media pushed through by Poland's new government, led by the Eurosceptic Law and Justice party (PiS), violate the rule of law. The commission is wielding new enforcement powers; in the worst case, Poland's voting rights in the EU could be suspended. The move has "nothing to do with politics", claimed Frans Timmermans, the first vice-president of the commission. But a big political fall-out looks likely.

Since coming to power in October PiS has strengthened its grip over the security services and the civil service. In December it passed a law that requires the constitutional tribunal to approve verdicts by a two-thirds majority, crippling its ability to strike down legislation; it also appointed five new judges. A new media law sacked the management of Poland's public television and radio broadcasters; a former PiS MP is the new television boss.

Moderates are worried. Jaroslaw Kaczynski, PiS's divisive leader, is moving like an "elephant in a china shop", says Ryszard Petru, the leader of Nowoczesna, a new liberal party. Nowoczesna has surged in polls since the election; one recently put it ahead of PiS, with almost 30%. Thousands across Poland took to the streets in protest against the media law. Many see parallels with the illiberal path Hungary has pursued since Viktor Orban became prime minister in 2010. When PiS lost the election in 2011, Mr Kaczynski spoke of one day building "Budapest in Warsaw". On January 6th Mr Orban and Mr Kaczynski held a secretive six-hour meeting in southern Poland.

The EU has so far trod carefully. Donald Tusk, president of the European Council and prime minister of Poland between 2007 and 2014, warned that an exaggerated reaction from Brussels could backfire. Indeed, European criticism of PiS's power grabs has already provoked a backlash from the government that could create political headaches for the EU.

The relationship between Poland and Germany, which was built up under the previous government and which rests heavily on the fact that Germany buys lots of Polish exports, is coming under strain. One magazine cover depicted Angela Merkel, the German chancellor, as Adolf Hitler under the headline "Again they want to supervise Poland". On January 10th Witold Waszczykowski, the foreign minister, summoned the German ambassador over allegedly "anti-Polish" comments made by German politicians. In an open letter to the German EU commissioner who first mentioned the rule-of-law procedure, Zbig-

Sticking up for media freedom

niew Ziobro, the justice minister, alluded to the second world war and argued that Germans talking about overseeing Poland carry the "worst possible connotations" among Poles. Mr Kaczynski told a gathering of followers that no words, "especially not from German lips," will stop PiS on its path towards justice.

The Polish government has downplayed the significance of the formal assessment. Polish matters should be resolved in Poland, Beata Szydlo, the prime minister, said this week. In political terms, the government has little to worry about. It has a solid parliamentary majority, and tough action by the EU will only make it more popular with its own nationalist voters. Sceptics note that Hungary, which is far further down the path of illiberalism than Poland, has never faced serious repercussions in Brussels. This is in part because the EU lacked the rule-of-law monitoring mechanisms it now wields when Mr Orban was cementing his hold. But the Commission is still working out how to use its newfound powers. Its review of Poland's new government may prove more of a test for the EU than for PiS. ■

Fighting French unemployment

Mode d'emploi

PARIS

François Hollande has one last chance to tackle rising jobless rates

IN HIS New Year message President François Hollande declared a double state of emergency in France: one to fight terrorism, the other to tackle unemployment. The image was a stretch, but the self-criticism apt. In 2012 Mr Hollande was elected on a pledge to curb joblessness and make "youth" his priority. Yet unemployment has since climbed from 9.7% to 10.1%; youth unemployment is more than twice this, and still rising. On January 18th the government will unveil new plans to train young job-seekers and encourage job creation. But it looks likely to be too little, too late.

Neighbouring countries on Europe's southern fringe have far higher absolute levels of youth unemployment than France. Yet since the start of 2014 a loosening of labour laws has helped to bring down joblessness among the under-25s in both Spain and Italy (see chart). In France, by contrast, over the same period the figure has inched up to 26%—an all-time record. Youth unemployment in France is now over three times the rate in Germany.

Not only do young people in France find it difficult to get work, but when they do it is often short-lived. The labour market is divided into "insiders", those with permanent, protected, full-time jobs, and "outsiders", whose work is insecure and temporary. Only 5% of those over 50 are on short-term contracts; but the figure rises to nearly 30% for those under 25, who often drift for years on back-to-back temping. (In France only a fifth of temps are in permanent jobs three years later, compared with almost half in Britain, according to the OECD.) For employers faced with the mind-numbing rules governing permanent jobs (and the need to make a case to a labour tribunal before shedding them), using temps and interns is a way to eke out some flexibility.

"Psychologically, it can create a real lack of confidence," says Ange-Mireille Gnao, a young Franco-Ivorian, who has been looking for a permanent job in communications since 2012. "If you don't have a permanent contract in France, it's impossible to rent a flat, or get a loan." The fruitless search for permanent work leads to "a lot of disillusion", says Kadija James, deputy director of Nos Quartiers ont des Talents, which uses mentors to help get job-seekers from the *banlieues* (the heavily immigrant outer suburbs) into work.

For years, the French left refused to link the country's poor record on job creation to its over-protective labour law. But now, in an important acknowledgment, Manuel Valls, the Socialist prime minister, has called the 3,800-page labour code "unreadable", and promised to simplify it. (He has ruled out changes to the 35-hour working week, however.) Mr Hollande has vowed to train 500,000 job-seekers through apprenticeships and other schemes. Yet in a pre-election year it is proving difficult for the government's reformists—such as Emmanuel Macron, the economy minister, who wants bolder deregulation in order to encourage firms to create jobs—to prevail over those who fear upsetting unions and the Socialists' friends on the left.

Given the amount of public money that France pumps into subsidising jobs, the wonder is that it has not dented youth unemployment. But French rules on schemes like apprenticeships or subsidised job creation change faster than firms can fill in the forms, or decipher the alphabet soup of acronyms such schemes are known by. The number of apprenticeships fell in 2013 and 2014, in part because apprentices were siphoned into other new aided-job schemes Mr Hollande had devised.

"Technically we could cut the unemployment rate in half," says Nicolas Bouzou, a French economist; "the difficulty is political." Much of the French left regards ideas such as a lower minimum wage for younger workers, as Britain allows, to be exploitation, not a way into the job market—even though, by default, self-employed youngsters work for less than the statutory minimum. There is still a residual snobbery within the education system about vocational training. And France's biggest unions, for all their revolutionary rhetoric, have become talented and conservative defenders of insider privileges, at the price of shutting too many young people out of decent jobs altogether. ■

Temp after temp

Charlemagne | Referendum madness

Plebiscite-pushers have got Europe's voters hooked on the cheap rush of direct democracy

ONE dodgy referendum lost Ukraine Crimea. Another threatens to lose it the European Union. On April 6th the Dutch public will vote on the "association agreement" the EU signed with Ukraine in 2014. The deal cements trade and political links with one of the EU's most important neighbours; the prospect of losing it under Russian pressure triggered Ukraine's Maidan revolution. But last summer a group of Dutch mischief-makers, hunting for a Eurosceptic cause they could place on the ballot under a new "citizens' initiative" law, noticed that parliament had just approved the deal. Worse luck for the Ukrainians.

Unlike the Crimeans in 2014, the Dutch will not be voting under foreign occupation. But nor are they likely to have familiarised themselves with the Ukraine agreement's 2,135 pages. Jean-Claude Juncker, the president of the European Commission, says a Dutch "No" could unleash a "continental crisis". That is a stretch: as the referendum is non-binding, the Dutch government could ratify the agreement anyway, and its most important provisions are already in force. But Mr Juncker put his finger on something, because national referendums on EU matters are turning into a throbbing headache.

Margaret Thatcher once dismissed referendums as "a device of dictators and demagogues". The opposite was true for the central and eastern Europeans who joined the EU in the 2000s; their accession votes, usually passed with whopping majorities, marked the final rejection of tyranny. Elsewhere most EU referendums have turned on one-off issues, like joining the euro or ratifying an internal treaty. Negative votes, such as the French and Dutch dismissals of an EU constitution in 2005, have at least forced Eurocrats to pause for breath before resuming the march of integration.

But now the silly season is here. A few months before the Dutch referendum, Danes were asked to vote on whether their government should convert its "opt-out" on EU justice and policing matters to an "opt-in". They plumped for the status quo, leaving their government with an awkward negotiation in Brussels. A few months earlier Alexis Tsipras, Greece's prime minister, called a referendum on a euro-zone bail-out agreement that would expire before the vote was held. His mighty *oxi* ("no") victory was quickly converted to humiliating assent when his government realised that tough bail-outs were the price of euro membership.

EU referendums are held for many reasons. The hapless Mr Tsipras hoped to boost his negotiating hand in the euro zone. David Cameron, Britain's prime minister, is holding an EU membership vote largely as a tool to manage his fractious Conservative Party. Some, more cynically, are called to provide a seal of legitimacy to something a government was going to do anyway.

But a growing number of referendums serve as brakes on European integration. If voters cannot throw out the bums in Brussels, they can at least lob rotten fruit at them. Politicians, too, find them useful: of the national referendums that have consequences for the entire EU (such as treaty ratifications), a third have been called for partisan rather than constitutional reasons, according to Fernando Mendez at the Centre for Research on Direct Democracy in Switzerland.

The trouble is that the politics of referendums cuts both ways. Two years ago the Swiss voted to restrict immigration from the EU. That directly contradicted free-movement agreements, and Swiss officials are struggling to square the circle. Brussels threatens to suspend a raft of bilateral agreements if the Swiss go through with it—partly to avoid emboldening the British, who want immigration concessions in their EU renegotiation. In turn, should Britain vote to leave, the EU will have every incentive to take a hard line when the British come back to negotiate their post-EU trade deal. Mr Tsipras's gambit flopped because the euro zone could not allow the precedent of a debtor state unilaterally changing the terms of its loans.

No referendum is an island

The tools of direct democracy are always controversial—at times, they have threatened to make American states like California ungovernable—but they are doubly difficult in the EU. First, in America federal law trumps state law, meaning no state can vex another by placing a lunatic proposal on the ballot. But in the EU, which is not a federal construction, there is nothing to stop one member holding a referendum that causes trouble for the rest. When things go wrong, the usual remedy is to tweak whatever regulation or accord made voters unhappy (usually a treaty) and to seek a second vote that produces the correct answer.

A second problem is that the EU needs more integration just when many voters are turning against it. The euro zone and EU migration policy are both half-built ships. Each may require changes to EU treaties to allow more centralisation. But extending Brussels's powers into new areas will fuel the appetite for referendums that could scupper the changes. Moreover, notes Stefan Lehne, a former Austrian diplomat, these days EU politicians test the existing treaties to breaking point in order to avoid triggering referendums. The clamour for direct democracy thus fosters the legalistic jiggery-pokery to which it has been a reaction.

All this smells horribly undemocratic to some. But joining a club, or striking a deal with it, will always limit governments' room for manoeuvre. National politicians can shoulder some of the blame for not being clear with voters about what their arrangements with the EU imply. But too often EU officials seem wedded to the views of their founding father, Jean Monnet, who wrote that he "thought it wrong to consult the peoples of Europe about the structure of a community of which they had no practical experience". That may have worked when Eurocrats restricted themselves to tinkering with agricultural subsidies and fisheries policy. Not any more: the age of referendums is here to stay. ■

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Britain and the European Union

Let the campaigners begin

The Leave side faces stiffer challenges than the Remain side—but it could yet prevail

THE starting gun for the referendum on whether Britain should leave the European Union has yet to be fired. But David Cameron has made clear that he expects to finish renegotiating his set of EU reforms in Brussels by the end of February. Since the referendum act provides for a minimum four-month campaign, some say that the vote could now take place before the end of June—though insiders think late September is still more likely.

Either way, the pro and anti campaigns are gearing up, starting by raising cash. It is up to the Electoral Commission to designate, for each side, a lead organisation that gets extra money, free leafleting and broadcasting rights in exchange for strict spending limits. The choice is clearer on the Remain side: it will be Britain Stronger in Europe, chaired by Lord Rose, a former boss of the Marks and Spencer retail chain. Its director, Will Straw, says it is a broad cross-party group akin to the Better Together group that won the 2014 referendum on Scottish independence, but intent on making a more positive and patriotic case.

Britain Stronger in Europe had a shaky start, but now looks more effective. Yet it still seems outgunned by its opponents, who have a simple and seductive message about escaping Europe's chronic mess. This may be why the polls have narrowed (see chart). Alan Johnson, who runs the Labour Party's In campaign, laments that, although his side has the best lyrics, his opponents have the best tunes. Yet the Leave campaign has problems of its own—starting with the fact that it is divided.

Leave.eu, financed by Arron Banks, a businessman, is closely linked to the UK Independence Party's leader, Nigel Farage, and focuses on immigration. Vote Leave, run by Matthew Elliott, is broader based, and includes UKIP's sole MP, Douglas Carswell, as well as members of other parties. It seems more likely to win official designation, not least because Mr Elliott and his colleague, Dominic Cummings, are veterans of previous successful campaigns, including the defeat of a referendum on electoral reform in 2011 and of plans for a North-East regional assembly in 2004.

Both sides are keen to draw lessons from previous referendums in Britain and from other countries. Among them are the view that it is important to start early; that basic concerns such as jobs and the economy weigh heavily; that there is a bias in favour of the status quo; and that, although negative messages about the other side can work, they need to be supplemented by positive ones. In the EU case, Mr Cameron's renegotiation will count for little but his (and his government's) view will count for a lot. And ever present is the risk of a vote being hijacked by unrelated issues.

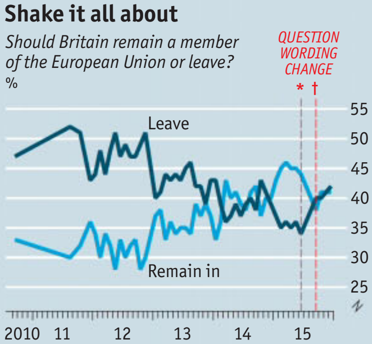
Most of these lessons ought to favour the Remain side. The main business and trade union organisations support Britain's EU membership on economic grounds, as does most of the British establishment. The status quo or inertia vote will lean towards staying in, though on this Vote Leave is trying to argue that, since the EU is changing so fast and moving inexorably towards closer political union, the real status quo vote should be one to leave.

Similarly, a negative message is harder for Vote Leave to fend off. As in Scotland, it is vulnerable to the charge that it is not offering a clearly thought-through alternative to EU membership. Would Britain keep full access to the single market, which takes almost half its exports? Might it, like Norway and Switzerland, have to accept most EU rules and even pay money to Brussels in return? The Leave campaign insists that, as a big economy and large market for other EU members, Britain would secure a favourable deal, but it remains vulnerable on the question of alternatives.

Leaders of all mainstream political parties will campaign to stay in. Mr Cameron will be a formidable asset to the Remain campaign, and he will win over some waverers by trumpeting the results of his renegotiation. Yet the Leave campaign has already dismissed this as "trivial". And it has ▶▶

Shake it all about

Should Britain remain a member of the European Union or leave?
%



Source: YouGov
*Remain a member with yes/no answer
†Remain a member of EU or leave EU

strong political backers besides UKIP, especially in the Tory party. Mr Cameron has conceded that cabinet ministers should be allowed to fight to leave the EU without quitting, calling for the party to remain "harmonious". On January 13th Chris Grayling, the leader of the House of Commons, wrote in the *Daily Telegraph* that remaining in the EU on current terms would be "disastrous". Bigger hitters have so far kept quiet. Vote Leave hopes to win over between three and seven ministers.

A majority of Tory MPs are Eurosceptic, but many will back Mr Cameron. Steve Baker, who works with Vote Leave and runs Conservatives for Britain, reckons to have 147 backbench supporters on his books. A new group called Grassroots Out has been started by Tom Pursglove, a Eurosceptic Tory from the 2015 intake. And although the Labour leader, Jeremy Corbyn, promises to campaign to remain, a dozen backbench Labour MPs may fight to leave.

The Remain side may be the more vulnerable to extraneous events, such as renewed euro turbulence or more big rows over migration. Mr Cameron gamely insists that, being outside both the single currency and the Schengen passport-free travel zone, Britain has the best of both worlds. But whereas voters in the 1975 European referendum opted to stay in because Britain was in such a mess, many now feel the opposite.

And then there is the risk from unrelated issues. Danish, Dutch and French voters stroppily used referendums to punish governments (see Charlemagne). Mr Cameron says he would not resign if he lost. But voters may want to send him a message. The result is all to play for—and the campaigns may not be wholly harmonious. ■

The National Health Service

Strike one

Junior doctors walk out over a change in their contracts

CARS honk cheerily as they pass a line of shivering junior medics, protesting outside the Royal London Hospital in east London during Britain's first doctors' strike in 40 years. Inside, most patients support the strike: doctors work hard, they say, and deserve a better deal than the one being offered to them by the health secretary, Jeremy Hunt. Further north, outside University College Hospital, an elderly passer-by goes further. "When the revolution comes," she tells protesters, "you will have Hunt's body for your dissection classes."

The medics (some of whom, despite the term "junior", are actually quite senior) are angry at Mr Hunt's proposal for a new contract, intended to improve out-of-hours care, which he has threatened to impose on them if no agreement is reached. In the strike on January 12th they provided only emergency care, and will do so again in another picket on January 26th. In February a total walkout is planned, which would leave consultants, nurses and temporary staff alone to treat emergencies.

Round one has gone to the doctors: an Ipsos Mori poll this week found that 66% of the public backed the strike, which led to 3,300 operations being cancelled. But the same poll found that just 44% would support a strike that affected emergency care, as February's would.

The details of the dispute are fiddly, concerning working hours, top-up rates of pay and working-time rules. But there are two, quite straightforward, main disagreements. The first is about how much the National Health Service (NHS) should police doctors' working time. The British Medical Association (BMA), which represents doctors, and the Department of Health have provisionally agreed on rules governing the length of shifts, and on the creation of an independent "guardian" responsible for enforcing them. But the BMA wants stricter limits (for example, for consecutive long shifts to be capped at three rather than the offered five) and argues that enforcement will be weaker than before.

Very junior doctor

The second beef is about whether evening and weekend work should command higher pay than that between 7am and 7pm during the week. Assuming it should not, it is hard to disagree with Mr Hunt when he claims his reforms will leave 99% of junior doctors no worse off than before. Assuming it should, more doctors will lose out: although their basic pay will rise, top-ups for antisocial hours will be curbed (moreover, as this will make it cheaper for hospitals to roster doctors during these hours, more will be roped into evening and weekend shifts). The upshot, says the BMA, is that fewer doctors will take jobs in all-hours fields like acute medicine.

Mr Hunt's goal of a seven-day NHS is laudable, but he has carelessly wound up medics by implying they do not work hard enough and by over-simplifying research documenting higher death rates at weekends. On the day of the strike he attempted to portray those staffing emergency departments as having "crossed the picket line". Junior doctors (many already contemplating better paid, more leisurely careers in America or Australia) quickly turned against him.

The seeds of their resentment have been nurtured perhaps too enthusiastically by the leadership of the BMA, whose rallies resonate to juvenile abuse of a health secretary who, the doctors neglect to acknowledge, has a manifesto commitment to fulfil. That the rhetoric surrounding the strike suggests that the very existence of the NHS is at stake, and not just the pay and protections of a portion of its staff, perhaps concedes that the details of the matter do not match the scale of the action.

As the dispute goes on, at the Royal London Hospital the accident and emergency (A&E) waiting room is stuffed with runny noses and other non-urgent cases. "People used to go to their local priest for pastoral care; they now come to A&E," says Chris Uff, a consultant neurosurgeon who recalls a well oiled reveller chasing down an ambulance on New Year's Eve to ask whether he had money on his bus pass.

Such gentle grumbling about patients is common, but there is a more serious way in which the public is to blame for the sickness of the health service. The electorate that notionally adores "our NHS" and propels a saccharine song by health workers to the top of the Christmas charts shows remarkably little willingness to pay more in tax towards what remains a relatively cheap system. Without extra money and facing ever wider and wrinklier patients, the NHS must tighten its belt by £30 billion ($43 billion), or about one-fifth, by 2020. It is in this context that Mr Hunt is trying to expand services to evenings and weekends. Pity the well meaning health secretary, pity the hardworking doctors—and blame the sentimental but hypocritical British public. ■

Bagehot | Don Corbote's dodgy sally

Inspired by Spanish radicals, Labour's leader is forsaking his MPs for his idealistic activists

“WE NEED more Quixotes,” urged Pablo Iglesias, the mass before him hanging on his every word: “We are dreamers, but we take our dreams very seriously.” The rally in Madrid's central square last January was a milestone in the transformation of Podemos from a gang of professors into the movement that it is today. Last month it polled 21% in Spain's general election. Like their counterparts in Greece's Syriza, Mr Iglesias and his comrades take inspiration from the late Ernesto Laclau, an Argentine sociologist at Essex University. He wrote that lefties should embrace populism; combining charismatic, top-down leadership with bottom-up assemblies, marches and occupations.

To know how much Podemos inspires Jeremy Corbyn is to understand the Labour Party today. Rare is the senior Corbynite who has not visited Madrid. Last summer Mr Iglesias endorsed his British admirer, who had hailed the Spaniard's “new way of doing politics”. Seumas Milne, now Labour's head of strategy (and, long ago, a trainee at this newspaper, where he learned of capitalism's wickedness), wrote of the similarities between the two men. Momentum, the group that agitates for Mr Corbyn in local branches, is partly based on Podemos “circles”.

The intellectual fingerprints of Laclau and Mr Iglesias are all over the Labour leader's bid to restructure his party. Founded to secure political representation for the working class, Labour has long been dominated by its MPs and—such is the British system of cabinet government—its front bench. In their efforts to make the party newly electable, Tony Blair and his predecessors prised decision-making powers away from its left-wing members; by creating a loyal National Policy Forum, for example. Mr Corbyn is reversing such reforms in favour of a new, Laclauian vision.

First, he is tightening his grip on the leadership. He has appointed allies to the most essential and sensitive roles: John McDonnell as shadow chancellor, Mr Milne as chief aide, Ken Livingstone, a former mayor of London, as defence adviser. In a reshuffle finalised on January 13th, Mr Corbyn swapped frontbench critics for loyalists; most notably appointing Emily Thornberry, a fellow opponent of Britain's Trident nuclear deterrent, as shadow defence secretary. Meanwhile he has nudged Labour's executive committee further in his direction and is now trying to strengthen it with a review that may give it the final say on big party policies and thus sideline the shadow cabinet.

Second, and in true Podemos style, Mr Corbyn is shifting his party's focus from its MPs to its grassroots. Momentum is already threatening heretical backbenchers with deselection. It may make good on the threat when impending constituency boundary changes put seats up for grabs. Meanwhile Labour's leader is giving members much more say. In October he polled them before a vote on military action against Islamic State in Syria (75% were opposed, like him) and in an interview on January 11th near-confirmed that he would do the same ahead of any vote on the renewal of Trident, which he loathes. Mr Corbyn wants to use regular online consultations of members and registered supporters to set Labour's policies.

Tilting at Basildon

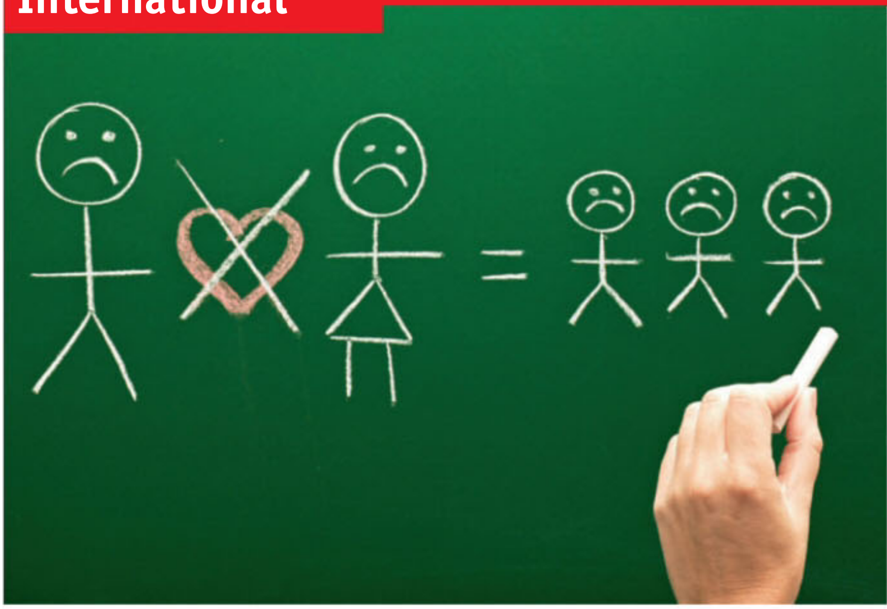
All of which is jolly interesting—but electorally suicidal. Last month one in five voting Spaniards may have backed Podemos. But Britain has a more majoritarian electoral system, a less loathed establishment, a less fiery left-wing tradition and a youth unemployment rate of 14%, compared with 48% in Spain. Basildon is not Barcelona. Nor does Mr Corbyn possess Mr Iglesias's flair and youthful appeal.

Moderate MPs are responding to their rolling marginalisation in three ways that broadly map onto their ideological stances. The old Labour right, centred on West Midlands MPs and the Labour First group, is the most active in countering the Corbynite takeover; partly as it has a tradition of machine politics (tough, tribal Brummies were a bastion against the extreme-left in the 1980s) and partly because in Tom Watson, Labour's deputy leader, it has someone ready to take over if Mr Corbyn falls.

The soft left, including those around Ed Miliband, Labour's previous leader, has a gentler strategy: to temper Mr Corbyn, reason with the new members and ultimately guide the party towards some sort of compromise. Meanwhile the liberal, Blairite right is in internal exile; quietly building up its resources, fighting off deselection bids and concentrating on other causes like an In vote at the upcoming EU referendum. It has no obvious figurehead, so is the most reticent of the moderate groups. Here one is most likely to hear the argument that Mr Corbyn must fail on his own terms; that his defeat must be unequivocally his fault.

Labour's problem is that none of these responses confronts the fact that its leader is getting stronger. More centrist members are leaving as lefties sign up (over half the party has joined since the election in May). The prospect of a candidate with the infrastructure to beat Mr Corbyn is more remote than ever. Swathes of centrist MPs could lose their seats—if not at deselections then when the party sallies into the next election opposing Trident.

Joe Haines, who was press secretary to Harold Wilson, the last-but-one Labour leader to win a majority, propounds a fourth, better option. He urges moderate MPs to declare independence from Mr Corbyn and sit as a separate group in the Commons (a “nuclear option” some moderates refuse to rule out). The new party would forfeit Labour's infrastructure, but would not struggle to attract donations. Some members may defect with their MPs. If larger than Mr Corbyn's parliamentary caucus, this new social democratic party would be designated the official opposition. The genius of this option is that it would turn Mr Corbyn's Laclauian strategy against him. He loves to talk of mandates and movements. But together Labour MPs have a mandate of 9.3m to his 250,000 supporters. The masses have spoken. ■



Also in this section

68 The common-law marriage myth

Unwed parents and the law

Carriage and horse

Births out of wedlock are becoming the norm. How should governments respond?

BRITAIN is nearly there; America not far behind; France passed the milestone in 2007. As couples wait longer to marry, and fewer eventually do, the number of countries where more births are out of wedlock than in it has risen to more than 20. Rates across the OECD group of 34 mostly rich countries vary hugely, from 2% in Japan to 70% in Chile. But overall the average is 39%—more than five times what it was in 1970 (see chart on next page).

Policymakers wish they could change the trend. Unmarried parents are more likely to split up. Their children learn less in school and are more likely to be unhealthy or behave badly. It is hard to say how much of this difference is due to marriage itself, however, because unmarried parents differ a great deal from married ones. They are poorer, less well-educated and more likely to be teenagers, for example.

But efforts to persuade people who otherwise would not marry to do so have generally failed. Isabel Sawhill of the Brookings Institution, a think-tank, says that a plethora of policies in America, from tweaking incentives in the benefits system to teaching couples how to be better domestic partners, have had little or no effect on marriage rates. Better, she says, help women to avoid unplanned pregnancies and delay childbearing at least until they finish school and are in a solid relationship, whether married or not.

Governments must still decide what to do when cohabiting couples break up or one partner dies. They tend to take one of three approaches: to treat unmarried couples like married ones if they have been together more than a couple of years; to treat them as if they were single; or to offer several formal alternatives to marriage and hope that couples will choose the one that suits them best.

Subscribers to the first approach include Australia, New Zealand, Sweden and some Canadian provinces. For legal purposes, cohabiting couples are almost indistinguishable from married ones after some time living together, usually two or three years. De facto marriage may kick in earlier for parents. Some countries allow couples to opt out of some of the provisions of de facto marriage by signing a contract, for example if one partner wishes to exclude property, or money for offspring from a previous relationship.

In Australia, however, couples rarely draw up opt-outs, says Belinda Fehlberg of the University of Melbourne. So courts still end up dealing with messy separations. One party may dispute the very existence of a relationship. In a property dispute in 2013 a judge ruled that a couple who had lived together for 14 years, holidayed together and had regular sex were not in a de facto marriage. The woman claimed they had been. The man, who had married someone else, said they hadn't, because one had always paid rent to the other.

In Brazil, where two-thirds of children are born to unmarried parents, couples whose relationship is "public, permanent and intended to form a family unit" are regarded as being in a "stable union". They need not live together, and there is no set period before the law kicks in. Foreign clients find this startling, says Carolina Ducci of Mattos Filho Advogados, a São Paulo law firm; she advises those in unmarried relationships to declare a stable union in a notary's office in case doubts arise. For those with the opposite concern—that a casual fling might demand alimony—there is no such quick fix. Some rich Brazilians insist on "dating contracts" at the start of any new relationship, says Ms Ducci—but these have no legal status.

Marriages of inconvenience

Such disputes are surprisingly rare, though, because Brazilians know the risks. Anyone determined not to enter a stable union will do nothing that a judge might take as evidence of one. Pictures together on Facebook show that a relationship was public, for example. Paying bills jointly, sharing a bank account or making loan repayments for a partner can be taken as intent to form a family. More common are legal battles after one partner dies: children from a former marriage, who lose out if their parent enters a new union, may dispute that a partner was a de facto spouse.

By comparison, recognising only formal marriage has the merit of clarity. But countries that take this approach, such as many American states, England, Italy and much of eastern Europe, have problems, too. The assumption that all those who want the rights and obligations of marriage will wed is often wrong. In many ▸▸

Correction: In "A new age of discovery", on January 2nd 2016, we said Oliver Steeds had filmed a fish at a deeper level than anyone else. In fact this was achieved by Alan Jamieson of the University of Aberdeen. And though Rune Gjeldnes was the first person to cross the Antarctic alone without being resupplied, Sir Ranulph Fiennes and Mike Stroud had previously done so together.

countries lots of unmarried couples mistakenly believe that they have all the rights of married ones after they have lived together for some time (see box). And often, says Robert Wintemute of King's College London, one partner wants to marry but the other does not. The reluctant party is usually the richer one, most often the man.

Some people in this situation will leave and look for a less marriage-shy partner; others realise their predicament only after children are born, when keeping the family together trumps unshared marital aspirations. They risk poverty, even homelessness, if they are bereaved or the relationship comes to a bitter end. After a divorce, the parent who does most of the child care usually gets the family home, no matter whose name it is in or who paid for it; without marriage there is no such guarantee.

In England, bereaved unmarried partners may have to sell the family home to pay inheritance tax that a spouse would have been exempt from—if they are lucky enough to be left it, that is. Without a will, they may be made homeless by blood relatives favoured by the intestacy rules. The British government has done nothing to change these, despite recommendations from the parliamentary law commission and family lawyers' association that some unmarried partners be given the inheritance rights of spouses.

Belgium, France and the Netherlands take a third approach, offering a range of formal options short of marriage. A cohabitation agreement, one of the options in the Netherlands, can be drawn up by a notary; more than half of unmarried Dutch couples had one in 2008. Couples can tailor these with details on how assets and expenses will be shared. A popular choice in France is the *pacte civil de solidarité* (PACS), which confers many of marriage's rights and duties but is easier to end: one partner can terminate it by a registered letter or by marrying someone else, without giving notice to the (possibly surprised) ex. Couples in a PACS get the same income- and inheritance-tax breaks as married ones. But if they separate neither can claim alimony or the other's property. About two-thirds as many French couples are in a PACS as are married—a popularity that has spawned a new verb: *se pacser* (to "get pacs-ed").

But even when several options are on offer, many couples choose none. A fifth of French and Dutch cohabiting couples are in no form of registered partnership—the same share as in England, where marriage is the only option. (English same-sex couples can also enter into a civil union, a remnant of the equal-but-separate era before gay marriage became legal in 2014.) In the end governments face a trade-off. Treating long-lasting cohabitation as marriage leads to fewer bereaved and wronged families—but also blurs a once-clear line. Not doing so, though, puts the law out of step with the way families are evolving. ■

Unmarried and ill-informed

The common-law marriage myth

Many cohabiting couples misunderstand their legal status

IF YOU live together like a husband and wife for a number of years, then in the eyes of the law you are married. It is startling how many people in England believe this. Yet it is a myth.

Despite an information campaign, over half of unmarried English couples living together in 2006—when the campaign had been running for three years—believed that their legal position was the same as that of married couples. Half the general population did, too. In fact, common-law marriage has not legally existed in England since the 16th century.

In America, family lawyers push the message that living together for seven years—or any amount of time—does not make you a married couple. Why so many Americans believe in this seven-year cut-off is mysterious. A handful of American states, including Alabama and Colorado, do recognise common-law marriage, meaning that a couple may be legally treated as married if they live as a family and present themselves as a husband and wife. But people all over the country mistakenly believe that this is also the case in their state.

In Canada, says Robert Leckey of McGill University in Montreal, a similar confusion results from laws that call unmarried couples "legal spouses" for the purposes of tax and benefits. Many assume that they are as good as married for everything else, too.

Even when unmarried people know what the law says, research shows, optimism may mean they neglect pragmatic measures such as ensuring that they are recognised as co-owner of the house they share. Most couples who move in together, whether they marry or not, believe that they will either stay together for life or separate amicably. Some fear being viewed as gold-diggers or spoiling the ardour if they brandish paperwork that says who gets what if things turn sour.

Prodding and advice do not help much either. Before gay marriage became legal in America, few gay couples named each other as next of kin or drew up wills in each other's favour, despite reminders from activists, says Gordon Morris of Unmarried Equality, a lobby group. In England researchers followed up with 102 people in unmarried couples who had visited an official website with information and model agreements about property, next-of-kin wishes and so on. None had gone on to sign one: the most common reason was that they had not got around to it, though they intended to.

Sources: OECD; Eurostat

*Or in any other form of registered union †2013 ‡Under 25 §2014

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Clean energy

An increasingly precious metal

SAN PEDRO ATACAMA

Amid a surge in demand for rechargeable batteries, companies are scrambling for supplies of lithium

SQM, Chile's biggest lithium producer, is the kind of company you might find in an industrial-espionage thriller. Its headquarters in the military district of Santiago bears no name. The man who for years ran the business, Julio Ponce, is the former son-in-law of the late dictator, Augusto Pinochet. He quit as chairman in 2015, during an investigation into SQM for alleged tax evasion. (The company is co-operating with the inquiry.) Last month it emerged that CITIC, a Chinese state-controlled firm, may bid for part of Mr Ponce's controlling stake in SQM, as part of China's bid to secure supplies of a vital raw material.

The focus of CITIC's interest appears to lie on a lunar-like landscape of encrusted salt in Chile's Atacama desert. It is a brine deposit washed off the Andes millions of years ago, containing about a fifth of the world's known lithium resources. (Even more are in adjacent Bolivia but they are mostly untapped; see chart 1.) Just weeks before, CITIC had bought a stake in a Hong Kong electric-vehicle maker that uses lithium-ion batteries, indicating its growing interest in clean-energy technologies.

At SQM's facilities the brine is pumped from an underground reservoir into hundreds of ponds. As it evaporates it turns into shades of blue and green, making the plant resemble a giant artist's palette. It produces mostly potassium compounds but also a viscous liquid, lithium chloride. This is taken by tanker to a plant near the coast where it is turned into finely powdered lithium carbonate and hydroxide, which are then shipped around the world.

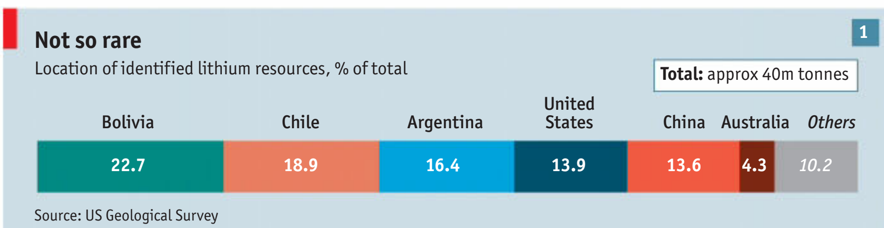
It is not a big business: lithium accounts for only about 5% of the materials in some car batteries, and for less than 10% of their cost. Worldwide sales of lithium salts are only about $1 billion a year. But the element is a vital component of batteries that power everything from cars to smartphones, laptops and power tools. With demand for such high-density energy storage set to surge as vehicles become greener and electricity becomes cleaner, Goldman Sachs, an investment bank, calls lithium "the new gasoline".

SQM is part of a global scramble to secure supplies of lithium by the world's largest battery producers, and by end-users such as carmakers. That has made it the world's hottest commodity. The price of 99%-pure lithium carbonate imported to China more than doubled in the two months to the end of December, to $13,000 a tonne (see chart 2, next page).

The spike mostly reflected concerns about the future liquidity of China's spot market. China gets much lithium from spodumene rock in Australia, an alternative to South American brine. Albermarle, an American miner, and Tianqi, its Chinese joint-venture partner, plan to use spodumene from a big Australian mine to process more battery-grade lithium carbonate and hydroxide. That will mean less ore available on the spot market in China.

The industry is fairly concentrated, which adds to the worry. Last year Albermarle, the world's biggest lithium producer, bought Rockwood, owner of Chile's second-biggest lithium deposit. It and three other companies—SQM, FMC of America and Tianqi—account for most of the world supply of lithium salts, according to Citigroup, a bank. What is more, a big lithium-brine project in Argentina, run by a joint venture of Orocobre, an Australian miner, and Toyota, Japan's largest carmaker, is behind schedule. Though the Earth contains plenty of lithium, extracting it can be costly and time-consuming, so higher prices may not automatically stimulate a surge in supply.

Demand is also on the up. At the moment, the main lithium-ion battery-makers are Samsung and LG of South Korea, Panasonic and Sony of Japan, and ATL of ▸▸



Charging up 2

Lithium carbonate spot price per tonne

$'000

Source: Citigroup

Hong Kong. But China also has many battery-makers. Adam Collins of Liberum, another investment bank, talks of an "inflection-point" in Chinese demand for lithium salts. Its government is stepping up the promotion of lithium-ion batteries and electric vehicles, with the biggest emphasis on buses. Sales of "new energy" vehicles in China almost tripled in the first ten months of 2015 compared with the same period in 2014, to 171,000 (though they remain less than 1% of total vehicle sales).

Tesla Motors, an American maker of electric cars founded by Elon Musk, a tech tycoon, is also on the prowl. It is preparing this year to start production at its "Gigafactory" in Nevada, which it hopes will supply lithium-ion batteries for 500,000 cars a year within five years. J.B. Straubel, Tesla's chief technical officer, says the firm wants to secure supplies of many battery materials, not just lithium. "There's so much hype in the lithium market right now...people look at it as this magical element," he says. Nonetheless, in August Bacanora, a Canadian firm, said it had signed a conditional agreement to supply Tesla with lithium hydroxide from a mine that it plans to develop in northern Mexico. Bacanora's shares jumped on the news—though analysts noted that shipping fine white powder across the United States border would need careful handling.

Bigger carmakers also have a growing appetite for lithium. In a recent shift, Toyota has begun offering lithium-ion batteries instead of heavier nickel-metal hydride ones in its Prius hybrid. Mr Collins notes that tougher emissions standards in Europe and America are likely to boost carmakers' need for lithium.

Another big source of demand may be for electricity storage. The holy grail of renewable electricity is batteries cheap and capacious enough to overcome the intermittency of solar and wind power—for example, to store enough power from solar panels to keep the lights on all night. Tesla says that next month it will start installing "Powerwall" battery packs in American and Australian homes to store solar energy, at a cost of $3,000. Enel, an Italian utility, is launching similar storage products this year in South Africa, where homes and businesses suffer frequent black-outs.

Power utilities will increasingly use giant battery packs, charging them at times of low demand and tapping them to provide short bursts of electricity at peak times, an alternative to building a fossil-fuel plant that will sit idle the rest of the time. AES Energy Storage, a big provider of energy storage, won a contract in 2014 to provide a "peaker plant" in Southern California that will provide up to 100 megawatts (MW) of power into the grid at moments of maximum demand. In December, the firm agreed to buy, over several years, enough lithium-ion batteries from LG to provide ten times this level of peak power—that is, 1 gigawatt, or more than the output of an entire, typical-size coal-fired power station. "We're hybridising the power grid," says John Zahurancik, its boss.

Lithium-ion technology nonetheless attracts legions of sceptics—and not just petrolheads. In a paper published last month, researchers linked to the federally-funded Argonne National Laboratory in Chicago wrote that large-scale batteries need to offer hundreds of miles of driving range, be rechargeable in minutes instead of hours, and provide power at costs comparable with natural gas. These demands are "beyond the reach" of lithium-ion technology, they argued. Tesla's Mr Straubel, however, foresees at least another doubling in the performance of lithium-ion batteries, and thinks lithium will continue to shape the battery of the future.

The juice still to be squeezed from lithium-ion batteries can be seen at the Angamos power plant on Chile's northern coastline. It uses 1m lime-green battery cells in ten shipping containers to regulate the electricity grid across the Atacama region at times of peak demand, including at SQM's lithium-mining operations hundreds of miles away across the desert. For the lithium the power plant uses, it is a homecoming. Extracted at SQM, it was sent to China to be turned into cells, put into battery packs in America, and shipped back to Chile by AES Energy Storage. That is a long journey for a tiny element of a little battery cell—but one that may embody the future of the world's energy supplies. ■

Chinese acquisitions abroad

Better than barbarians

SHANGHAI

Rich-world firms are warming to the idea of being Chinese-owned

DESPITE the anaemic state of the global economy, companies from mainland China are investing abroad like never before. Chinese firms closed overseas deals worth $61 billion last year, according to a new analysis by the Rhodium Group, a consulting firm. This was up by 16% on 2014, and is the highest level on record. What is more, these firms are not all chasing natural resources such as oil and copper, as in the past.

On January 12th Dalian Wanda, a Chinese property and entertainment conglomerate, confirmed its long-rumoured purchase of Legendary Entertainment for about $3.5 billion. The acquisition of the American film studio behind "Jurassic World", "The Dark Knight" and other blockbusters fulfils the dream of Wang Jianlin, Wanda's boss, of becoming a global movie mogul. The same day, news surfaced that Beijing Kunlun Tech, a Chinese

Shopping spree

ChemChina's confirmed and possible foreign purchases

Company *(country)*	Business area	Status
Adisseo *(France)*	Animal-feed ingredients	Bought 2006
Parts of Rhodia *(France)*	Organic silicon/sulphide	Bought 2006
Qenos *(Australia)*	Plastics	Bought 2006
ADAMA Agricultural Solutions* *(Israel)*	Agrichemicals	Bought 2011
Elkem *(Norway)*	Silicon	Bought 2011
Pirelli *(Italy)*	Tyres	Purchase agreed 2015
Syngenta *(Switzerland)*	Agrichemicals	Reported takeover approach 2015
Mercuria *(Switzerland)*	Oil trader	Reported to be seeking stake, 2015
KraussMaffei *(Germany)*	Industrial machinery	Joint bid, with other Chinese investors, 2016

Source: *The Economist*

*Formerly known as Makhteshim Agan

Ren and a piece of his chemicals empire

online-games firm, has acquired a majority stake in Grindr, an American social network for gay men, for about $93m.

However, perhaps the most intriguing Chinese foreign purchase of the week is the acquisition by a state-owned chemicals firm of an obscure German maker of machinery to process rubber and plastic. China National Chemical Corp, more commonly known as ChemChina, bought KraussMaffei for about $1 billion.

ChemChina itself rose from obscurity thanks in large part to Ren Jianxin, its chairman. Three decades ago he borrowed 10,000 yuan (less than $2,000 at today's rates) to start a solvents factory. In the following years, he forged the ChemChina empire by taking under his wing more than 100 distressed state-owned chemical plants across the country, with the government retaining ownership. He minimised lay-offs by shifting workers to one of the group's sidelines, Malan Noodle, a restaurant chain. He professionalised management by bringing in outside consultants. Even a foreign chemicals boss who insists that "90% of ChemChina's assets are rubbish" grudgingly praises Mr Ren's vision and management style.

ChemChina is now emerging as the most dynamic globaliser among China's state enterprises. Already, it has a string of foreign acquisitions under its belt (see table, previous page). Most notable among these is its $7.7 billion deal last year to buy Pirelli, an Italian tyremaker, which will be completed shortly. That was the largest Chinese purchase yet seen in Italy, and the KraussMaffei deal will be the biggest foray by a mainland Chinese firm into Germany. ChemChina is also in a bidding war with Monsanto, an American agribusiness firm, for control of Syngenta, a big Swiss rival. If ChemChina prevails with its latest reported bid for 70% of Syngenta, valuing it at $44 billion, it will be the biggest Chinese foreign acquisition yet.

Why are Chinese firms so keen to go abroad? Some pundits suspect that the firms' bosses, afraid of getting caught up in President Xi Jinping's anti-corruption purge, are parking assets abroad. Yet there are easier and quieter ways to get yuan through China's porous currency controls. Anyway, some of the firms buying abroad, such as ChemChina, are owned by the state itself. Others think investment opportunities are drying up on the mainland. But even if Chinese growth is only 5-6% rather than the reported rate of around 7%, it would still be stronger than in the rich countries where Chinese firms are buying.

The main reason for Chinese firms' buying spree is to get the brands, technologies and talent they lack, to capitalise on future waves of growth at home. That is not new in itself; what has changed is the warmth of the welcome they get. In the past, ruthless mainland firms, gobbling up resources firms, caused a backlash in the countries they entered. Today's Chinese globalisers, says Klaus Meyer of the China Europe International Business School, are more sophisticated and hands-off with their acquisitions.

"ChemChina could be a good owner" of Syngenta, agrees Jeremy Redenius of Sanford C. Bernstein, a research firm, pointing to the success of its earlier acquisition of Adama, an Israeli firm. Some rich-world firms may now find Chinese ownership more attractive than suffering the rules of Western stockmarkets or the meddling of private-equity firms. The marauders from the Middle Kingdom may be more welcome than the barbarians at the gate. ■

Planemakers

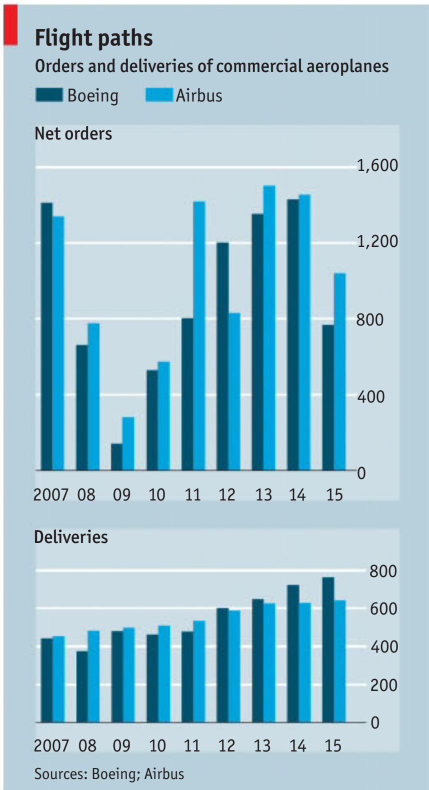
A smoother ride

LONDON AND PARIS

Why Airbus and Boeing have less to fear than before from the aviation cycle

BACK in November 2013 at the Dubai Air Show, the aviation cycle was clearly in full upwards swing. The four big Gulf carriers alone, Emirates, Etihad, Flydubai and Qatar Airlines, bought planes worth more than $170 billion, at list prices, off Boeing and Airbus in one day. Fast forward two years to the most recent Dubai show, in November 2015, and the picture is, at first sight, more worrying for the world's two biggest planemakers. There was only one big airline order of note, by Vietjet of Vietnam, for Airbus planes worth $3.6 billion.

Could this signal a downswing in the aviation cycle, and a collapse in demand for planes? That is the question on investors' minds as Boeing prepares to announce its full-year results on January 27th,



with Airbus to follow in February. Although in recent days Boeing and Airbus have revealed record production figures for 2015, new orders net of cancellations fell by almost half at Boeing and a third at Airbus compared with the previous year (see chart).

With bulging order books that ought to keep them busy into the 2020s despite planned production increases, the planemakers are not panicking yet. Indeed, the fall in orders in 2015 was in part because airlines saw little point in buying planes that might take almost a decade to be delivered. The fear is that, as happened in the past, the order book will unravel, with a wave of cancellations hitting profits.

This time really should be different, analysts believe. Even a global economic downturn should only result in a soft landing for the industry. One explanation is that the reason why airlines buy new planes has changed since the financial crisis, explains Jason Gursky of Citigroup, a bank. In the aviation cycles before 2008, around 70% of demand for new planes was from airlines and leasing companies planning to add capacity, with the replacement of their older jets accounting for just 30%. But since then, demand from customers seeking to replace old planes has risen to more than half of deliveries. Such orders are less affected by the state of the economy than planes being bought to expand the airlines' schedules.

The airlines are busy swapping old jets for new because the planemakers have brought out more fuel-efficient versions of the Boeing 737 and Airbus A320, their short-haul models; and introduced new long-haul models, the Boeing 787 Dreamliner and Airbus A350, which are also more efficient than older equivalents. The slump in oil prices means that jet fuel is a lot cheaper than it used to be. But it is still a big part of an airline's operating costs. And since any given carrier's rivals are upgrading their fleets, it has little option but to buy new planes itself.

Fortunately, the falling cost of fuel has boosted airlines' profits, giving them the money to renew their fleets. And the full effect of the oil slump has yet to be enjoyed: some European airlines hedged their jet-fuel requirements at an equivalent crude price of $90 a barrel in 2015, whereas the spot price had fallen below $40 by the year-end, and is now around $30.

Another reason why the aircraft market has become less volatile is the rise of no-frills airlines. Since they are more willing than full-service airlines to vary prices to smooth the ups and downs of demand for flights, that means their demand for planes is less bumpy. Budget carriers' strong position in emerging markets, where demand for air travel is growing fast, is helping. They account for around 60% of seat capacity in India and South-East Asia, compared with about 40% in Europe, according to CAPA, an aviation-consulting firm.

State-owned planemakers in China and Russia are bringing out rivals to the 737 and A320, but their fuel efficiency is poorer than that of the two Western planemakers' latest models, says John Leahy, Airbus's chief operating officer. So their impact is likely to be limited. A Canadian new entrant, Bombardier's CSeries, has won little interest from airlines.

So, Boeing and Airbus can continue steadily expanding their output while maintaining a healthy backlog. This will give them plenty of scope for coping with any dips in demand for planes, notes Mr Gursky—and if demand keeps growing, the lack of good alternatives will allow them to put their prices up.

Although the overall appetite for new planes has become less cyclical, orders for individual models can still be quite volatile, says Thomas Picherit at AlphaValue, a research firm. For example, airlines have held back from buying Airbus's medium-range A330 until a revamped version, the A330neo, has its maiden flight, expected later this year. The lull in orders has dented the profits of Rolls-Royce, which builds engines for the planes.

At the big end of the commercial-aircraft market, a lack of new models may be depressing sales. The latest version of Boeing's 747 jumbo, and Airbus's even bigger A380, are starting to look dated. Some airlines want to see newer, more fuel-efficient versions before they will place fresh orders. So those planes' assembly lines, and their suppliers, are going slow, even as the output of smaller planes soars.

Even if Boeing and Airbus are likely to enjoy more predictable demand than in the past, the airline business will continue to be a turbulent one, with some carriers retreating, and occasionally failing, in the face of rising competition from more efficient upstarts. That will produce some cancellations of aircraft orders. Planemakers will not care, so long as the winners in this battle for the skies simply take the place of the losers in their order books. ■

E-commerce in India

Local heroes

MUMBAI

Online grocers are offering small shops a lifeline in the age of smartphones

As PERSONAL service goes, few big retailers can match the tailor-made offerings of India's 15m or so tiny, family-owned shops known as kiranas. In addition to selling all manner of goods, most are happy to cut and deliver small amounts of fresh food—1kg of onions, say—and let customers buy on credit.

The steady advance of home-grown supermarket chains has so far done little to dim the kiranas' prospects; and successive Indian governments have been reluctant to let in foreign grocers, for fear that many households would lose their livelihoods. With more than 200m Indians now able to access the internet on their mobile devices, e-commerce might appear a bigger threat. A clutch of Indian and foreign-owned online grocers has been set up in the past few years. Rather than supplying all their goods from central warehouses, however, most have struck partnerships with kiranas and other physical retailers. They employ an army of young workers to collect orders from kiranas and other local shops, and deliver them to the customer, often within the hour.

Aniket Moré, aged 18, is one such worker. His employer is Grofers (as in "grocery gofers"), founded in 2013. When a customer uses the firm's app to order, say, a cake, a bottle of Coke and bag of tomatoes, Aniket hops on his bike, collects the tomatoes from a small depot run by a contractor (this is how it ensures the quality of fresh produce), buys the Coke from a local kirana and then calls in at a nearby cake shop. He has a colleague riding pillion to help him. "The cake needs protection," he says.

Grofers also deploys a shopper at some kiranas, who is notified of orders on his smartphone. He buys the necessary items from the shopkeeper and has them ready for when the deliverer swings by. On busy days, just before the shopper runs out of cash, another company man calls at the kirana to top it up.

Grofers, and other firms trying this labour-intensive model, reckon that by linking with the myriad small shops in Indian cities, they will be spared having to spend heavily on warehousing in a country where urban land is scarce. It will also, they hope, help them to scale up fast, and make deliveries rapidly. For the big foreign firms entering the Indian market, such as Amazon, even if they do build central warehouses, it may also suit to be seen working with small local retailers rather than going all out to squash them.

Critics such as Arvind Singhal of Technopak, a retail consultant, argue that adding another layer to the supply chain just makes the business inefficient. Customers also need to be won round. Grofers has pulled out of nine cities, blaming "low acceptance of its service in these areas". LocalBanya, another online grocer that sourced products from local shops, ceased operations in October. Earlier in 2015 Paytm, an Indian e-commerce firm backed by Alibaba of China, shut down a similar grocery app within two months of launch.

These struggles are not, so far, deterring Grofers' bosses. They argue that a volume-driven business such as theirs takes time to build. "We are still in the habit-forming stage," says Saurabh Kumar, one of the firm's founders. Nor is it putting off Amazon, whose KiranaNow service has a slightly different model, letting kiranas set up virtual stalls and take orders by smartphone app, to be delivered either by the kirana's own workers or by Amazon's delivery service. BigBasket, currently the largest among India's online grocers, offers two levels of service: for a household's big monthly shop it fulfils orders from a central warehouse. But it also has tie-ups with kiranas so that consumers can order daily top-ups from them.

None of the online grocers is yet in profit. Last month Grofers reported losses of 39m rupees ($591,000) on revenues of 7.3m rupees in its first full year of operations. Hari Menon, the boss of BigBasket, expects it to break even by 2018, on revenues of more than $1 billion. Investors so far seem patient. Grofers' backers have provided $166m in the past two years, and BigBasket is about to close a $120m financing round with a consortium of lenders.

It remains far from certain which, if any, of these attempts to bring kiranas into the age of smartphone shopping will succeed, even though India has a plentiful supply of young deliverers, like Mr Moré, prepared to work hard for modest pay. In the long term, large-scale online retailing, using central warehouses, will surely prove more efficient. Even then there is likely to be a place in Indians' hearts, and wallets, for the local shopkeeper who knows them by name and for whom no order is too small. ■

The biotechnology industry

Clusterluck

CAMBRIDGE, MASSACHUSETTS

Boston's biotech hub is surviving the challenge from Silicon Valley

DISTANCE is not dead. In biotechnology, as in other tech-based industries, the clustering of similar firms is more important than ever. Some American biotech startups are based in the San Francisco and Silicon Valley area, huddled with its many digital and IT startups. But the Boston metropolitan area—and in particular Cambridge, across the Charles river from central Boston—seems to be holding its own as the world's pre-eminent biotech hub.

The San Francisco area's pool of venture capital is beyond compare; and a biotech-industry body there, the California Life Sciences Association, argues that California is the number one state for biomedical employment. But in part that is simply a reflection of the state's large population, which means its health-care business is necessarily big. The Massachusetts Biotechnology Council claims that its state employs more people in biotech research and development than any other.

A study published last month by the Massachusetts Institute of Technology (MIT) found that although, per head, the Boston area had fallen well behind San Francisco and Silicon Valley in creating software and internet startups, it was more or less keeping pace in life sciences. The density of research institutions in Massachusetts means that it receives $351 per head in funding from the National Institutes of Health, well ahead of the Golden State's $88. This density of research was a reason cited by General Electric, which has a big medical-technology division, in its announcement this week that it will move its group headquarters to Boston.

The history of the Boston area cluster can be traced to the late 1970s and early 1980s, when Biogen and Genzyme, two biotech drugmakers, were founded by scientists from nearby academic institutions. Other scientists, especially from MIT and Harvard, Cambridge's two internationally renowned universities, followed suit and created innovative startups of their own.

This encouraged global pharmaceutical giants, struggling with poor productivity in their existing research facilities, to set up labs in and around Cambridge. Novartis of Switzerland began work on its outpost in 2002, followed by such names as AstraZeneca of Britain and Baxter of Illinois, which in 2015 spun out its Cambridge labs as Baxalta, a specialist in "orphan" diseases. This week Baxalta agreed a $32 billion takeover by Shire, an Irish drugs giant.

The cluster lacked a clear focal point until 2010, when MIT, the main landowner around Kendall Square—an area about a mile in all directions from the Kendall/MIT subway station in Cambridge—decided to spruce it up. One report suggests the square currently hosts firms that have absorbed about $14 billion in venture-capital investments. Silicon Valley's overall pool of capital may be deeper, but much of it flows to areas other than biotech. And the global drug giants with outposts in the Boston area provide an alternative source of finance, and of eventual buyers for startups.

Tom Andrew of Alexandria Real Estate, a property agent specialising in science buildings, notes that the Boston area's universities, teaching hospitals and other institutions are a sink, as well as a source, of talent. Anyone who accepts a risky job at a startup can be sure that if things don't work out there are lots of big employers nearby to fall back on.

The cluster's promising young firms include four—Editas Medicine, CRISPR Therapeutics, Intellia and Bluebird Bio—that are working on "gene editing", currently one of the hottest areas of biotech. WuXi NextCODE, another local startup, specialises in analysing genomes. Alnylam concentrates on drugs that interfere with RNA, the messenger molecule through which genes express themselves. Not satisfied with just editing, deciphering or blocking nature's blueprints, Synlogic is seeking to create medicines through entirely artificial sequences of genes.

Synlogic's boss, Jose-Carlos Gutiérrez-Ramos, formerly of Pfizer, has worked around the world and praises the "density of intellectuals" in Boston and the opportunities that come from being able to make easy connections. With little travel time between appointments, it is easier to arrange meetings. Dan Budwick of Pure Communications, a public-relations firm which represents some of the area's startups, says that "You can jump on a bike and see 30 companies in a mile. You can't do that in San Francisco or Manhattan."

Boston's tech cluster has a different vibe from Silicon Valley's in other ways too. Edward Farmer of WuXi NextCODE says Boston's biotech crowd are a more formal bunch, who wear proper shirts—and tuck them in. They know which fork is for the salad because salad is not the only thing they eat. Beer is the recreational drug of choice, rather than cannabis.

The cranes sprouting across the skyline suggest more growth ahead. But demand is still running ahead of supply. In the Boston area rents for laboratory space rose by 7% last year to around $47 a square foot ($505 a square metre), compared with $37 in San Francisco. Already, some companies are having to seek space in districts like Alewife or Watertown, on the far side of Harvard's campus.

Though it is on a roll, the Boston biotech cluster must keep a nervous eye on its West Coast rival, especially if, in future, biotech ventures come to rely on software, wearable sensors and big-data analysis, areas in which Silicon Valley is strong. At least that is a problem it can try to address. The weather is not. The biggest annual jamboree for investors in biotech, organised by J.P. Morgan, a bank, opened this week in its customary location of San Francisco. The temperature was a balmy 13° Celsius, to Boston's shivering -1°. ■

Schumpeter | The other side of paradise

Glamorous tech startups can be brutal places for workers

SOFTWARE firms are supposed to be a paradise for "talent". Not only are their workers fabulously paid, but they are showered with perks as well. They can gorge themselves on free food cooked by Cordon Bleu chefs. They can snooze in nap pods or, if they feel more energetic, work out in on-site gyms or take yoga classes. There are dry-cleaners on the premises to do their laundry and buses to ferry them to and from work.

There is some truth in this. Such companies have few resources other than their employees' brains. And the battle for those brains is becoming more intense as the digital revolution reconfigures swathes of the business world. Giants such as Google and Facebook are seeking to reinforce their position at the heart of this new economy by investing heavily in research and expanding into ever more areas. Google's headcount has grown by 157% in the past five years, to about 60,000. Smaller startups are also scrambling to attract talent; and manufacturers are responding to the digitisation of their industries by hiring coders and other tech geeks. Carmakers such as GM, Ford, Nissan and Toyota have all set up research outposts in Silicon Valley.

This is producing a pay-and-perks arms race. The biggest companies are building awe-inspiring headquarters: Apple's "spaceship", designed by Norman Foster, will cover 2.8m square feet (260,000 square metres) and Google's new offices will sit under a vast, translucent dome. Some firms, such as Netflix, offer staff "unlimited" holidays. Facebook is offering up to $20,000 to female employees who want to freeze their eggs. Uber and Airbnb, two stars of the sharing economy, have lured away a couple of Google's top chefs, Alvin San and Rafael Monfort.

However, a career as a software developer or engineer comes with no guarantee of job satisfaction. A survey last year of 5,000 such workers at both tech and non-tech firms, by TINYPulse, a specialist in monitoring employee satisfaction, found that many of them feel alienated, trapped, underappreciated and otherwise discombobulated. Only 19% of tech employees said they were happy in their jobs and only 17% said they felt valued in their work. In many areas they were even more discontented than non-tech workers: 36% of techies felt they had a clear career path compared with 50% of workers in areas such as marketing and finance; 28% of techies said they understand their companies' vision compared with 43% of non-techies; and 47% of techies said they had good relations with their work colleagues compared with 56% of non-techies.

Tech firms that offer lavish perks to their staff do not do so out of the goodness of their hearts. They offer them because they expect people to work so hard that they will not have time for such mundane things as buying lunch or popping to the dry-cleaners. As Gerald Ledford of the University of Southern California's business school puts it, they are "golden handcuffs" to keep people at their desks. Some of the most extravagant perks are illusions: "take as much holiday as you like" may really mean "take as little as possible, and as much as you dare." Some have vaguely sinister undertones: might the option for women to freeze their eggs end up becoming the expectation?

The tech economy is a ruthless meritocracy. "A great lathe operator commands several times the wage of an average lathe operator," Bill Gates once said, "but a great writer of software code is worth 10,000 times the price of an average software writer." The most talented workers can command princes' ransoms. Google reportedly offered a star engineer $3.5m in stock to dissuade him from defecting to Facebook. And Facebook paid $1 billion for Instagram, mainly to hire its 13 employees. But in this business those who are merely good, rather than great, are expendable; they can expect to labour in obscurity while the stars get the credit.

On top of this merciless meritocracy is a layer of cruel fortune. No amount of talent or effort can make up for having chosen to work at Sidecar, a ride-sharing service which shut down in December, rather than Uber or Lyft, its still-expanding rivals. Moreover, tech startups typically attract talent by offering shares. Employees work like dogs in return for supposedly making a fortune when the firm goes public. However, such firms often use multiple classes of shares that preserve the biggest gains for insiders, leaving the employees with common stock that can easily lose value. In particular, startups have taken to offering later-stage investors guarantees that they will get their money back, if either a subsequent funding round or an eventual initial public offering (IPO) values their shares at a lower price than they are paying. When firms have to pay out on such guarantees, they generally do so by issuing extra shares, which dilute other common shareholders such as their staff.

Unicorns and unicorpses

Disappointments of this sort are becoming more common. A succession of startups, such as Square and New Relic, have sold their shares at substantial discounts to their previous valuations on going public. Others have been bought at a discount after abandoning hopes of an IPO: Gilt Groupe, an e-commerce firm, sold itself to Hudson's Bay Company for $250m, having reportedly enjoyed a "unicorn" valuation of above $1 billion in its earlier fundraising. Michael Moritz, a venture capitalist, talks about "subprime unicorns" and James Clark, an entrepreneur, talks about "unicorpses". If there is another tech bust, it will be the employees who will be most hurt.

The tech industry offers fabulous rewards for a fortunate few: almost half of the world's billionaires aged under 40 are tech types. It offers a wonderful life for many thousands more: they get to make serious money by turning science fiction into reality. But the industry is also rife with disappointments: endless toil that produces meagre returns; and dreams of reinventing the world that turn into just another tough and insecure job. ■

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China's labour market

Shocks and absorbers

YIZHENG

Unemployment is rising, but is not always visible

THE crane that looms over Sainty Marine's shipyard on the lower reaches of the Yangzi river had been motionless for weeks when a worker climbed it late last year. The struggling company had stopped getting orders and, rather than deal with the headache of laying off its employees, it simply stopped paying them. The man on the crane threatened to jump to get the attention of local officials, coming down only when they promised to help him. Other workers took a somewhat safer, though (in a country where strikes are illegal) no less provocative measure to demand their missing wages: they marched out and blockaded a nearby highway.

That Sainty Marine workers have resorted to such actions is perhaps not surprising. The global shipping industry is depressed, plagued by oversupply at a time when slowing trade means demand for new ships is shrinking. Chinese firms that rushed to expand are now gasping. Sainty Marine, which overextended itself by buying another shipbuilder, is veering towards bankruptcy. Withholding wages is a common tactic for Chinese companies in trouble; in Yizheng, the gritty town that is home to Sainty Marine's shipyard, the local government has published statements admonishing employers for doing so.

Many workers at other hard-hit companies, especially in heavy industry, are facing similar frustrations. The China Labour Bulletin, a watchdog group based in Hong Kong, recorded 2,774 strikes and worker protests nationwide in 2015, double the 1,379 posted in 2014. Police arrested four labour activists last week in the southern province of Guangdong, China's manufacturing heartland—a sign of the authorities' unease over the growing protests.

Although the swooning stockmarket and falling currency have captured global attention in recent days, the effect of slowing growth on employment is a more sensitive problem for the government. The Communist Party has always treated markets and, by extension, investors with a certain disregard. Workers are different: the steady improvement in their living standards over the past three decades has helped to legitimise the party's rule.

Workers' paradise

China, ratio of job openings to job seekers

Sources: Wind Info; Ministry of Human Resources and Social Security

How worried should it be? The stresses have made only a small dent so far in overall employment figures, at least in the official telling. The jobless rate crept up to 5.2% at the end of September from 5.1% at the start of last year, according to the latest government survey of 31 big cities. Manufacturing firms are clearly cutting jobs: the employment index in the closely watched Caixin survey of the sector dipped to 47.3 in December—its 26th consecutive month below 50, the threshold marking a contraction. But for services, a bigger share of the economy than manufacturing, Caixin's employment index hit 51.3 in December, above last year's low of 50.1 in August. That points to an expansion.

However, the employment data are flattered by two uniquely Chinese shock-absorbers. First, the *hukou* system of household registration means that some 270m migrant workers who have gone to cities for jobs do not enjoy a permanent right to live in them, let alone collect unemployment insurance there. When they lose their jobs, they are expected to return to their original homes, often in the countryside, and do not count as unemployed. In 2008, at the height of the global financial crisis, tens of millions of migrants simply went back to rural areas, tilling fields or scrabbling for meagre pay in villages. There has been no similar exodus this time, but the countryside remains a safety valve that can help to absorb the unemployed.

The other buffer is one of the things hobbling the economy in the first place: state-owned enterprises (SOEs). Private firms are better run and more profitable, but SOEs, with their political backing, have far easier access to finance and dominate a series of restricted sectors, from energy to ▸▸

transport. These privileges carry with them political duties, including an obligation to help maintain social stability by refraining from laying off workers. With the army planning to cut some 300,000 positions as part of a modernisation plan, the government reminded SOEs last month that they are required to reserve 5% of vacancies for demobilised soldiers.

In a working paper last year, analysts at the International Monetary Fund noted signs of "increased labour hoarding in overcapacity sectors", helping to suppress unemployment at the cost of weaker productivity. But even SOEs do not have finite resources. Loss-making companies with little prospect of turning round their performance are starting to shed workers. Longmay Mining, the largest SOE in the northern province of Heilongjiang, said in September that it would cut up to 100,000 jobs, nearly half its workforce.

China's economy should, in theory, be able to accommodate many of the unemployed. The working-age population peaked in 2012, so all else being equal, there is less competition for jobs. At the same time, the economy's tilt towards the services sector, which is more labour-intensive than industry, generates jobs even as growth slows. Services probably accounted for more than half of China's GDP last year for the first time in decades, and their share is growing: in nominal terms, service output grew by 11.6% year-on-year in the first nine months of 2015, whereas manufacturing grew by just 1.2%.

The central bank estimates that as long as the service sector's share of GDP increased by one percentage point in 2015 (in fact, it did better), the economy could have slowed by nearly half a percentage point and yet still generated the same number of new jobs as it did in 2014. This helps to explain why employment centres around the

Buttonwood | Picnic for the bears

Fears of deflation and recession hit markets

GLOOM seems to have descended at the start of 2016. Equity markets have had the worst start to the year in at least two decades. The great and the good have queued up to warn of the dangers ahead.

George Soros, a fund manager, said the Chinese financial environment reminded him of 2008, when the financial crisis was at its height. Larry Summers, a former American treasury secretary, declared in the *Financial Times*: "The global risk to domestic economic performance in the US, Europe and many emerging markets is as great as any time I can remember." George Osborne, Britain's chancellor, spoke of a "cocktail of threats" facing the global economy.

The chart shows a number of indicators of concern, from rising credit spreads (the interest-rate premium paid by risky borrowers) to slumping stockmarkets in the emerging world. Investors have many worries. The first is that the Chinese economy is weaker than the GDP statistics suggest. Falling commodity prices, the collapse in the Baltic Dry index (which tracks the cost of shipping bulk goods) and the sluggish growth of global trade can all be seen as signs of weakness. Given China's importance to global growth, this means that 2016 may turn out to be yet another year when growth disappoints.

Mr Soros sees a parallel with 2008 in the rapid credit growth in China and other emerging markets. If growth slows, borrowers may be unable to repay their debts. Similarly, emerging-market companies that have borrowed in dollars may be in trouble if their currencies depreciate. Asian nations might be forced to devalue if China lets the yuan fall sharply (see Free exchange).

The second concern is that the Federal Reserve might have miscalculated when it pushed up interest rates in December—the first increase since 2006. The employment numbers in America may still be strong, as December's muscular payroll numbers showed, but the labour market is a lagging indicator. The Atlanta Fed's nowcasting model suggests that GDP growth in the fourth quarter was just 0.8% at an annualised rate. Manufacturing looks weak: the purchasing managers' index has been below 50 (which signals contraction) for two straight months.

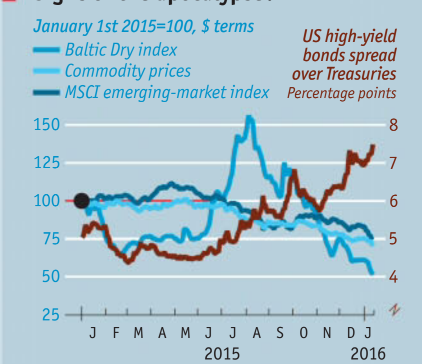
A related worry is that the global economy has become over-dependent on the stimulus provided by low interest rates and quantitative easing (QE). Such policies may have saved the world from another depression, but they have not led to a return to pre-crisis growth rates. Moreover, by pushing up asset prices, they have spurred inequality. Nor has the problem of high debt levels been eliminated; the debt has simply been shifted from the private to the public sector. A swift return to what used to be thought of as "normal" interest rates (3-4%) would prove crippling.

Martin Taylor, manager of a hedge fund called Nevsky Capital, detailed his concerns in a farewell letter to clients. Despite having earned an average annual return of 18% for 15 years, he is closing the fund. He fears that the global economy has become too dependent on China and India, where he does not trust the economic data. Individual equities have also become riskier, since companies have taken advantage of low rates to borrow more. And the equity market is less transparent, with trading dominated by index funds and computer programs. The risk of sudden, sharp shifts in prices has grown. "We could be caught up in an erroneous market trend, which could then persist for far longer than we could take the pain," Mr Taylor wrote.

All this is in stark contrast with the idea of fund managers as "masters of the universe" or the Thatcherite mantra, "You can't buck the markets". Since 2008 central banks have shown they can bend the markets to their will, at least for a while. Investors have to devote a lot of their time to poring over every word of central bankers' speeches and statements for a change in policy emphasis.

But perhaps this year's sell-off indicates that central banks are losing their grip or that investors are less confident the authorities know what they are doing. Albert Edwards, an ultra-bearish strategist at Société Générale (SG), a French bank, says: "The Fed and its promiscuous fraternity of central banks have created the conditions for another debacle every bit as large as the 2008 global financial crisis." He thinks a global recession and widespread deflation are on their way. This may still be a minority view, but more people are listening: SG's annual bearfest in London this week had 850 attendees, a record audience.

Signs of the apocalypse?



Sources: Bloomberg; St Louis Fed; Thomson Reuters

Economist.com/blogs/buttonwood

country still report a shortage of workers: an average of 1.09 vacancies for every applicant (see chart on prior page). For those hoping to be hired by accounting firms or restaurants, opportunities are plentiful.

The problem for shipbuilders and coal-miners is that many of the service jobs are destined for younger people with more education, and the jobs they can get, whether as janitors or cooks, often pay less well than their current work. The government has promised to provide retraining for those who lose jobs in industry, but that can only help so much. "Most of these guys can't just go from making a living by their brawn to making a living by their brains," says a recruiter at the human-resources centre in Yizheng.

For the employees of Sainty Marine, the question of what their next job might be is not the most pressing one. They have been showing up to work without getting paid. Mr Wang, 45, a welder, has a note signed by a manager stating that he is owed several months' salary, money that he needs to pay back relatives who lent him cash to build a house. He joined the group blocking the highway, but that achieved nothing. He has tried to corner his bosses, but that also got him nowhere. Lately, he says, he has been looking at the crane, sizing it up for a climb. ■

Remittances in Central Asia

From Russia with love

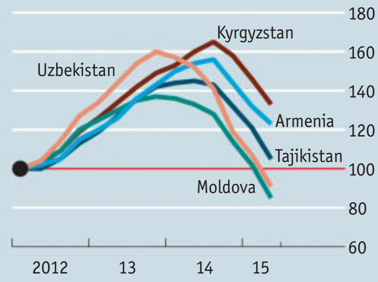
Remittances are a good thing, except when they stop

DEBT crises, capital flight and corruption are all familiar problems for poor countries trying to finance their development. A bulwark, say some, is remittances: money sent home by migrants, worth $580 billion in 2014. Unlike portfolio flows, which tend to flee at the first sign of trouble, remittances usually increase in tough times. And unlike aid, they go directly into the pockets of ordinary people, bypassing corrupt officials. All this is true, and important. But even remittances, alas, cannot always be relied upon. The experience in 2015 of Central Asia and the Caucasus, regions exceptionally dependent on remittances from Russia, shows why.

Some countries there export oil or gas. Others export people. In Tajikistan four in ten working-age adults have sought jobs abroad; in 2014 they sent home remittances equivalent to 42% of GDP, proportionally more than any other country in the world received. Armenia, Georgia and Kyrgyzstan also received remittances worth at least 10% of GDP—more than the Philippines, a country famous for its migrant workers.

Russian bear

Personal remittances from Russia*
Q1 2012=100



Source: Central Bank of Russia *12-month moving average

Most migrants go north, to Russia, finding work on building sites or in other low-income jobs. But Russia's economy contracted last year, and remittances have plummeted. In dollar terms, money sent home from Russia by Tajik migrants was down by 44% in the first six months of 2015 compared with the same period in 2014, according to the Russian Central Bank; remittances from Russia to Uzbekistan fell by half, and those to Kyrgyzstan fell by a third.

These figures partly reflect the weakness of the rouble. Other currencies in the region have also fallen, but not as far: every rouble a Tajik migrant sends home buys 35% fewer somoni than in June 2014, for example. Migrants also have less money to spare. Real wages are falling in Russia: they were 9% lower in November than a year before. And migrant numbers are down too, because of job losses and tighter immigration laws (though not for migrants from Armenia and Kyrgyzstan, which this year joined the Eurasian Economic Union, a Russian-centred economic bloc).

Lower remittances are contributing to lower growth. The IMF expected GDP to grow at 2.3% last year for oil and gas importers in the region, down from 4.7% in 2014 and 5.7% in 2013. Those numbers understate the real effects. Since GDP is a measure of domestic production, it only captures declines in remittances to the extent that recipients spend less on local goods or services. Purchasing power has dropped by more than 10%, says the World Bank, once the direct impacts of remittances and declining terms of trade are taken into account. Working longer hours or tapping into savings is helping some scrape by, but even so, 40% of households in Tajikistan say they cannot afford enough food.

As people spend less, governments are spending more to support demand: in the main remittance-receiving countries, fiscal deficits are expected to have widened by about two percentage points of GDP last year. The falling price of regional exports such as aluminium, copper and cotton is adding to economic woes and putting further strain on government finances.

The Central Asian experience is unusual. Elsewhere, remittances grew in 2015. In South Asia they were up by 6%, according to projections from the World Bank. The region's remittances come mainly from America and the Middle East; a strong dollar and fiscal expansion in the Gulf have kept the money flowing.

But small countries such as Nepal, where remittances were equivalent to 30% of GDP in 2014, look vulnerable to future shocks. Central America and some Pacific islands also depend on remittances: they suffered in 2009, the only year this century that global remittances have fallen.

In the long run, the solution is to diversify. Central Asian countries are trying to improve their infrastructure, supported by Chinese investment; trade with China has increased tenfold in a decade. The lesson of a tough year is obvious: though remittances can finance development, they are not a substitute for it. ■

The oil market

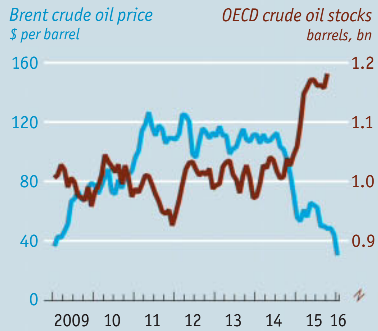
$20 is the new $40

Why the oil price has plunged

SINCE the new year, the price of oil has surprised even the most bearish punters, plunging by 18%. On January 12th West Texas Intermediate (WTI), America's benchmark, briefly dipped below $30 a barrel, its lowest level since 2003. The next day an incipient rally was undone by the news that American stocks of crude oil and petroleum products had reached 1.3 billion barrels, a new record. Firms are hunkering down. BP this week announced hefty job cuts; Petrobras, Brazil's state-controlled oil firm, slashed planned investment.

Some blame factors other than supply and demand for turning increasingly bearish. For instance, Standard Chartered, a

Drowning in oil



Sources: IAE; Thomson Reuters

bank, said oil might need to fall as low as $10 a barrel before speculators concede that "matters had gone too far". But it's mostly guesswork. Such is the level of uncertainty that American derivatives contracts tied to deliveries in April imply an oil price of anything from $25 to $56 a barrel, according to official number-crunchers.

Neil Atkinson of the International Energy Agency (IEA), a forecasting outfit, finds lots in the physical oil market to be bearish about—particularly regarding consumption, which was one of the few factors supporting prices last year. The sell-off in oil in the past fortnight has occurred concurrently with a slide in the Chinese stockmarket and the yuan, which some investors think reflects weakness in China's economy and hence in demand for oil. Though Mr Atkinson acknowledges that possibility, he thinks this risk is overplayed: figures on January 13th showed China imported a record 6.7m barrels a day (b/d) of oil in 2015.

The trouble, though, is that apart from India and a wobbly China, demand is not looking promising anywhere this year. Europe is unlikely to see a repeat of its relatively strong oil-demand growth in 2015. Although America's economy continues to grow, tightening fuel-efficiency standards cap the upside. Drivers in the Middle East, where fuel use rose last year, are more likely to keep their cars off the road after their governments raised petrol prices or eliminated fuel subsidies altogether to shore up public finances. "There are now considerable uncertainties about oil-demand growth globally," Mr Atkinson says.

Adding to the gloom, producers are not turning off the taps as fast as people expected. The latest rout stems from an OPEC meeting in early December in which the producers' cartel abandoned output quotas. Saudi Arabia, which used to curb output to rescue prices, now refuses to play that role, and instead is bent on driving high-cost producers out of business. Saudi officials privately say that they expect the price of oil to rebound late this year or early in 2017 as global output begins to lag behind demand. The natural decline as fields are depleted saps production by at least 5% a year, they argue, even before accounting for the effects of reductions in new drilling by embattled oil firms.

But there remains huge uncertainty about how much Iran will export when UN sanctions are lifted, possibly in coming weeks. What is more, Mr Atkinson says, production continued to rise last year from high-cost wells in the Gulf of Mexico and Canada's tar sands because, however much oil prices fell, operating costs were lower. "The habit of the industry is to keep producing for as long as you can. Anyone who blinks first is handing a lifeline to their competitors," he says.

To be sure, production in America is falling, thanks chiefly to cutbacks by struggling shale-oil producers. With oil prices at $30 a barrel, America's oilmen will have an even tougher task shoring up output by drilling new wells, and will face further pressure from their bankers to reduce borrowing. AlixPartners, a consultancy that advises troubled firms, says more will go bankrupt this year. It forecasts a funding gap of $102 billion this year between American oil firms' projected cash flows and their interest payments and capital spending, up from $83 billion in 2015. It said the downturn "could be one of the most severe and prolonged ever".

But however big the cutbacks, they are not yet enough to reduce the glut (see chart on previous page). Global inventories are at record highs, the IEA says. The Energy Information Administration, an American government agency, predicts they will rise a further 700,000 b/d before supply and demand begin to balance out in 2017.

It adds that storage at Cushing, Oklahoma, which can hold 73m barrels, is at record highs of 64m barrels. Brian Busch of Genscape, an industry data gatherer, says it's a similar story in China, with ships carrying oil spotted waiting at anchor out at sea because storage tanks appeared to be full. Based on the high level of stocks, Mr Busch thinks it could take up to a year and a half before the bear market ends. The only certainty is, the quicker the oil price falls, the sooner that day will come. ■

Lotteries

High stakes

Lotteries pull in punters by making it harder to win

A load of balls

THE billboards advertising Powerball, an American lottery, were not big enough to display the size of the jackpot in the draw that took place on the evening of January 13th: $1.6 billion. That prize will be split among the three winners, who bought their tickets in California, Florida and Tennessee. For several days beforehand, Lotto fever gripped the nation: long queues formed outside shops selling tickets and on the day of the draw sales were ringing up at a rate of $787,000 per minute. Powerball's website had some advice for its frantic customers: "Swinging a live chicken above your head while wishing for the future numbers does NOT work."

A more useful bit of counsel would have been that buying a lottery ticket is fun but financially foolish. A punter buying a Powerball ticket has a 1 in 292m chance of winning the jackpot. Buyers are around four times more likely to be killed by an asteroid impact this year. Lotteries are designed to be a bad deal, hoovering up participants' money in order to plug state budgets and fund good causes.

What's more, the designers are getting better at their jobs. Victor Matheson, professor of economics at the College of the Holy Cross in Massachusetts, explains that sales are much more sensitive to the size of the jackpots than to the likelihood of winning. After a particularly big prize is won, there is a halo effect, whereby ticket sales remain high even though the jackpot has reverted to the norm. So lottery designers go to great lengths to boost the size of the big prize.

One easy trick is to ▸▸

High rollers

Powerball jackpot, $m

Source: The Lotto Report

COMPETING TEAMS

John Campbell, Tong Liu and David Gonzalez

Furqan Suhail, Swati Tehlan and Bader Buhamad

Mei Li, Chris Moore and Jon Dages

Chace Jones, Holly Preslar and Matt Drage

Jorge Gaspar, Allysa Kiedpool and Chris Gillespie

Robert Mills, Reed Janousek and Anthony Cerasoli

Rohan Singh, Vibhu Katiyar and Arjun Agarwala

Adam Strott, Felix Haubold and Dennis Thiele

Martin Ayala, Stephanie Grant and Yettie Oguntuase

James Lewandowski, Dinesh Reddy Depuru and Mengxia Sun

Ravpritpal Kohli, Yongxiao Chen and Zhexi Gu

Eric Wen, Daniel Shun and Kay Tu

Thomas Gilmore, Hesham AlSaati and Michael Mahoney

Jesse Berger, Krysten Connely and Saad Rahman

Sargis Sargsyan, Xiaorui Wang and Max Zschoch

Campbell Oreglia, Tommy Baldacci and Azmeena Zaveri

Andre Ligorio, Muhan Tian and Hao Li

Adolfo Gatti, Angelica Nouhi and Nathan Cohen-Fournier

Ricky Triana, Megan Shulby and Lee Pusateri

Dayne Jervis, John Ross and Andy Ladygin

Kristopher Khalil, Ruiqing Zhang and Ryan Cohagen

Peter De Fina, Cole Buckley and Lindsay Root

Taylor Ternullo, Olawale Olaleye and Junaid Ahmed

Dave Fuxa, Matthew Clare and Katherine Mitenko

Jay Sims, Meiyan Song and Jiacheng Di

Chris Widmer, Paige McKone and Jianfei Pan

Robert Kuang, Christopher Faulkner and Ian Nichols

Sam Gray, Manuel Rivera and Yunfeng Pi

Boua Keo Chang, Sandra Pastrana and William Inglis make the jackpot seem bigger than it is. The sums advertised by Powerball represented the pre-tax value over 29 years of an annuity that winners can opt to receive. If the winners choose a lump sum instead, they get just over 60% of that, on which they would have to pay tax of at least 40%.

Another approach is to boost the jackpot by expanding a lottery's geographic scope, and thus its potential pool of participants. Powerball and Mega Millions, the two largest American lotteries, have both taken this tack. By forging alliances among state lotteries, they are both now available to residents of 44 of America's 50 states. Similarly, EuroMillions, a lottery that covers nine European countries, has twice offered a jackpot of €190m ($206m).

Powerball's record-breaking jackpot stems mainly from a riskier strategy, however. If the chances of winning become so slim that no one guesses the right combination of numbers, the prize rolls over, growing to a vast sum. Both Powerball and the British national lottery changed their rules to this effect in October, by increasing the number of balls in the draw. In Britain the change slashed the chance of a winning guess from 1 in 14m to 1 in 45m. In America it fell from 1 in 175m to 1 in 292m.

There is a catch: make it too hard to win a lottery, and punters will lose interest. So even as lottery designers have been lowering the chances of winning the jackpot, they have been boosting the chances of winning lesser prizes, notes David Spiegelhalter of the University of Cambridge.

As larger jackpots draw more customers, the chance that someone will win shoots up. But so does the chance of multiple winners, which lowers the expected value of a ticket. In the run-up to this week's draw, Powerball's organisers expected that roughly 86% of all possible numerical combinations would have been bought, suggesting sales of some 570m tickets. With that many tickets sold, the chance of a winner having to share the pot with others (as indeed happened) was around 68%, compared with just 4% for more typical sales of 25m tickets.

Only very rarely have so many players piled in that the expected value of the jackpot has fallen, and mostly when there are huge jackpots on offer. But the affliction is set to become more common. Britain's National Lottery enjoyed unprecedented demand in the run-up to the record £66m ($95m) jackpot won on January 9th. Sales for the 28 Powerball draws since its rule change in October (excluding the draw on January 13th) were 134% higher than for the 28 preceding draws. According to Mr Matheson, the customers who are drawn in by higher jackpots tend to be richer than the average. So while lotteries may be snaffling ever more money for an ever smaller chance of striking it rich, at least the burden is tilting away from the very poorest. ■

Poor financial decisions

Anti-choice

SAN FRANCISCO

Regulators are keen to stop people making mistakes

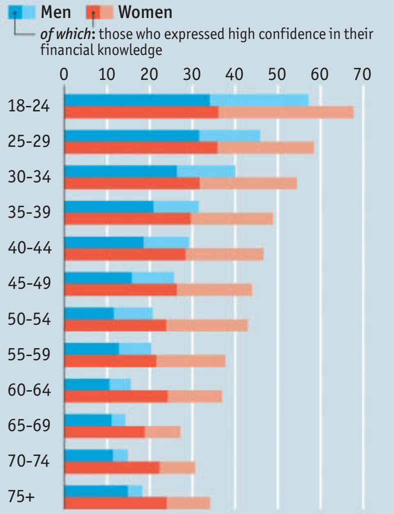
FOR centuries liberals have argued that people should be trusted to make their own decisions. Regulators increasingly want to protect them from themselves. In the wake of the financial crisis, the administration of Barack Obama established a new agency, the Consumer Financial Protection Bureau. The CFPB has so far focused on regulating mortgages, for example by making their terms more digestible. But it is now weighing stricter curbs in other markets: new rules on payday loans are expected in the first quarter.

Other new rules are on the horizon, too. The Department of Labor is proposing a "fiduciary rule" for financial advisers who help Americans to invest their pension pots. Currently, many advisers earn juicy commissions by recommending costly products. A study by the White House suggested such "conflicted" investment advice costs consumers roughly one percentage point in returns a year, and that clients are largely unaware of the costs. The new regulations would require that advisers always act in the best interest of clients. Republicans tried, and failed, to kill the proposal in budget negotiations late last year, and the fight isn't over.

Economists might once have pooh-poohed the bureaucrats. Most assumed that individuals act rationally when making decisions. But when it comes to head-scratching financial choices—how much to save, where to invest—that assumption looks ever more iffy.

Dollars and senescence

Financial illiteracy in America, by gender and age
2012, %



Sources: Annamaria Lusardi, George Washington University; *National Financial Capability Study*

Take mortgages. Most American home loans last for 30 years, with the interest rate fixed. When rates fall dramatically, most borrowers would be better off if they refinanced. Yet too few do. In 2013 42% of American borrowers paid rates exceeding 5%, when the average rate paid on new mortgages was less than 4%. People make similar mistakes when saving, failing to take advantage of their employer's obligation to contribute to their pensions, for instance, and stashing money in taxable rather than tax-free accounts.

In a lecture at the annual conference of the American Economic Association earlier this month, John Campbell of Harvard University asked what liberal policymakers should do in the face of these apparent errors. American financial literacy is very low, he noted, particularly among the young. Over half of American men aged 18-24 and nearly 70% of women of that age cannot correctly answer at least three of five basic financial questions, such as whether it is riskier to invest in a single stock or in a mutual fund (see chart). Savvy increases with age, though so does overconfidence. People who wrongly think that they know what they are doing are particularly liable to make costly mistakes, as they will not seek help.

Many now worry that firms that exploit the ignorance of such consumers will rack up profits, or use the revenues to subsidise juicy deals for other customers. Financial mistakes can also make inequality worse, if poorer folk are more likely to make them. In "Capital in the Twenty-First Century", Thomas Piketty speculated that richer investors earn higher returns, and showed that this is true of university endowments. Recent work has uncovered a similar phenomenon among individuals. Mr Campbell and his colleagues analysed returns between 2002 and 2012 for investors with an account at an Indian securities depository. They found that the "Piketty effect"—fatter accounts earning greater returns—accounted for 43% of the variation in investors' income.

What to do? One possible solution is financial education. Yet the evidence that this works is surprisingly weak. A recent state-by-state study found that it had no beneficial effect, while using up valuable classroom time. More paternalistic interventions are rightly controversial: a right-wing campaign group recently ran an attack ad against the CFPB, portraying it as a Soviet-style bureaucracy crushing the dreams of hapless borrowers. Some instead prefer the idea of "nudging" people towards better decisions, while preserving their freedom to choose. In weighing up the merits of liberty and protection, it is easy to make a mistake. ■

SoFi

So far, so good

A fintech darling offers a new model—one not without risks

WHEN a financial firm boasts of offering the biggest loans at the lowest rates with the slimmest collateral, it has either devised the underwriting equivalent of a better mousetrap or is setting itself up for an almighty fall. At first glance SoFi, a startup based in San Francisco, looks like it is up to the sort of tricks that would make even a pre-2008 banker blush: lending youthful customers $975,000 to buy a $1m house, say. Yet few "fintech" firms seem quite as threatening to America's incumbent banks.

Social Finance, as it once was, started life in 2011 as a way to match students who needed money to pay for a degree at Stanford with alumni with lots of dough. Engineering graduates from one of America's grandest universities, the firm's founders reasoned, were unlikely to welch on their debts, especially with Silicon Valley booming. That allowed SoFi to price student loans below even the notionally discounted rates available under government schemes, attracting lots of customers. Well-to-do alumni, meanwhile, were happy to lend via SoFi's platform, understanding what a safe bet the borrowers were. The firm also raised money to invest in its own loans, largely to package them as securities it could then sell on, a variant on "marketplace lending", a crowded field in fintech.

SoFi quickly expanded—to borrowers from other prestigious universities, and to other forms of lending. Having provided many of its customers with their first loans, SoFi then worked to cater to their expanding financial needs after graduation, offering them personal loans and mortgages. Again, the firm's lending algorithms ignore the rigid credit scores used by banks in favour of common-sense indicators of ability to pay. High Earners Not Rich Yet, or HENRYS, are its main customer base.

To distinguish itself from banks, SoFi smothers customers with personalised service. Its 100,000 or so borrowers are "members", invited to parties thrown by the firm. Entrepreneurs among them can apply to have their loan repayments suspended, and make use of SoFi's offices for meetings with investors. Lost your job? Whereas a bank might foreclose, SoFi will tap its network to help you find a new one. Mortgages can be obtained by pecking at a smartphone and sending snaps of required documents. Pen-and-ink signatures are for fuddy-duddies.

The easygoing branding belies an outfit that can hold its own on Wall Street. Mike Cagney, its founder and boss, is a former trader at Wells Fargo. Like many other fintech lending operations, SoFi obtains the money it lends from hedge funds and investment banks. Its balance-sheet is turned over every two to three weeks; some of the loans it issues get sliced, diced and repackaged in much the same way subprime mortgages once did.

Most fintech startups aim to do one thing well and sell that service as widely as possible. SoFi is the opposite: its customer base is focused (though it now lends to graduates of over 2,200 schools) but it is busy diversifying its offering. Beyond student loans and mortgages, it aspires to manage its customers' wealth and offer them insurance. It even wants to launch something akin to a current account, without officially becoming a deposit-taking institution.

But SoFi faces three obstacles if it is to keep growing fast enough to justify a recent investment that valued it at around $4 billion (it is not listed). The first is growing without lowering its lending standards. Of the $6 billion it has lent in total, more than $4 billion went out the door in 2015. Such rapid growth usually comes with more than a few dud loans. Mortgages seem an obvious concern. Banks like to lend to buyers with a 30% deposit. SoFi is happy with 10%—and now has a scheme to help borrowers raise most of the down payment too, in exchange for a slice of the increase in the value of the house. Can that be sensible, given that its loans are concentrated in pricey property markets, which are likeliest to deflate?

Mr Cagney says his customers will keep paying even if their houses are worth less than their mortgages. That is placing an awful lot of faith in Americans, who have walked away en masse from underwater mortgages before, and particularly in millennials, a generation often derided for its feckless and unpredictable behaviour. Like other young fintech lenders, SoFi has never had to weather a recession.

The second obstacle is rising interest rates. SoFi has made a packet by refinancing student loans which were in effect mispriced by government programmes. If interest rates rise substantially, the scope for existing borrowers to save money by refinancing will disappear. Mortgage refinancing will also dry up. Mr Cagney says he assumes much higher interest rates are unlikely anytime soon and that the firm will have diversified enough to handle them by the time they appear.

The third is regulation. Especially if it starts gathering something resembling deposits, SoFi will have many of the attributes of a bank while insisting it should not be regulated like one. In part it simply wants to skirt the red tape that comes from accepting deposits, along with the government guarantee they attract. But there is also a libertarian bent to the shaggy-haired Mr Cagney, who clearly believes that governments meddle too much in markets. The brief he received from his biggest investor, SoftBank, which led a $1 billion funding round in September, is to reach a valuation of $100 billion or go bust, but not to settle for the status quo. That is the kind of talk that might panic regulators, who prefer financial institutions to be boring. ■

Free exchange | Fight or flight

China's leaders face a menu of unappealing exchange-rate options

THE past six months have been hard on the reputations of China's economic managers. Their attempts to bring troublesome stockmarkets to heel border on slapstick. The uncertain handling of the country's exchange rate, on the other hand, is no laughing matter. Unexpected wobbles in the value of China's currency roil global markets. Yet no exchange-rate policy offers a sure and safe route forward.

Some see a resemblance in China's predicament to the Asian financial crisis of the late 1990s. Then, fast-growing countries like Indonesia, South Korea and Thailand faced outflows of capital as investor sentiment flipped from bullish to bearish. Governments were forced to abandon currency pegs as their foreign-exchange reserves dwindled. Massive depreciations led to financial havoc, as asset prices tumbled and these countries' enormous debts ballooned in dollar terms. Painful recessions ensued.

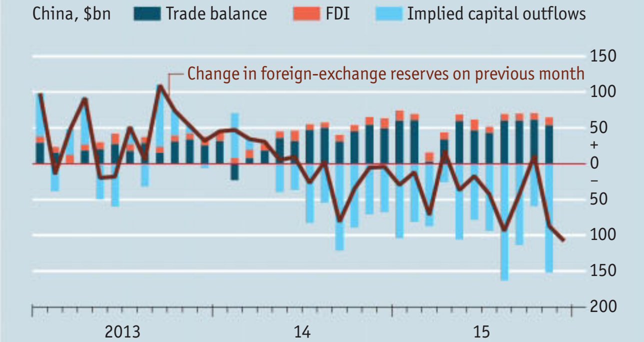
The lessons of the Asian crisis were not lost on China's leaders, however. During its great boom, in the 2000s, China maintained tight capital controls, permitting foreign direct investment while eschewing "hot money". The People's Bank of China (PBOC) intervened heavily in foreign-exchange markets to keep the yuan cheap, building up $4 trillion in reserves in the process. Where the crisis countries of the 1990s ran persistent trade deficits, China kept its current account in surplus; thus adding to, rather than draining from, its foreign-exchange reserves.

Despite these prophylactics China now faces its own financial crunch. Its reserves are down by almost $700 billion from their peak, thanks to capital flight and sinking asset values. Determined money has long seeped out of China's stockade; signs of a bigger leak emerged in the latter half of 2015. In December alone reserves fell by more than $100 billion. Capital slipped abroad at an annualised pace of $1 trillion in the second half of 2015. In the third quarter, China's outward foreign-direct investment rose from $29 billion to $32 billion while inward investment fell sharply, from $71 billion to $39 billion; at $7 billion, the net flow of inward investment was the lowest since 2000.

An anti-corruption drive, slowing growth and rising American interest rates are all partly to blame. Once begun, however, capital flight can be hard to control. Chinese citizens can move a maximum of $50,000 abroad each year. If just 5% of the population used its quota, China's reserves would evaporate. The authorities are desperate to prevent such an outcome, and the severe tightening of domestic credit conditions it would entail, but there is no painless way to do so.

Yuan-way bet

China, $bn



Sources: National Bureau of Statistics of China; State Administration of Foreign Exchange; *The Economist*

Many economists reckon China will allow the yuan to fall. After all, the currency has appreciated by 20% against a broad range of currencies since 2012, thanks to rising wages and a peg to the strengthening dollar. Yet a sinking yuan poses threats. Roughly $1 trillion of China's accumulated debts are denominated in dollars. That is small beer next to $28 trillion in total Chinese debt. But because Chinese firms are so highly leveraged, even a small rise in the cost of servicing dollar-denominated debts could force some into asset sales or bankruptcy. That, in turn, would encourage more capital outflows, depressing the yuan's value still further.

The economy could expect only a modest boost to exports for its trouble. Since much of the material that goes into Chinese exports is itself imported, devaluation does not boost exports that much. It also squeezes the purchasing power of Chinese consumers and thus slows the rebalancing of its economy from investment to consumption, while irking America and encouraging competitive devaluations elsewhere.

Alternatively, China could hold the yuan's value steady. The big depreciations of the late 1990s were done out of necessity rather than by choice, after all. Investors fleeing from Thailand, for instance, converted their baht to dollars on their way out. When the government ran short of greenbacks, it had no option but to repay investors with many fewer dollars per baht. Yet China still has $3.3 trillion of hard currency in reserve.

Stability poses its own problems, however. If China resists depreciation and capital outflows continue, the erosion of reserves could puncture the PBOC's air of invulnerability, leading to faster capital leakage. A commitment to a strong yuan could also constrain China's monetary policy. Cuts to interest rates tend to diminish a currency's value. Any attempt to maintain it under such circumstances hastens the depletion of reserves.

Why not strengthen capital controls, in that case? In 1998 Malaysia imposed controls on fleeing investors and outperformed some other crisis-hit economies, such as Indonesia. The government is cracking down on the underground financiers in Macau and banks in Hong Kong that help sneak Chinese cash past the controls. If ordinary citizens began moving savings abroad in greater numbers, China could reduce the limit on foreign transfers. Yet backtracking on planned reforms would be a huge embarrassment for China's leaders, who have laboured long and hard to raise the yuan's status internationally. It would also deter foreign investors, worsening the short-run foreign-exchange picture and long-run growth prospects.

Faith no more

Ample reserves, capital controls, a trade surplus and a determinedly interventionist state mean that China is a long way from a full-fledged crisis. Neither is all the apparent capital flight as worrying as it might appear: purchases of foreign securities by Chinese corporates may look like a stampede for the exits, but can serve to hedge firms with foreign-currency debts against depreciation. But there is good reason for nervousness, in China and elsewhere. All the countries afflicted by the Asian crisis combined accounted for a much smaller share of global output in 1998 than China does now. And China seems not to have absorbed the most important lesson of that crisis: that confidence matters. ■

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Counter-terrorism

Shrinking the haystack

Software is helping the search for guerrillas' and terrorists' safe houses and weapons caches

WHEN selecting a base for preparing attacks, jihadists should choose flats that are on the ground floor, hard to peer into, not near government buildings and unsecluded in a newly built neighbourhood. So advises "Declaration of Jihad Against the Country's Tyrants", an al-Qaeda manual found in Manchester in 2000. Flats conforming to these specifications make it easier to dig secret storage areas under the floor, to melt away into the city and to avoid attention from neighbours who, were they longtime residents, might take a greater interest in newcomers.

Thanks to the clever use of software, tips from this and other manuals obtained by intelligence agencies are proving increasingly valuable to counter-terrorist forces deployed both in the West and abroad. Technologists are modifying existing mapping software to produce "geographic profiling" programs that show which areas should be searched or put under surveillance first in the hunt for hideouts, bomb workshops and weapons caches. "Declaration of Jihad Against the Country's Tyrants", for example, was a cornerstone of Building Intent, a geoprofiling program developed by Alper Caglayan of Milcord, in Massachusetts, for America's defence department.

In addition to terrorist guidelines on which buildings to use, software such as Building Intent is fed the co-ordinates of bombings and other actions thought related to the group of interest. These are useful because such groups are often reluctant to conduct operations far from their bases, be it to save time, to remain in familiar or friendly territory, or to reduce the likelihood of encountering a checkpoint.

SCARE story

At the same time, such people also tend not to operate too close to base, in the hope of sparing it scrutiny. Data from years of home-made-bomb (IED, or "improvised explosive device") attacks and discoveries in Iraq, analysed by Roy Lindelauf of the Dutch Defence Academy, suggest that those planting bombs in urban areas almost always carry the device at least a couple of hundred metres from where it was stored, though rarely much more than a kilometre. Also—suicide missions aside—few IEDs are built, stored or detonated in the territories of rival groups. Data from as few as five IED blasts can thus more or less pinpoint the location of a workshop or cache.

What is true of IEDs is true also of those places from which insurgents launch mortar rounds and rockets. Taliban fighters in Afghanistan, for example, do not like to tote their weaponry far, lest they be caught or killed before getting a good opportunity to use it. The American army has therefore developed, for use in Afghanistan, geoprofiling software called SCARE-S2. This crunches data on the times and co-ordinates of enemy attacks, analysing these in the context of information about the country's terrain, road network and ethnic make-up, as well as what is known at the time of the shifting pattern of tribal alliances in the area of interest. The software then identifies a handful of villages that are most likely to host the commander behind the attacks or the weapons cache used to make them.

Details about SCARE-S2's performance are, understandably, scarce. But a publicly available analysis by Paulo Shakarian, who led the program's development, used data on hundreds of earlier Taliban attacks in Kandahar and Helmand provinces to test its effectiveness. The areas this test flagged up as worth searching had an average of 4.8 villages in them, and NATO records of discoveries of Taliban commanders and weapons caches showed that the density of such discoveries in these flagged areas was 35 times that of discoveries in the two provinces as a whole.

Guerrillas and terrorists are not fools. They are aware they may be under surveillance, and take what they hope are appropriate counter-measures. They are unlikely, for example, to make calls from inside a safe house in which they are living. Instead, they typically make calls from ▸▸

The Richard Casement internship

We invite applications for the 2016 Richard Casement internship. We are looking for a would-be journalist to spend three months of the summer working on the newspaper in London, writing about science and technology. Applicants should write a letter introducing themselves and an original article of about 600 words that they think would be suitable for publication in the Science and Technology section. They should be prepared to come for an interview in London or Washington, DC, at their own expense. A stipend of £2,000 a month will be paid to the successful candidate. Applications must reach us by January 29th. These should be sent to: casement2016@economist.com roughly spaced out nearby locations, taking care not to call too often from the same spot. They hope, thereby, that if their activity is being monitored, it will appear random and therefore meaningless.

Spacing things out like this is, in mathematical fact, anything but random: that, in itself, is suspicious. But true randomness would also be odd. As Ian Laverty, the boss of ECRI, a geoprofiling-software firm in Vancouver, observes, innocent phone calls have geographical patterns, because people have routines. Those who take steps to elude the authorities thus often end up unwittingly creating a profile of where their home base is—a profile that a piece of ECRI's software called Rigel Analyst can spot. This software is used by more than 90 intelligence agencies around the world. Its applications include searching for Taliban rocket caches in Afghanistan.

Geoprofiling is thus already an important counter-insurgency tool. It is likely to become more so in the future, because the number of pertinent actions that can be plotted by it is booming, according to a geoprofiler in Denmark's intelligence apparatus who prefers to remain anonymous. This operative uses geoprofiling software called ArcGIS that analyses Global Positioning System (GPS) data provided unwittingly by insurgents' growing use of smartphones and other gadgets that are equipped, by default, with GPS kit. For example, simply right-clicking on propaganda images posted online often obtains a GPS "geocode" that reveals where the picture was taken. "I'd like to keep my job, so we won't say any more," his colleague chimes in.

Here I go again

Other experts are more forthcoming. Geoprofiling software is now being fed the locations of extremist groups' leafleting and graffiti, says Kim Rossmo, who led the development of Rigel Analyst and also trains intelligence and military geoprofilers in America, Australia, Canada and the Netherlands. The locations of muggings and robberies are also analysed, because many terrorists finance themselves from the proceeds of such crime.

Even data on income distribution are plugged into geoprofiling software according to Matthew Degn, who was once an adviser to the Iraqi interior ministry's intelligence directorate. The poorer an area is, he says, the more likely a flat there houses people paid to store weapons or, say, to snip off countless match heads to make bombs. The likelihood increases if there have been lots of violent deaths in that quarter, for bloodletting often spawns extremists, or at least acceptance of them.

Geoprofiling works especially well in countries like Iraq, in which sectarian splits limit where people are willing to live or work. It is, nonetheless, still a useful tool in places, such as Western countries, where patterns of belief might be thought of as less tied to geography. As Brent Smith, of the University of Arkansas' Centre for Advanced Spatial Technologies observes, right-wing extremists rarely hole up near gay bars, abortion clinics and other places they consider "pollutants of urban life". In the matter of politically motivated violence, the ideas thought worth killing and dying for vary. To the geoprofiler it makes no difference. ■

Illumination

Light-bulb moment

A bright idea to save a beloved technology from the dustbin

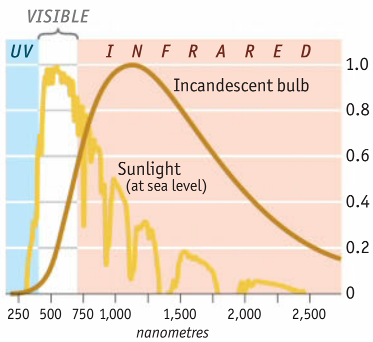
IT IS getting ever trickier to find incandescent bulbs. Almost all rich countries are phasing them out because they squander so much energy as heat rather than visible light. But they have ardent fans. Unlike many of their would-be successors, such as compact fluorescent lights (CFLs) and light-emitting diodes (LEDs), they cast a full spectrum of colours reminiscent of daylight, need no time to warm up and can be dimmed. Ahead of the European phase-out in 2009, for example, Vaclav Klaus, the Czech president, urged people to hoard a lifetime's worth.

Such stockpiling may have been premature. This week, researchers at the Massachusetts Institute of Technology, led by Marin Soljacic, demonstrated a modified incandescent bulb that maintains the technology's advantages while vastly improving its energy credentials, giving it the potential to trounce CFLs and LEDs.

Incandescent bulbs are so named because their light comes from heating their central filaments up until they glow. The colour of such a glow (ie, the wavelength of the radiation) depends on how hot the glowing object is. The sun, whose light an incandescent bulb attempts to approximate, is hotter than a filament, so radiates more strongly at shorter wavelengths (see chart). But in both cases the visible light produced is accompanied by a lot of infrared—or heat, as it is more familiarly known. Dr Soljacic has therefore sought a way to let the former pass while reflecting the latter. This reflected infrared heats the filament, meaning less electricity is needed to keep that filament at a given temperature and thus at a given visible-light output.

Over the rainbows

Irradiance by wavelength, relative to peak



Source: *The Economist*

Prior efforts to accomplish the same thing, stretching back to the 1970s, tried to do so with some kind of coating on the bulb itself. Dr Soljacic and his colleagues realised that the filament would capture more reflected heat if it were flattened out rather than being made from a thin coil of wire, as is now the case, and if the reflection happened nearer to it.

To design a reflector suitable to the task, the team relied on an idea similar to that used in the anti-reflection coatings applied to spectacle lenses. These coatings are made of thin layers of materials of slightly different refractive indices (that is, light moves at slightly different speeds within them). The layers' thicknesses and compositions are chosen so as to force light waves to add together or subtract from one another as they are reflected from the various layers. This process of interference is governed by the wavelength of the light in question, so it can affect light of different wavelengths differently. And visible light and infrared light do have different wavelengths (infrared waves are longer).

Engineering a stack of layers that can pass visible light unchanged and reflect infrared—and do so from all of the angles from which the filament radiates—was no easy task. For that, the team used a computer program which was able to learn from its mistakes to work out what material each layer should be made from, and how thick it should be. Their first attempt involved stacks of 90 alternating layers of silica and tantalum oxide, two common coating materials, of varying thicknesses, from 17 to 426 nanometres (billionths of a metre). As they report in *Nature Nanotechnology*, a pair of such stacks, arranged on either side of the flat filament, led to a bulb that converted about 6.6% of the electrical energy running through it into visible light. That is far better than the 2% or so of a conventional incandescent bulb, and is comparable with low-efficiency LEDs. Their calculations show that adding layers of aluminium oxide to the mix and increasing the number of layers to 300 should increase that efficiency to 40%, far better than even the most efficient fluorescent lights.

Whether Dr Soljacic's process can be industrialised remains to be seen. But if it can, then the likes of Mr Klaus may come to find that their hoards are worthless. ■

Climate change

Stopping the big burp

HAMILTON

Researchers in New Zealand are trying to prevent livestock belching methane

MENTION the phrases "greenhouse gases" and "global warming" in the same breath and most people will think of the carbon dioxide produced by burning fossil fuels such as coal and oil. But CO_2 is not the only greenhouse gas and fossil fuels are not the only source of such gases. A surprising and neglected one is the world's ruminant livestock—cattle, sheep and so on. Ruminants play host to bacteria that digest the otherwise undigestible grass and other cellulose-rich plants those animals eat, making nutrients such as fatty acids available to the beasts the bacteria inhabit.

But the complicated ecosystem of a ruminant's stomach includes other creatures, too. Many are methanogens—organisms that react carbon dioxide with hydrogen made by the cellulose-digesting bugs, to create water and methane. A lot of methane. A hundred million tonnes of it a year for all the world's domesticated ruminants, according to the United Nations' Food and Agriculture Organisation. And methane is a greenhouse gas 25 times more powerful than CO_2. Altogether, according to estimates by Andy Reisinger, of the New Zealand Agricultural Greenhouse Gas Research Centre, methane emitted from livestock is responsible for about 14% of global warming since the beginning of the Industrial Revolution.

Pardon me for being rude!

New Zealand is one of the guilty parties. Its 40m head of sheep and cattle mean that a third of its contribution to global warming is ruminant-belched methane. But Peter Janssen of AgResearch, the country's main farming-science institute, hopes to change this. He and his colleagues are looking for ways to reduce the amount of methane the country's animals burp up.

Their first approach is to develop methanogen-specific drugs. Though methanogens look like bacteria, they belong to a completely different branch of life, the archaea. That means their enzymes are different from bacterial ones (and also, of course, from mammalian ones), so there is a reasonable hope of finding chemicals which interfere with methanogen enzymes while leaving those of both bacteria and host animal unaffected. Dr Janssen and his team have thus been screening thousands of compounds that might block the action of enzymes methanogens need to survive. A handful seem to, and are now being put through their paces—firstly in bubbling bottles of rumen contents (the rumen is one of the animals' stomach chambers), and then in real cattle and sheep. So far, the best of them reduce methane emissions by 20-30%, with no apparent detriment to the animal.

The problem with this approach is that it requires animals to be treated continuously, to stop the methanogens returning to full strength. This is fine when beasts are being farmed intensively, as is often the case in Europe (indeed, DSM Nutritional Products, a European firm, is working along the same lines). But cattle in New Zealand, and sheep everywhere, are normally put out to pasture, so Dr Janssen has a second string to his bow: vaccination.

To do this, his team identified and synthesised proteins found on the surface of ruminant methanogens, and injected these into sheep and cattle, to try to raise antibodies to those proteins. In that they have succeeded. The desired antibodies turn up in both the blood and the saliva of injected animals. At the moment, however, these antibodies work against methanogens only in test tubes. The vaccinations that raise them do not seem to reduce methane output.

A third approach is to breed animals with a lower propensity to burp methane. Among sheep, for example, some animals emit as much as 10% less of the gas than others. These low emitters have smaller rumens, meaning the contents pass through faster. This limits production of the hydrogen that is methanogens' food source without, apparently, limiting that part of the digestive process which feeds animals—for sheep with small rumens do not grow more slowly than those with large ones. Rumen size, moreover, is heritable. This means that a breeding programme for low-emission sheep is a plausible idea.

Dr Janssen's fourth approach is to alter what animals eat. Certain food plants—forage rape and fodder beet, in particular—curb methane emission by as much as 25% compared with the belchings of animals fed on grass and clover. However, though rape and beet are planted by some farmers as supplementary food crops, particularly for winter forage, they do not, unlike grass and clover, keep growing after being grazed. They also have a mixture of nutrients different from grass and clover, and take more effort to establish. Most farmers, therefore, would require quite a lot of persuading to use them more widely.

It was not me, it was my food...

In New Zealand, such persuasion is being discussed. Its most probable form would be what is known memorably, though inaccurately, as a fart tax (most ruminant methane is belched, not farted). Whether such a tax could actually pass through the political process of a country so dependent on farming is moot. But if an effective way of dealing with methanogens were developed, farmers might find it in their interests to adopt it anyway. Some microbial ecologists think methanogens exclude other microbes which could produce yet more fatty acids for the host animal to turn into milk or meat. If that were true, and someone such as Dr Janssen were to come up with an effective way to suppress them, no persuasion at all would be needed.

One of the simplest answers, though, may just be better husbandry. Clever pasture management, and the breeding and victualling of animals so that they produce more milk and meat for less fodder, means New Zealand's production of milk has trebled since 1990 while methane emissions from dairy cattle have only doubled over that period. Similarly, the number of sheep in the country has almost halved, with a concomitant emissions reduction, yet as much lamb and mutton is produced as ever. Reduced release of methane may only be a by-product of these gains in efficiency, but it is a welcome one. ■

Bird navigation

Obscure truths

Air pollution seems to speed birds up, not slow them down

HIS was a daunting task. It was October 1918 and, with the 77th Infantry Division cut off from all other American forces, Major Charles Whittlesey sent him to inform allies of the soldiers' predicament. Shot after shot was fired from the trenches as he made his perilous journey. Then, just as he reached Rampont, the local headquarters, a bullet severed his leg. He died eight months after the war ended, and received the Croix de Guerre posthumously, for the message he delivered had saved the lives of 194 men. He was then stuffed and shipped to the Smithsonian Museum, in Washington, DC, to be remembered as Cher Ami, the bravest homing pigeon of the first world war.

Being shot at will hasten anyone's journey. But might the thick smoke of battle have helped Cher Ami on his way too? That, at least, is the suggestion of a study just published in *Scientific Reports* by Li Zhongqiu of Nanjing University, in China, and Daniel Blumstein and Franck Courchamp, who both work at the University of California, Los Angeles.

Dr Li and his colleagues have sought to study how air pollution shapes the behaviour of migratory animals by collecting information on homing-pigeon competitions organised by the Chinese Racing Pigeon Association. In particular, they have analysed 415 pigeon races run between the same two points, 300km (200 miles) apart on the heavily polluted North China Plain, during the autumns of 2013 and 2014. They noted rainfall, wind and air quality during each race, and expected to see numerous delays and lost birds on days when the smog was exceptionally thick. But that is not what they found.

Of the 1,591 pigeons released in the races the team analysed, 715 made it home. This 45% return rate remained the same regardless of whether the air was thick with pollution or not. What did change was the time it took the pigeons to return to their natal lofts. When the sky was a thick soup of noxious smog, with an air-quality index of 500, pigeons returned home at an average speed of 68.2kph. By contrast, when the index value was zero and the air pure, the birds flew at only 55.6kph.

Why the birds travel faster under terrible conditions is unclear. Homing pigeons are well known to use the sun, magnetic fields and infrasound to navigate but, in recent years, researchers have started speculating that they use odours too. With this in mind, Dr Li and his colleagues suggest that the birds have come to learn what the pollutants common to the biomass boilers and power plants found in different parts of northern China smell like, and are using this information to navigate.

They do, however, have an alternative hypothesis. This is that the birds are flying faster to get out of the vile conditions as quickly as they can. One reason could be the obvious fact that thick pollution is hard to breathe, but the researchers argue that fear may also be a factor. Thick clouds of haze make it nearly impossible to detect predators, and pigeons may not be smart enough to understand that this lack of visibility works the other way around, too. They thus just want to get the hell out of there as fast as they can—quite possibly the true motive of Cher Ami as well. ■

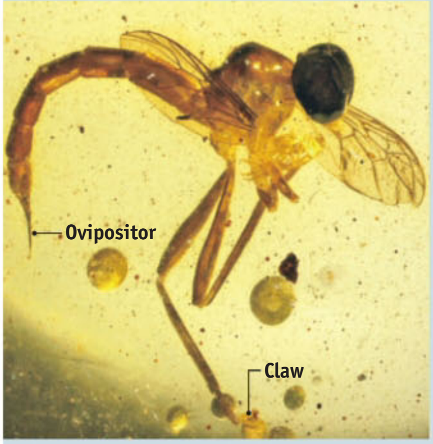
Lieutenant Pigeon

A fossil parasitoid

Getting to the point

An ancient fly whose grubs lived in other insects

ONE of the nastier ways an insect can make its living is as a parasitoid. Female parasitoids lay their eggs inside other insects, usually at the larval stage of the host's life cycle. The grub that hatches then eats its host alive, reserving the vital organs until the moment when it is, itself, ready to pupate. Most parasitoids are wasps, but some are flies, and this fossil, dubbed *Zhenia xiai* by its discoverer, Bo Wang of the Chinese Academy of Sciences in Beijing, is an early example of such an insect.



Not all prehistoric monsters were big

The specimen shown, which Dr Bo describes in *Naturwissenschaften*, was trapped 99m years ago in tree resin that has solidified into amber, in a part of the world now known as northern Myanmar. Its sticky death has preserved features, such as the needle-like egg-laying organ, called an ovipositor, at its rear, and the host-grasping claws on its legs, that are often characteristic of a parasitoid way of life.

Zhenia xiai belongs to the Eremochaetidae, a family which palaeoentomologists have long suspected were parasitoids, but whose previously known representatives were not well-enough preserved for them to be sure. Now, thanks to Dr Bo's discovery, they are.

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Rare metals

Unobtainiums

They are obscure, yet essential. Why rare metals make the world go round

The Elements of Power: Gadgets, Guns and the Struggle for a Sustainable Future in the Rare Metal Age. By David Abraham. *Yale University Press, 319 pages; $30 and £20*

LIKE this reviewer, many parents will have given their children electric toothbrushes for Christmas, hoping that the sensors that buzz after two minutes will keep them brushing longer than their flimsy elbow grease. Both generations may, however, be ignorant of the fact that in that time the toothbrushes produce more than 62,000 strokes; that the power to generate such motion comes from tiny magnets using three rare metals, neodymium, dysprosium and boron; and that some of these metals are so coveted that in 2010 they were at the centre of a dangerous rift between China and Japan.

In all, an electric toothbrush is made of 35 metals. The journey they take to children's gums may involve China, the Democratic Republic of Congo, Chile, Russia, South Korea, Indonesia, Turkey and other countries too. They are rare, says David Abraham in "The Elements of Power", a thought-provoking book that follows the trail of these elements, not because they are necessarily scarce or hard to extract. It is because they are used in tiny yet essential quantities—like yeast in a pizza.

In terms of amounts consumed, these metals pale compared with base metals such as aluminium and copper. But, as the book argues, they are no less transformative—and possibly just as valuable—as oil and coal. That is a bold claim, but the author backs it up convincingly. Using vivid detail, he injects life and purpose into the story of elements that are so light, strong, heat-resistant and elusive that an American general in the 1950s quipped that they should be called "unobtainium".

Indium, part of an iPhone's screen, is an "invisible link…between the phone and your finger". Just a pinch of niobium, a soft, granite-grey metal mined mostly in Brazil, greatly strengthens a tonne of steel used in bridges and pipelines. Lithium is so light that it has become essential for rechargeable car-batteries. Dysprosium, as well as making an electric toothbrush whirr, helps power wind turbines. Military technology depends on numerous rare metals. Tungsten, for instance, is crucial for armour-piercing bullets. America's forthcoming F-35 fighter planes are "flying periodic tables", Mr Abraham writes.

As with oil, those who can secure the resources have access to immense power. The problem, the book laments, is that China, Japan and South Korea are more keenly aware of the strategic importance of rare metals than Western countries, including the United States.

Yet it is not just the rare metals that the book explores. As Mr Abraham follows their extraction, he finds geologists, refiners, traders, smugglers and boffins whose stories add to the intrigue of this shadowy trade. Deals are done in backrooms by likeable mavericks. One, a New Yorker called Noah Lehrman, is described as "likely the only person in history to perform at the Jewish Grateful DeadFest and advise the US Congress on resource security".

"The Elements of Power" turns out to be a critic as well as an advocate of the rare-metals trade. One concern is what the author calls the "long tailpipe" of pollution left in the wake of mining and refining, notwithstanding the role of minor metals in creating greener products.

Supplies are also a worry. In 2010 a Chinese trawler rammed Japanese coastguard vessels in waters near islands called the Senkakus in Japanese and the Diaoyu in Chinese (their ownership is disputed by both countries). After the Chinese captain was detained, supplies of rare metals from the mainland to Japan suspiciously dried up. Though China never acknowledged an export ban, the incident caused rare-metal prices to spike, and unsettled manufacturers around the world. Though Japan quickly released the captain, repercussions of the affair pop up through the book.

Mr Abraham would have done well to use more such central narratives—the story, perhaps, of dysprosium, which has one of the most fascinating and fragile supply chains. Yet he persuasively explains the danger of underestimating a business that, by one estimate, generates $4 billion of revenues a year and also plays a critical role in systems worth about $4 trillion. China, which develops more rare metals than any other country, understands the calculus. The West, his book suggests, does not. ■

Mountaineering

Onwards and upwards

The Maverick Mountaineer: The Remarkable Life of George Ingle Finch: Climber, Scientist, Inventor. By Robert Wainwright. *Allen & Unwin; 409 pages; £17.99*

PEOPLE are not made to survive at the top of Mount Everest. At 29,000 feet (8,840 metres) above sea level—just below a commercial jet's cruising altitude—exposure to the elements can be lethal. Lucky climbers miss snowstorms, avalanches and crevasses. But one killer is inescapable: lack of oxygen. Atmospheric pressure at the summit is two-thirds less than at sea level. Breathing, sleeping and eating become nearly impossible; the body pumps more blood to the brain, often causing fatal swelling. Climbers call anything above 8,000 metres the "death zone". For every 100 people who conquer Everest, four never return to base camp; more than 200 bodies lie amid the ice and rock.

Those who survive owe much to George Ingle Finch, an Australian chemist who used portable oxygen tanks on the second of three British expeditions to Everest in the 1920s. It was a time when climbers dined on quail and herring, and wore pyjamas under tweed. Finch was different. He wore innovative, custom-made, windproof gear produced from gossamer and down. The oxygen cylinders he designed, although they weighed hefty 16kg for eight hours' supply, made the death zone a little less deadly. After the original breathing masks were found to be faulty, he saved his expedition by fashioning replacements from bladders of toy footballs halfway up the mountain. Finch was the best technical climber of his time, and he reached farther up Everest than anyone had done before—stopping only to carry a novice companion to safety.

Few Western climbers have contributed as much. But as Robert Wainwright shows in "The Maverick Mountaineer", Finch's achievements have been overshadowed by the legend of George Mallory, who died on the third campaign in 1924. Mallory's obsession with conquering Everest ("because it's there", he once explained) is the mountain's greatest story, more powerful even than the first ascent by Edmund Hillary and Tenzing Norgay in 1953. Mallory's status has remained as unblemished as his body, discovered only in 1999.

Finch's legacy was downplayed. Mountaineering in the early 20th century was dominated by gentlemen who had been to Oxford or Cambridge and had a hefty supply of family money. Finch, a colonial farm boy who trained in the Alps while studying in Zurich before taking up a teaching post at Imperial College, London, was an outsider. His willingness to challenge received wisdom irked members of the Alpine Club in Mayfair, who barred him from two expeditions to Nepal. They believed that using artificial oxygen supplies was cheating, and their comments reveal their prejudice against Finch. "I always knew the fellow was a shit," said one. "Anyone who climbs to 26,000 feet with oxygen is a rotter," sneered another.

Mr Wainwright's biography is detailed, at times too much so. Several chapters are devoted to Finch's unhappy early years: he married three times in six years, and always denied that Peter Finch, who grew up to become an Academy Award-winning actor, was his biological son. The best passages, though, are those that describe the battle of scientific progress against entrenched snobbery—a fight that may have cost Finch the chance to stand on top of the world, but ought to be remembered. ■

Love and marriage

It takes grit

Couple Mechanics. By Nelly Alard. Translated by Adriana Hunter. *Other Press; 307 pages; $16.99*

ALL marriages are suspense thrillers, in a way. From the outside, any relationship is a mystery. But even from within there is much that is unknown and unsaid; no one really knows how it will all end. Years in, when responsibilities replace the romance and the days all look alike, staying together can feel less a desire than a duty. This is the moment when many marriages fall apart.

There is "an element of will in love", writes Nelly Alard in "Couple Mechanics", the new English translation of her award-winning novel "Moment d'un Couple". Every relationship forces couples to "decide to love, to keep on loving, or to stop loving." Such negotiations are invariably tricky, as Ms Alard shows in this elegant and gripping tale about a marriage on the rocks.

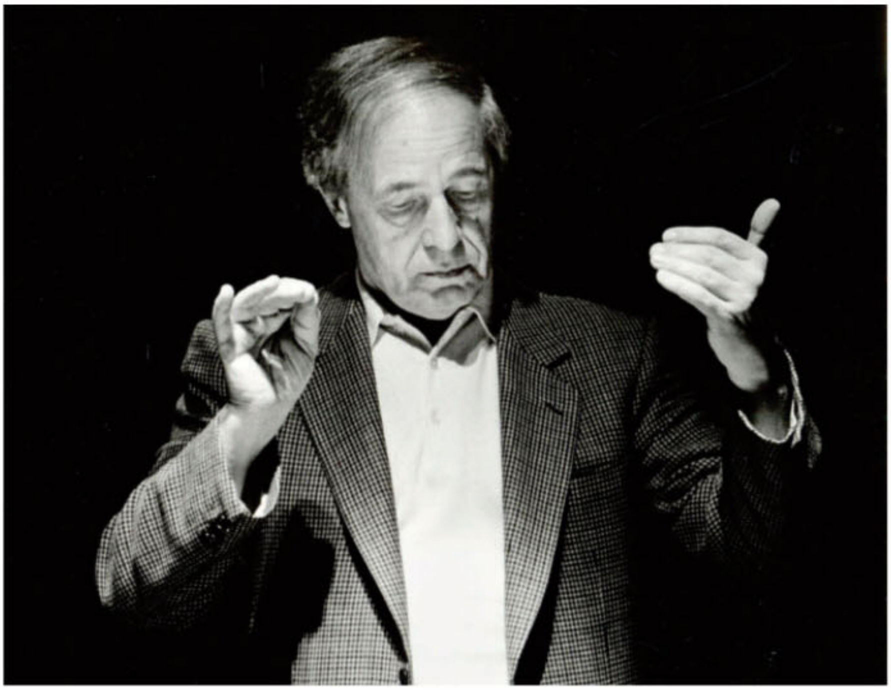
What more do you want?

The couple at the centre of this book live in Paris, but they could be any of the countless young-professional duos who are steadily gentrifying outer boroughs in increasingly unaffordable big cities around the world. Olivier is a journalist, Juliette a computer engineer, and they strive for a balance between home and work, juggling their careers and their two children. The novel begins at their moment of rupture: "Okay, so I'm seeing a girl," Olivier blurts out over the phone. He is hastily explaining to Juliette that he cannot make it to the cinema that night because the "girl", a socialist politician whom he has known for only a short time, is having a fit. No, he does not want to leave Juliette, he says later, but yes, he may be in love. He promises to extricate himself from his affair, but "it'll take a bit of time."

This book is really Juliette's story, told in the third person. With a bit of whiplash, she finds herself thrust into a banal "French farce", assuming a role she had never imagined for herself. Olivier says he intends to stick around, yet he is often distant and discouraging. Juliette tries to play it cool, but she finds herself turning into the kind of "pathetic creature consumed with jealousy" who searches her husband's phone for evidence of foul play. Suspense builds throughout this months-long saga, as it is never quite clear whose needs, and which union, will win the day.

Ms Alard tells this tale with admirable restraint. Olivier's mistress may be a bit too mad, but "Couple Mechanics" shies away from melodrama. Instead, it offers a keen look at the work of love at that point—tough for everyone—when passion must be replaced by will.

Correction: In our review of Molly Crabapple's book ("When anger turns to ink", January 9th) we refer to her drawing Libyan snipers. They were Lebanese. Sorry.



Obituary

L'enfant terrible

Pierre Boulez, composer and conductor, died on January 5th, aged 90

FEW figures were cooler or calmer than Pierre Boulez on the podium. He conducted without a baton, lifting the phrases and flicking them away with long, elegant fingers. The rest of his body did not move, impassive and commanding as a man lightly trimming a hedge; his face was a stone mask, only his darting eyes revealing how he was excavating the music, uncovering the layers and rebuilding them in structures of crystal clarity. Many said he was the finest conductor-composer since Richard Strauss. Every inch of him suggested that he was well aware of that.

Inside the statue, though, was gelignite. Music, to him, was in permanent revolution; but since there had been no proper upheaval since the Renaissance, he was leading one. For 50 years he was at war, or in a state of uneasy truce, with the musical establishment, fighting to make the deaf, incurious or plain uncultured appreciate the works of their own time.

The composers of the 20th century—Schoenberg, Webern, Nono, Ligeti, himself—were woefully neglected and unplayed. This he vowed to change, first by challenging the canon known as "popular". Opera houses, "full of dust and shit", should be burned down. Original scores should be destroyed and accepted "masterpieces" vandalised, in order to recreate them. He cursed the grim custodians of the standard repertoire, and mocked his teachers at the Paris Conservatoire: Olivier Messaien, who wrote "brothel music", and René Leibowitz, who dared to "correct", in red pen, his first piano sonata.

This was not a war he fought single-handed. He dragged into it, often kicking and screaming, great orchestras, audiences and even governments. Instrumental players were bullied out of their traditional routines, made to interleave their comfortable Haydn and Brahms with works based purely on the pitch of notes and their duration. In New York, where he conducted the Philharmonic from 1971 to 1977, horrified audiences found the Avery Fisher Hall stripped of seats for his "rug concerts", and programmes spiky with unfamiliar stuff. He could chalk up victories, as at Bayreuth, where his performance of Wagner's "Ring" in 1976 was booed on the first night and cheered for 85 minutes on the last. More often he left to sighs of relief.

Music as maze

In his pocket, primed like bombs, were his own compositions: in germination from his teenage years, when he had fallen under the spell of Stravinsky's percussive, discordant "Chant du Rossignol", and tested from 1946, when he was in charge of music for a decade for Jean-Louis Barrault and Madeleine Renard at their avant-garde theatre company. His works ranged from piano sonatas in which the whole keyboard was ravaged, plucked and battered to the delicate teaspoonfuls of notes dispensed in "Le Marteau sans Maître" (The Hammer without a Master, 1955), or the dreamy soprano wanderings of "Pli selon Pli" (Fold following Fold, 1958), his setting of poems by Mallarmé.

Ever seeking new sounds, he introduced Asian and African timbres, gourd and gamelan, and tried every newly invented electronic device in the hope that computers might play, in real time, with orchestras. When he had made peace with the French government (after telling André Malraux, the culture minister, in 1966 that he was going "on personal strike" against him), he was given his own music department in the Centre Pompidou, where he set up an orchestra, the Ensemble Intercontemporain, to play new works, and collaborated with scientists to try to expand the sounds of music into realms so far unthought of and unheard.

Paradoxes dogged him. He fought to set music free; but he also longed for order in it. He imagined the answer lay in Schoenberg's serialism, where melody, harmony and counterpoint vanished, notes were related only to one another, and music "left the world of Newton for the world of Einstein". But he soon found the dry 12-tone system a burden. The inspiration for "Le Marteau sans Maître" was his urge to weave colour, imagination and spontaneity into it—combining opposites to make music that was more like Debussy's, and which opened up another world.

Both composition and conducting—to him an essential pairing, each informing and enriching the other—were explorations. Music was a maze through which listeners should wander freely, stumbling on the unexpected and not knowing the end. His own works were revised constantly; some were deliberately left unfinished, for in writing and making music he was also, he believed, discovering himself.

Of the private Boulez, almost nothing was revealed; he was a solitary, isolated by choice and cloaking his charm, much of the time, in arrogance. His favourite mental associates were bad-boy poets, Rimbaud and Baudelaire, or abstract painters like Kandinsky, all smashers of boundaries and shockers of the status quo.

When he composed, he once explained, he dug down through layers of himself towards the "core of darkness" from which, in extraordinary flashes, his music came. Though the music might be wildly radical, this core—another paradox—would never change. Towards that unknown, like Orpheus, he made the most tumultuous and controversial journey of any modern classical musician. ■

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GENERAL PROCUREMENT NOTICE

The People's Republic of Bangladesh

Power System Expansion and Efficiency Improvement Project

Mode of Financing: Leasing

Financing No……..

The People's Republic of Bangladesh has applied for financing from the Islamic Development Bank (IsDB) toward the cost of the Power System Expansion and Efficiency Improvement Project, and it intends to apply part of the proceeds to payments for goods, works, related services and consulting services to be procured under this project. This project will be jointly financed by the Asian Development Bank (ADB).

The project will include the construction at the Site of the existing 146MW CCPP Power Plant after demolition and disposal of the said Plants. The Project will be constructed to retire old inefficient Plant (Unit#3, 150MW) with energy efficient power plant to meet the growing electricity demand of the country and to increase the stability and reliability of the power system.

Procurement of Goods and Works which are being jointly cofinanced with Asian Development Bank (ADB) shall be conducted in accordance with ADB's and IDB's Procurement Guidelines, using an expanded list of countries to allow procurement from all countries that are eligible under ADB Procurement Guidelines and IDB Procurement Guidelines. Goods, Works and Services being financed exclusively by ADB will be procured in accordance with ADB's Procurement Guidelines.

Specific procurement notices for contracts to be bid under the ADB and IsDB international competitive bidding (ICB) will be announced, as they become available, in the ADB and IsDB Website, international widely circulated media as well in local newspapers.

Interested Bidders may obtain further information, and should confirm their interest in writing by contacting:

Managing Director,
Ashuganj Power Station Company Ltd. (APSCL)
Tel: 00880 8528 74004 – 00880 8528 74690
Fax: 00880 8528 74044
E-mail: md@apscl.com, pd400east@apscl.com
Website: www.apscl.com

AM M Sazzadur Rahman
Managing Director (Addl. Charge)
Ashuganj Power Station Company Ltd.
Ashuganj, Brahmanbaria, Bangladesh1

Business Opportunities

Economic and financial indicators

Economic data

% change on year ago

	Gross domestic product			Industrial production	Consumer prices		Unemployment	Current-account balance		Budget balance	Interest rates, %	Currency units, per $	
	latest	qtr*	2015†	latest	latest	2015†	rate, %	latest 12 months, $bn	% of GDP 2015†	% of GDP 2015†	10-year gov't bonds, latest	Jan 13th	year ago
United States	+2.1 Q3	+2.0	+2.5	-1.2 Nov	+0.5 Nov	+0.2	5.0 Dec	-456.6 Q3	-2.5	-2.6	2.13	-	-
China	+6.9 Q3	+7.4	+6.9	+6.2 Nov	+1.6 Dec	+1.5	4.1 Q3§	+275.9 Q3	+3.0	-2.7	2.67§§	6.58	6.20
Japan	+1.6 Q3	+1.0	+0.6	+1.6 Nov	+0.3 Nov	+0.7	3.3 Nov	+131.5 Nov	+3.3	-6.8	0.22	118	119
Britain	+2.1 Q3	+1.8	+2.4	+1.0 Nov	+0.1 Nov	+0.1	5.2 Sep††	-134.2 Q3	-4.4	-4.4	1.83	0.69	0.66
Canada	+1.2 Q3	+2.3	+1.1	-4.0 Oct	+1.4 Nov	+1.2	7.1 Dec	-54.1 Q3	-3.3	-1.8	1.24	1.43	1.19
Euro area	+1.6 Q3	+1.2	+1.5	+1.1 Nov	+0.2 Dec	+0.1	10.5 Nov	+345.7 Oct	+3.0	-2.1	0.50	0.92	0.85
Austria	+1.0 Q3	+1.9	+0.8	+1.5 Oct	+0.6 Nov	+0.9	5.8 Nov	+10.7 Q3	+2.0	-2.1	0.85	0.92	0.85
Belgium	+1.3 Q3	+0.9	+1.3	+0.7 Oct	+1.5 Dec	+0.6	7.8 Nov	+1.1 Sep	+0.4	-2.6	0.94	0.92	0.85
France	+1.1 Q3	+1.0	+1.1	+2.8 Nov	+0.2 Dec	+0.1	10.1 Nov	+3.5 Nov‡	-0.3	-4.1	0.91	0.92	0.85
Germany	+1.7 Q3	+1.3	+1.5	nil Nov	+0.3 Dec	+0.2	6.3 Dec	+279.0 Nov	+8.1	+0.7	0.50	0.92	0.85
Greece	-0.9 Q3	-3.5	+0.5	+1.9 Nov	-0.2 Dec	-1.1	24.5 Oct	-1.6 Oct	+2.5	-4.1	8.66	0.92	0.85
Italy	+0.8 Q3	+0.8	+0.7	+2.9 Oct	+0.1 Dec	+0.1	11.3 Nov	+38.5 Oct	+1.9	-2.9	1.57	0.92	0.85
Netherlands	+1.9 Q3	+0.6	+2.0	+2.2 Nov	+0.7 Dec	+0.4	8.3 Nov	+74.8 Q3	+10.6	-1.8	0.73	0.92	0.85
Spain	+3.4 Q3	+3.2	+3.1	+5.8 Nov	nil Dec	-0.6	21.4 Nov	+19.7 Oct	+1.0	-4.4	1.83	0.92	0.85
Czech Republic	+4.1 Q3	+3.0	+3.4	+5.7 Nov	+0.1 Dec	+0.3	6.2 Dec§	+2.0 Q3	-0.1	-1.8	0.71	24.9	24.1
Denmark	+0.6 Q3	-1.8	+1.5	+0.2 Nov	+0.5 Dec	+0.5	4.5 Nov	+21.3 Nov	+7.1	-2.9	0.86	6.88	6.31
Norway	+3.0 Q3	+7.3	+0.7	-0.3 Nov	+2.3 Dec	+1.7	4.6 Oct‡‡	+37.3 Q3	+9.3	+5.9	1.46	8.80	7.74
Poland	+3.5 Q3	+3.6	+3.4	+7.8 Nov	-0.5 Dec	nil	9.6 Nov§	-1.6 Nov	-1.4	-1.5	2.86	4.00	3.63
Russia	-4.1 Q3	na	-3.8	-3.5 Nov	+12.9 Dec	+15.3	5.8 Nov§	+67.1 Q3	+5.2	-2.8	10.20	76.3	65.8
Sweden	+3.9 Q3	+3.4	+3.2	+6.2 Nov	+0.1 Nov	nil	6.2 Nov§	+31.8 Q3	+6.3	-1.2	0.85	8.52	8.05
Switzerland	+0.8 Q3	-0.1	+0.9	-2.8 Q3	-1.3 Dec	-1.0	3.4 Dec	+84.1 Q3	+8.6	+0.2	-0.14	1.01	1.02
Turkey	+4.0 Q3	na	+3.3	+3.6 Nov	+8.8 Dec	+7.6	10.3 Sep§	-34.7 Nov	-4.9	-1.6	11.08	3.02	2.28
Australia	+2.5 Q3	+3.8	+2.3	+1.9 Q3	+1.5 Q3	+1.6	5.8 Dec	-49.5 Q3	-4.3	-2.4	2.76	1.43	1.23
Hong Kong	+2.3 Q3	+3.5	+2.4	-1.9 Q3	+2.4 Nov	+3.1	3.3 Nov‡‡	+9.3 Q3	+2.8	nil	1.50	7.76	7.75
India	+7.4 Q3	+11.9	+7.2	-3.2 Nov	+5.6 Dec	+5.0	4.9 2013	-22.7 Q3	-1.1	-3.8	7.77	66.8	62.1
Indonesia	+4.7 Q3	na	+4.7	+6.5 Nov	+3.4 Dec	+6.2	6.2 Q3§	-18.4 Q3	-2.0	-2.0	8.59	13,828	12,598
Malaysia	+4.7 Q3	na	+5.4	+1.9 Nov	+2.6 Nov	+2.5	3.1 Oct§	+7.8 Q3	+2.5	-4.0	4.21	4.38	3.59
Pakistan	+5.5 2015**	na	+5.7	+5.2 Oct	+3.2 Dec	+3.9	5.9 2015	-1.3 Q3	-0.7	-5.1	9.93†††	105	101
Philippines	+6.0 Q3	+4.5	+6.4	+7.5 Nov	+1.5 Dec	+2.4	5.6 Q4§	+9.6 Sep	+4.1	-1.9	4.29	47.5	44.8
Singapore	+2.0 Q4	+5.7	+2.9	-5.5 Nov	-0.8 Nov	+0.2	2.0 Q3	+68.6 Q3	+21.2	-0.7	2.53	1.43	1.33
South Korea	+2.7 Q3	+5.3	+2.6	-0.3 Nov	+1.3 Dec	+0.7	3.2 Dec§	+104.9 Nov	+8.0	+0.3	2.02	1,204	1,083
Taiwan	-0.6 Q3	-1.2	+3.2	-4.9 Nov	+0.1 Dec	+0.1	3.8 Nov	+77.2 Q3	+12.8	-1.0	1.00	33.4	31.8
Thailand	+2.9 Q3	+4.0	+3.4	+0.1 Nov	-0.9 Dec	+0.8	0.9 Nov§	+32.1 Q3	+2.4	-2.0	2.53	36.3	32.9
Argentina	+2.3 Q2	+2.0	+1.3	-2.5 Oct	— ***	—	5.9 Q3§	-8.3 Q2	-1.8	-3.6	na	13.6	8.59
Brazil	-4.5 Q3	-6.7	-3.4	-12.4 Nov	+10.7 Dec	+9.6	7.5 Nov§	-68.0 Nov	-3.7	-6.0	16.09	3.99	2.64
Chile	+2.2 Q3	+1.8	+2.8	+0.5 Nov	+4.4 Dec	+3.9	6.1 Nov§‡‡	-2.7 Q3	-1.2	-2.2	4.60	727	620
Colombia	+3.2 Q3	+5.1	+3.3	+1.3 Oct	+6.8 Dec	+4.2	7.3 Nov§	-20.8 Q3	-6.7	-2.1	8.49	3,242	2,440
Mexico	+2.6 Q3	+3.0	+2.5	+0.1 Nov	+2.1 Dec	+2.7	4.1 Nov	-29.9 Q3	-2.6	-3.4	6.16	17.9	14.6
Venezuela	-2.3 Q3~	+10.0	-4.5	na	na	+84.1	6.1 Nov§	+7.4 Q3~	-1.8	-16.5	10.98	6.31	6.29
Egypt	+4.5 Q2	na	+4.2	-3.0 Oct	+11.1 Dec	+10.0	12.8 Q3§	-14.7 Q3	-1.4	-11.0	na	7.83	7.15
Israel	+2.3 Q3	+2.0	+3.3	-5.3 Oct	-0.9 Nov	-0.2	5.4 Nov	+12.5 Q3	+4.9	-2.8	1.99	3.94	3.94
Saudi Arabia	+3.4 2015	na	+2.7	na	+2.3 Nov	+2.7	5.7 2014	-32.6 Q3	-2.7	-12.7	na	3.76	3.75
South Africa	+1.0 Q3	+0.7	+1.4	-1.8 Nov	+4.8 Nov	+4.7	25.5 Q3§	-14.0 Q3	-4.1	-3.8	9.58	16.4	11.5

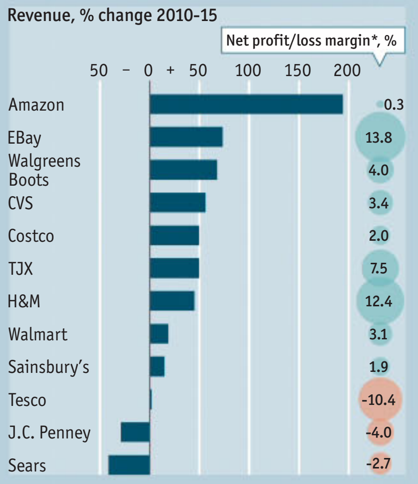
Source: Haver Analytics. *% change on previous quarter, annual rate. †*The Economist* poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. ~2014 **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. ***Official number not yet proven to be reliable; The State Street PriceStats Inflation Index, October 25.52%; year ago 41.05% †††Dollar-denominated

Markets

	Index Jan 13th	one week	% change on Dec 31st 2014 in local currency	in $ terms
United States (DJIA)	16,151.4	-4.5	-9.4	-9.4
China (SSEA)	3,087.2	-12.3	-8.9	-14.1
Japan (Nikkei 225)	17,715.6	-2.6	+1.5	+2.9
Britain (FTSE 100)	5,961.0	-1.9	-9.2	-15.9
Canada (S&P TSX)	12,170.4	-4.4	-16.8	-32.4
Euro area (FTSE Euro 100)	1,031.4	-2.0	-0.5	-10.8
Euro area (EURO STOXX 50)	3,073.0	-2.1	-2.3	-12.4
Austria (ATX)	2,204.1	-6.7	+2.0	-8.5
Belgium (Bel 20)	3,528.1	-2.4	+7.4	-3.7
France (CAC 40)	4,391.9	-2.0	+2.8	-7.8
Germany (DAX)*	9,961.0	-2.5	+1.6	-8.9
Greece (Athex Comp)	589.4	-4.6	-28.7	-36.0
Italy (FTSE/MIB)	20,139.9	-1.4	+5.9	-5.0
Netherlands (AEX)	418.1	-2.5	-1.5	-11.7
Spain (Madrid SE)	904.0	-2.8	-13.3	-22.2
Czech Republic (PX)	914.7	-2.3	-3.4	-11.1
Denmark (OMXCB)	863.9	-3.5	+27.9	+14.5
Hungary (BUX)	24,330.3	+1.4	+46.3	+31.3
Norway (OSEAX)	591.8	-4.7	-4.5	-18.7
Poland (WIG)	44,708.0	-1.1	-13.0	-22.9
Russia (RTS, $ terms)	693.7	-5.9	+11.5	-12.3
Sweden (OMXS30)	1,361.0	-1.9	-7.1	-14.6
Switzerland (SMI)	8,414.8	-2.3	-6.3	-7.8
Turkey (BIST)	72,508.7	+1.8	-15.4	-34.4
Australia (All Ord.)	5,041.6	-2.6	-6.4	-20.3
Hong Kong (Hang Seng)	19,934.9	-5.0	-15.5	-15.6
India (BSE)	24,854.1	-2.2	-9.6	-14.6
Indonesia (JSX)	4,537.2	-1.6	-13.2	-22.3
Malaysia (KLSE)	1,642.5	-1.5	-6.7	-25.5
Pakistan (KSE)	32,154.2	-2.5	+0.1	-4.1
Singapore (STI)	2,696.5	-3.8	-19.9	-25.9
South Korea (KOSPI)	1,916.3	-0.5	nil	-8.7
Taiwan (TWI)	7,824.6	-2.1	-15.9	-20.5
Thailand (SET)	1,278.6	+1.5	-14.6	-22.5
Argentina (MERV)	10,305.9	-9.8	+20.1	-24.9
Brazil (BVSP)	38,849.3	-7.0	-22.3	-48.2
Chile (IGPA)	17,492.9	-2.1	-7.3	-22.7
Colombia (IGBC)	8,049.4	-3.6	-30.8	-49.3
Mexico (IPC)	41,008.8	-1.6	-5.0	-21.5
Venezuela (IBC)	14,602.1	+0.1	+278	na
Egypt (Case 30)	6,205.2	-10.4	-30.5	-36.5
Israel (TA-100)	1,286.4	-1.9	-0.2	-1.3
Saudi Arabia (Tadawul)	6,038.0	-7.4	-27.5	-27.6
South Africa (JSE AS)	48,412.8	-1.4	-2.7	-31.5

Retail

Just like the brands they stock, retailers go in and out of fashion. Sainsbury's, Britain's second-largest supermarket chain, recently bid for Home Retail, a multi-chain retailer, in order to pep up its business. Amazon's revenues have risen by almost 200% in the past five years, highlighting the growing consumer preference for digital shopping over the high street. Costco, a bulk-discount retailer, may not be hip but its revenue-generating membership fee at least protects the bottom line. Sears, one of America's biggest department stores, is in danger of being permanently off-trend, the victim of weak mall traffic, online businesses and a turnaround plan that has yet to deliver results.



Source: Bloomberg *Latest available 12 months

Other markets

	Index Jan 13th	one week	% change on Dec 31st 2014 in local currency	in $ terms
United States (S&P 500)	1,890.3	-5.0	-8.2	-8.2
United States (NAScomp)	4,526.1	-6.4	-4.4	-4.4
China (SSEB, $ terms)	355.4	-13.1	+29.6	+22.2
Japan (Topix)	1,442.1	-3.1	+2.5	+3.8
Europe (FTSEurofirst 300)	1,354.8	-2.7	-1.0	-11.2
World, dev'd (MSCI)	1,544.3	-4.1	-9.7	-9.7
Emerging markets (MSCI)	729.6	-4.0	-23.7	-23.7
World, all (MSCI)	370.5	-4.1	-11.2	-11.2
World bonds (Citigroup)	878.0	+0.6	-2.7	-2.7
EMBI+ (JPMorgan)	698.4	-1.1	+1.0	+1.0
Hedge funds (HFRX)	1,154.4§	-0.9	-5.3	-5.3
Volatility, US (VIX)	25.2	+20.6	+19.2	(levels)
CDSs, Eur (iTRAXX)†	86.5	+8.5	+37.5	+23.2
CDSs, N Am (CDX)†	104.3	+15.0	+57.8	+57.8
Carbon trading (EU ETS) €	7.3	-3.8	-2.0	-12.1

Sources: Markit; Thomson Reuters. *Total return index.
†Credit-default-swap spreads, basis points. §Jan 12th.

Indicators for more countries and additional series, go to: **Economist.com/indicators**

The Economist commodity-price index

2005=100

	Jan 5th	Jan 12th*	% change on one month	one year
Dollar Index				
All Items	124.6	122.3	-3.0	-17.6
Food	145.5	144.4	-2.7	-14.7
Industrials				
All	103.0	99.2	-3.5	-21.6
Nfa†	108.0	106.2	-2.4	-11.7
Metals	100.8	96.2	-4.0	-25.5
Sterling Index				
All items	154.7	154.8	+1.5	-13.0
Euro Index				
All items	144.5	140.4	-2.2	-10.3
Gold				
$ per oz	1,077.8	1,089.9	+2.7	-11.8
West Texas Intermediate				
$ per barrel	35.9	30.6	-17.9	-33.9

Sources: Bloomberg; CME Group; Cotlook; Darmenn & Curl; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Urner Barry; WSJ. *Provisional
†Non-food agriculturals.

Starman Jones

David Bowie, musician, actor and icon, died on January 10th, aged 69

IN JULY 1969 men walked on the moon, a technological leap all but unthinkable 50 years before. Three years later they abandoned it, and have renounced all return ever since. What boosters saw as the great opening act of the space age turned out to be, in effect, its culmination. Within a few years presidential corruption, economic stagnation, military ignominy and imagined catastrophe had warped post-war America's previously impervious belief in progress, a belief that had resonance across the then free world. After Apollo, the future would never again be what it used to be.

David Bowie's greatest years began nine days before *Apollo 11* touched down in the Sea of Tranquillity, with the release of his single "Space Oddity"; they ended 11 years later, with the single "Ashes to Ashes". Over that decade he used imagined futures to turn himself into something contradictory and wonderful—an epitome of alienation with whom the alienated flocked to identify. In doing so, he laid bare one of the key cultural shifts of the 1970s: the giving up of past dreams.

Mr Bowie's future-fixation was most obvious in his appropriation of the themes of pulp science fiction, of space travel and aliens from other planets, of "Ziggy Stardust" and "Life on Mars". Other impresarios—most notably L. Ron Hubbard, the founder of the Church of Scientology—had ransacked the genre for mythologies of personal growth. But none did so with Mr Bowie's sense of dress and theatre, his sexual thrill, his salesmanship and his understanding of what his fans wanted to hear. His alien allegories made the possibility of change—the heart of the future's appeal, especially for adolescents—a matter not of remaking society or piling up technological progress but of revealing, or remaking, yourself. The difference between the future and the past lay not in it, but in you.

The proof was in the playing. Mr Bowie grew up as David Jones, a sharp-toothed kid from dull suburban Bromley whose parents held no aspirations for him. Through a talent born of yearning he had transformed himself into Ziggy Stardust: extravagant, flawed and sexually polymorphous, tottering on platform shoes and hiding behind a mask of paint. "Nijinsky meets Woolworths" Mr Bowie called him: a character who ran through 73 different outfits in 21 months. If he could so transform himself, what could make-up and attitude do for you—especially if you had outcast Ziggy, your leper messiah, to sexily show you the way?

He thinks he'll blow our minds

Mr Bowie had taken a while to attract attention. Stuck in 1960s London, he picked up a saxophone and considered jazz, then flitted between bands; he moved from mod to Buddhist, from rocker to folk artist, hanging around London's Soho with its sex shops and music clubs, exploring sexual ambiguity. Despite the success of "Space Oddity" his early albums drew little attention. It was only with the fifth, "The Rise and Fall of Ziggy Stardust and the Spiders from Mars", (1972) that millions of teenagers in semi-detached houses just like the one back in Bromley took him to their hearts and turntables.

Through these years and after Mr Bowie's focus on the future was clear in his relentless reinvention of himself and his music: always wanting to see what was next, ceaselessly leaving the places he had lived and the music he had played for what was to come. "I can think of no other rock artist" wrote Charles Shaar Murray, a rock journalist, "whose *next* album is always the one I'm most looking forward to hearing."

Some called him a chameleon, but he was the reverse. Chameleons change hue to blend in with their background; he changed to stand out, and dared others to mimic him. He was never afraid to murder his darlings. Ziggy was killed off in 1973 as he finished an exhausting worldwide tour at London's Hammersmith Odeon; he was being too much imitated, and Mr Bowie always had to to be one step ahead. One successor was Aladdin Sane, a zigzag of painted lightning across his face; another, the most troubled, was the Thin White Duke, an aristocratic cabaret singer in black trousers, waistcoat and white shirt, needing only a skull to play Hamlet.

The tragic garb was well judged. As he dashed from persona to persona, station to station, so the worlds he pushed into became darker. Shaped by the threat of nuclear war, the cultural imagination took a catastrophic turn in the 1970s—one ever-present future was no future at all. Mr Bowie was there at the turning point; his song "Five Years" says more about impending annihilation than a shelf full of reports from the RAND Corporation. Spectacular ▸▸

levels of cocaine abuse also shaped this nihilistic trajectory. Settled in Los Angeles from 1975, he stayed up for days on end, sitting cross-legged behind black curtains, surrounding himself with black candles and painted pentagrams.

His diet was "red peppers, cocaine and milk"; always slender, he became skeletal. He would work madly on a song for a week, only to realise that he had got no further than four bars. Nicolas Roeg had originally been set on Peter O'Toole to play the titular alien in his film "The Man Who Fell To Earth". But on seeing television footage of Mr Bowie sitting utterly isolated in the back of a limousine he knew he had his not-quite-man. Mr Bowie, true to form, remembered almost nothing of the filming. There is no alienation like drugged alienation, and perhaps no worse place to experience that than "the most repulsive wart on the backside of humanity", as he described the City of Angels.

In "Space Oddity" Major Tom, floating in a most peculiar way, had been an isolated spaceman; by "Ashes to Ashes" his isolation was a junkie's. Mr Bowie later said that this funereal nursery rhyme (only his second British number-one single) served to wrap up the 1970s. In the 1980s he reconnected, refashioning himself into a much more straightforward, and less interesting, pop star and something of a Thatcherite poster-boy; embracing consumerism was another side of his celebration of the individual over all else. He found huge audiences in America with "Let's Dance" (1983); he sang a camp cover of Martha Reeves & the Vandellas' "Dancing in the Street" with Mick Jagger for Bob Geldof's Band Aid. His skills were still there, yet his sense of daring had faded. For the first time since Ziggy, he no longer drove the cultural agenda; like many an ageing rocker, he found himself seen as part of the establishment he had spent his life wrong-footing.

His better work in the 1990s, 2000s and 2010s, like the late work of many artists, seemed more a response to his own earlier achievement than a reflection of the world outside—but the stature of that earlier work, and the fact that it had done much to shape that world outside, still made the last albums far more interesting than those of most of his peers. Most poignant was his 27th and last, "Blackstar", released on January 8th. The video for the track "Lazarus" shows him singing "I'll be free—ain't that just like me?" before walking backwards, trembling, into a wardrobe, and pulling the door closed. He had choreographed his own death—a step ahead, as usual, and a profound shock for a world that had been unaware of his cancer. Within days "Lazarus" had been watched 17m times, and "Blackstar" topped the charts. His producer, Tony Visconti, confirmed that it was Mr Bowie's "parting gift".

Just for one day

"Blackstar" in fact harked back to his greatest period: the one, in the late 1970s, in which he escaped from Los Angeles to Berlin and laid the future to rest in a grave of strange, powerful sound. He chose Berlin to save money and live in a place where he would be unknown. Despite his fascination with Nietzsche, it was the city's cultural ferment, not a dalliance with fascism, that induced him to stay. He and Iggy Pop, a drug-addled rocker who was part-muse, part-playmate, part-protégé, shared a flat in Schöneberg.

In earlier days Mr Bowie had planned his albums meticulously; now he and his collaborators, including Mr Visconti and the remarkable Brian Eno, worked on the fly in the studio, the lyrics assembled with scissors-and-paste montage—or left out altogether. Much of the music was bleak, its synthesisers industrial, its guitars angry, its words disturbing. Take "Breaking Glass": "Baby, I've been breaking glass in your room again. Listen. Don't look at the carpet. I drew something awful on it"—presumed to be a reference to the pentagrams of Los Angeles.

But in this darkness there was grace. Freedom and honesty characterise the Berlin recordings, the veneer of masquerade abandoned. He had a sense, he said, "of closing the blinds and saying, 'Fuck them all'." And in a city as freighted with history as any in Europe, he felt he had at last captured "a sense of yearning for a future that we all knew would never come to pass".

It is no accident that his greatest song of this period, "'Heroes'", both celebrates its protagonists' potential and constrains it: while everything might be possible, it is all "just for one day". It is an embrace of the present that acknowledges the passing away of future dreams, but in its intimate immensity absorbs the sadness of that loss. It is, like much great art, universal precisely because of its response to a particular place—and time. ■

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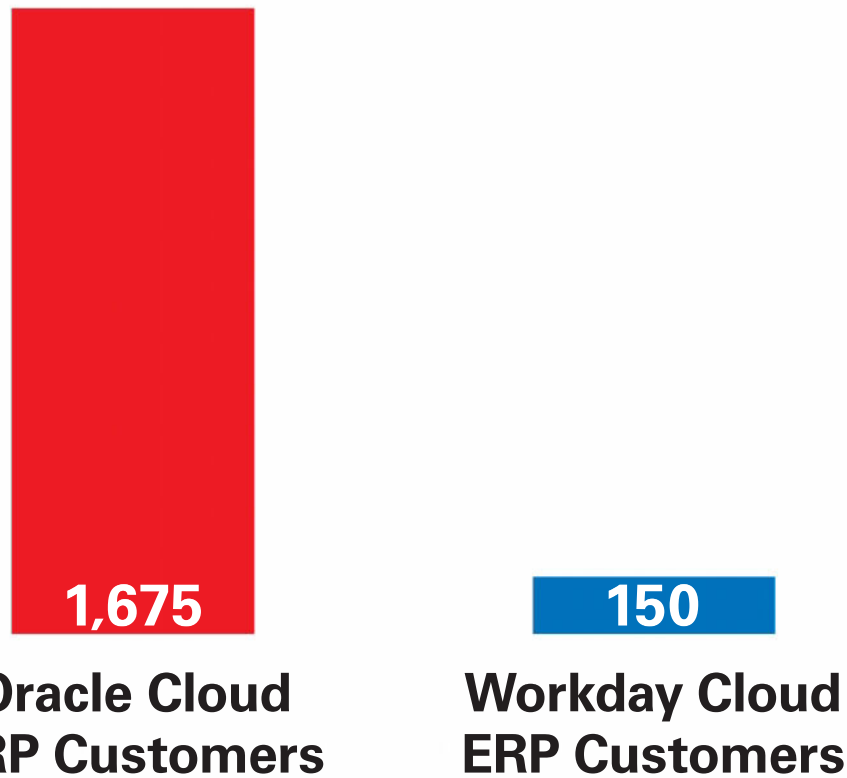

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